

**THE PREVALENCE OF SUBSTANCE USE AMONG PSYCHIATRIC  
PATIENTS AT BUGANDO MEDICAL CENTRE, MWANZA TANZANIA**

**A DISSERTATION PRESENTED IN PARTIAL FULFILLMENT OF THE  
AWARD OF THE DEGREE OF MASTER OF MEDICINE IN  
PSYCHIATRY OF THE UNIVERSITY OF NAIROBI**

**BY**

**DR KIYETI AGNES HAULI  
MD (HKMU-DSM)**

**DEPARTMENT OF PSYCHIATRY**

**NAIROBI, KENYA**

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## DECLARATION

I Dr Kiyeti Agnes Hauli do hereby declare that this dissertation is my own original work, carried out in partial fulfillment of the requirement of the award of the Degree of Masters of Medicine in Psychiatry (M.Med. Psych) of the University of Nairobi. In addition, that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references. This work has not been submitted for any other degree at any other institution before.

Author

Hauli

25/9/2010

Dr Kiyeti Agnes Hauli


Signature

Date

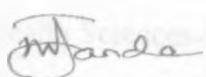
# SUPERVISORS

This dissertation has been submitted for examination with our approval as supervisors.


## 1. Professor David M. Ndetei

Signature  Date 20<sup>th</sup> Sept. 2010  
MB.ChB. (Nrb), DPM (Lond), MRC Psych (UK), F.R.C Psych (UK), MD (Nrb)  
**Professor of Psychiatry University of Nairobi**

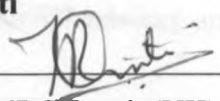
## 2. Prof. Mary B. Jande

Signature  Date 20<sup>th</sup> September, 2010  
B. Pharm (UDSM), MSc. Pharm (Manch.), Ph.D Pharm (Dublin)  
**Associate Professor**  
Weill Bugando University College of Health Sciences  
Mwanza – Tanzania.

## 3. Dr. Rodrick Kabangila

Signature  Date 20<sup>th</sup> September, 2010  
MB.ChB. (Makerere), M.Med Int. Medicine (WBUCHS)  
**Lecturer, Department of Internal Medicine**  
Weill Bugando University College of Health Sciences  
Mwanza – Tanzania.

## 4. Dr Fredrick Owiti

Signature  Date 20<sup>th</sup> Sept 2010  
MB.ChB. (Nrb), MRC Psych (UK)  
**Lecturer, Department of Psychiatry**  
University of Nairobi

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# DEDICATION

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## ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
AUDIT	Alcohol Use Disorder Identification Test
ASSIST	Alcohol, Smoking and Substance Involvement Screening Test.
BMC	Bugando Medical Centre
DSM-IV	Diagnostic and Statistical Manual (4th Edition)
HIV	Human Immunodeficiency Virus
ICD 10	International Classification of Diseases (10th Edition)
KNH	Kenyatta National Hospital
LSD	Lysergic Acid Diethylamide
MDMA	Methylene-dioxy-methamphetamine
SADAC	Southern African Democratic Alliance Countries
SANS	Scale for the Assessment of Negative Symptoms
SAPS	Scale for the Assessment of Positive Symptoms
SPSS	Statistical Package for Social Sciences
UK	United Kingdom
UNODC	United Nations Office on Drugs and Crime
USA	United States of America
WHO	World Health Organization

## DEFINITION OF TERMS

For the purpose of this study, the following key terms are used as defined below -

- **Drugs/ Substances**

Drug (French: Drogue- a dry herb) It is the single active chemical entity present in a medicine that is used for diagnosis, prevention, treatment/cure of a disease. WHO (1966) has given a more comprehensive definition- “Drug is any substance or product that is used or is intended to be used to modify or explore physiological systems or pathological states for the benefit of the recipient.” The term ‘drug’ is being also used to mean addictive substances. (42)

These drugs could be taken in various forms such as in liquid form- Alcohol, could be smoked- cannabis, or pill form and swallowed- amphetamines; in powder form, sniffed- cocaine or injectable Lysergic Acid Diethylamide (LSD), and in gas form and inhaled such as glue. (43)

- **Substance/ Drug Abuse**

Refers to use of a drug by self-medication in a manner and amount that deviates from the approved medical and social patterns in a given culture at a given time. The term conveys social disapproval of the manner and purpose of drug use. For regulatory agencies, drug abuse refers to any use of an illicit drug. (42)

In this study, substance use refers to the self-medication and self-administration of chemical substances by psychiatric patients at BMC, obtained through illegal and legal means and which modified their behavior.

- **Substance/ Drug Dependence**

Dependence is a state in which use of drugs for personal satisfaction is accorded a higher priority than other basic needs, often in the face of known risks to health, and the need to use the substance to attain normal function in day to day activities.

The psychological dependence- is said to have developed when an individual believes that optimal state of wellbeing is achieved only through the actions of the drug. It may start as

liking for the drug effects and may progress to compulsive drug use in some individuals. The intensity of psychological dependence may vary from desire to craving.

The physical dependence- is an altered physiological state produced by repeated administration of a drug, which necessitates the continued presence of the drug to maintain physiological equilibrium. Discontinuation of the drug results in a characteristic withdrawal syndrome.

- **Tolerance-** refers to a decrease in response to a drug dose that occurs with continued use. Increased doses of alcohol or other drugs are required to achieve the effects originally produced by lower doses. (42)

The substances that are commonly used classified into the following categories: -

a) Psychostimulants: -

- i) Cocaine
- ii) Khat (miraa/Mirungi)
- iii) Nicotine (tobacco)
- iv) Caffeine
- v) Amphetamine e.g. amphetamine, dexamphetamine and phenfluramine

b) Psychodepressants: -

- i) Alcohol
- ii) Opiates e.g. heroin, morphine, pethidine and opium.
- iii) Sedative-hypnotics e.g. benzodiazepines and barbiturates.
- iv) Inhalants e.g. volatile anaesthetics like ether, chloroform and halothane.
- v) Organic solvents e.g. acetone, gasoline, aerosol propellants, glue.

c) Hallucinogens: -

- i) Lysergic Acid Diethylamide (LSD)
- ii) Scopolamine Phencyclidine ('Angel dust')
- iii) Mesacaline
- iv) Psilocybin

## ABSTRACT

**Background:** The problem of substance use is increasing in developing countries and African countries are seen as a new profitable market for the drug trade.

Numerous studies have been done in other countries including neighbouring Kenya to the North of Tanzania, showing a high rate of substance use among psychiatric patients. No published work, however, has been done in Tanzania specifically to investigate prevalence of substance abuse among psychiatric patients.

**Objectives:** The objective of this study was to determine the prevalence of substance use, associated socio demographic variables and the types of substances used among psychiatric patients at BMC, Mwanza-Tanzania.

**Method:** Researcher designed socio demographic questionnaire and WHO ASSIST were used. A study was a descriptive cross sectional with an analytical component. Only those who gave informed consent/assent and met inclusion criteria were included in the study. The data was double entered, cleaned, and both descriptive and inferential analysis done using the statistical package for social sciences (SPSS) version 16.

**Results:** A total of 184 psychiatric patients were interviewed. There were more males 70.7% than females 29.3% who also reported to have higher rate of substance use, with the age range of 15-80 years with a mean age of 34.8 years, and of whom 96.2% were within official working age (18-60 years). The most frequently used substances were Alcohol 59.3%, tobacco 38.6% and Cannabis 29.3%, while heroin and cocaine were the least used (2.1% and 1.6% respectively). Significant associations were found between level of education, formal employment, marital status, gender, family history of mental illness and substance use.

**Conclusion and recommendation:** There is high prevalence of substance use (68.5%) among psychiatric patients, hence the need to manage the conditions concurrently for mutually better outcome. It is highly recommended that BMC should put in place a policy on appropriate standard clinical practices to identify substance use in all psychiatric patients.

# INTRODUCTION

## 1.1 INTRODUCTION

People with psychological problems are generally believed to be at highest risk for negative reactions to psychoactive drugs, perhaps because the lack of control is especially frightening to them. (1) In addition, evidence suggests that people who have severe mental illness use drugs for the same reasons as people who are not mentally ill, namely for recreational purposes (to relax, for a 'high' etc). Although there may be many other factors contributing to continued use, including addiction to the drug itself, individuals' attempts to manage psychiatric symptoms, and social risk factors such as living in areas with high drug availability (2). Menezes et al (3) in UK found that the patients with substance problems had spent twice as many days in hospital compared with patients that did not have substance use problems. Hence, this brings a significant clinical problem with cost implications and prolonged hospitalization to mentally ill patients with substance use.

## 1.2 BACKGROUND

The magnitude of the drug problem in Tanzania has not yet been well estimated by a comprehensive scientific study. It is clear that there is a significant number of Tanzanian who use drugs, and are being used as couriers in the International drug traffic. (4)

The drug use situation in Tanzania has continued to deteriorate with herbal cannabis use increasing throughout the country; and intravenous heroin use becoming common. Cocaine is available but its high cost restricts its use to the affluent sections of the community. Khat is in use, particularly by the Somali, Coastal communities and long distance vehicle Drivers. (5)

Cannabis (bhang) deserves a special mention; this drug is grown in some places in Tanzania, such as Mbeya and Iringa, where it is consumed as a vegetable or relish during meals. In Mara, Shinyanga and Tabora regions one of the Bugando Medical Centre catchment's area, bhang is grown and used as a stimulant to enable a person work longer hours in the farm, traditional healers also use an extract from the plant for the treatment of earache.(6)

Mwanza city whereby Bugando Medical Centre is situated on Lake Victoria and close to the Tanzanian borders with Burundi, Rwanda, Uganda and Democratic Republic of Congo

formerly Zaire, where by drug trafficking is present. There is evidence that many youths from Mwanza, including those who are mentally ill are also involved in trafficking drugs and there appears to be a close link between drug use and trade in drugs. The main substances used are relatively cheap and readily available. They include bhang (hashish/marijuana), gongo (illegally brewed local spirit), petrol, tobacco and to a lesser extent heroin. (7)

Studies have reported that the etiology of substance use among persons with severe mental illness remains unclear. Laudet et al (8) in USA investigated the reasons for substance use among persons in recovery from co-occurring disorders of serious mental illness, and substance abuse and dependence. They found out that most patients had desire to fit in with peers, which played a key role in the initiation of substance use; boredom, loneliness, temptations to use and stress were cited most as relapse triggers.

WHO reported on the association of Substance use with other psychopathological difficulties. The latter either predisposes or facilitates the occurrence of substance use. (9)

Secondary prevention is needed to reduce substance misuse and improve medical care for substance-related illnesses among psychiatric patients with co-occurring substance use disorders.

### **1.3 STATEMENT OF THE PROBLEM**

The Southern African Democratic Alliance Countries (SADAC) region is faced with a problem of becoming a user region of drugs such as heroin, cocaine, cannabis, alcohol and tobacco. Not only substance use but also drug trafficking from one country to another is becoming a public health problem. (10)

Tanzania as one of the SADAC region has extremely weak drugs controls at all seaports and Airports in particular, Dar es Salaam and Zanzibar. The flow of heroin in sizeable quantities has also been discovered. One consequence of the movement of drugs through the country is that more drugs are becoming available for the local market. (11) The country has specific programmes for mental health for refugees, disaster affected population and indigenous population, but there are no specialized services for substance dependence or children. (12) Moreover, the magnitude of the problem in particular psychiatric patients is not well known, and yet most of the substance users/dependants end up in psychiatric hospitals without proper dual diagnosis and management. Hence, the necessity of this study to fill in the gap.

### **1.4 JUSTIFICATION OF THE STUDY**

The Researcher has not come across any published studies done on prevalence of substance use among psychiatric patients in hospitals in Tanzania.

Most of the studies have been done on: Substance abuse among secondary school students by Kaaya et al (13); alcohol & drug abuse in Tanzanian schools by Musoke et al (14); prevalence of and factors associated with alcohol consumption in Temeke by Chande et al (15); substance misuse in Tanzania by Kilonzo et al (16) and a report by Parry and Pluddenmann (17) on number of heroin addicts received for emergency psychiatric services at Muhimbili Medical Centre, Dar es Salaam. Hence, there is limited information regarding the prevalence of substance use among psychiatric patients.

It is therefore important to determine the magnitude of the problem among psychiatric patients at BMC, and to be able to make suggestions, which could be applied to prevent and control the problem in Mwanza and assist in formulating policy for practice in this hospital with the possibility of a roll out to similar set ups in Tanzania as a whole.

## **1.5 AIM OF THE STUDY**

### **1.5.1 GENERAL OBJECTIVE**

This study aimed to establish the magnitude of substance use among psychiatric patients at BMC, Mwanza-Tanzania.

### **1.5.2 SPECIFIC OBJECTIVES**

1. To determine the prevalence of substance use among psychiatric patients at BMC
2. To establish the association between socio-demographic variables and substance use.
3. To determine the types of substances used.
4. To make recommendations to the BMC administration for appropriate management interventions of the problem.

## **1.6 RESEARCH QUESTIONS**

This study wished to explore the problem by answering the following research questions:

- What is the magnitude of the substance use problem among psychiatric patients at BMC, Mwanza?
- What is the pattern of substance use among psychiatric patients at BMC, Mwanza?



# LITERATURE REVIEW

Most of the studies done worldwide show a high prevalence of substance use among psychiatric patients with the leading substance being cannabis. The youth and male gender were variables most frequently associated with prolonged hospitalization.

## 2.1 INTERNATIONAL SUBSTANCE USE SITUATION

Galletly and Watson (18) in Australia looked on the substance misuse in patients with acute mental illness by using semi-structured interviews, clinical history and collateral information gathering. They suggested that drug and alcohol misuse could precipitate, exacerbate and prolong psychiatric disorders, which are often accompanied by a range of social problems. The study concentrated on acute mental illness alone without looking for the patients with chronic mental illness which is more likely to be worsened by substance use.

Isaac et al (19) in UK did a study to look for the clinical impact of cannabis abuse in a Psychiatric Intensive Care Unit (PICU) in 115 patients with major psychosis and personality disorders, 71.3% of the patients in the PICU population abused cannabis. The patients who abused cannabis spent longer in PICU because their psychoses were more severe. Moreover, they were younger at first hospital admission. Hence, cannabis use was a major predictor of length of admission on PICU among patients suffering from psychosis. This study was on the effects of cannabis use on patients with major psychosis and personality disorders. There is need therefore, to establish the effects of other substances and their effects on other psychiatric conditions.

Results from the comparative study by Barnett et al (20) in Cameo service centre Cambridge, in UK showed that substance use among people with first episode psychosis was twice that of the general population and was more common in men than women. Current and lifetime substance use was recorded for 123 consecutive referrals. Cannabis abuse was reported in 51% of patients and alcohol abuse 43% and 38% reported polysubstance abuse. Age at first use of cannabis, cocaine, ecstasy and amphetamine was significantly associated with age at first psychotic symptom. Whilst, Mueser et al (16) in UK did a cohort study on prevalence and demographic and clinical correlates of lifetime substance use disorders. 325 recently hospitalized psychiatric patients with schizophrenia or schizoaffective disorder had optimal

classification tree analysis predicted 74% to 86% of the alcohol, cannabis and cocaine use disorder. In addition, Univariate analyses indicated that gender (male), age (younger), education (less), history of time in jail, conduct disorder symptoms, and antisocial personality disorder symptoms were predictive of substance use disorders. The above studies show significant associations between substance use, gender and to a lesser extent the age and psychiatric symptoms.

A clinical experimental research on dual-diagnosis patients examined 1-year outcomes for individuals entering chemical dependency (CD) treatment with and without co occurring psychiatric diagnoses, done by Chi et al (22) in San Francisco, California. The dual-diagnosis patients had higher levels of medical, family, and employment problems than others and were positively associated with the number and patterning of services. Therefore, receiving psychiatric services concurrently with CD treatment may be beneficial for dual-diagnosis patients.

According to Cassidy F et al (23) in UK, the rate of lifetime substance abuse was higher for both alcohol 48.5% and drugs 43.9%. Nearly 60% of the cohort had a history of some lifetime substance abuse. Males had higher rates of substance abuse than females, but no differences in substance abuse were observed between subjects in manic and mixed bipolar states. Rates of active substance abuse were lower in older age cohorts. Subjects with a comorbid diagnosis of lifetime substance abuse had more psychiatric hospitalization. Whilst, Volkow (24) in USA reported on patients with Schizophrenia to have higher rate of lifetime history of substance use disorders (SUD) compared with general population. The substance used rated were as follows; for the patients with schizophrenia Nicotine use was 28.5% and general population 12.8%, Cannabis 50.8% and 0.5%, Alcohol 43.1%-65% and 5.1%, Cocaine 23% and 0.09% respectively. These studies reported on a few psychiatric conditions but not in psychiatric patients in general.

Ghaffari Nejad and Pouya (26) in Iran reported a high rate of opium 35% and nicotine 28.75% dependence among psychiatric patients. It is not surprising for the nicotine because of its legal use to most of the countries. A study by Sinclair et al (32) in UK agrees with other studies by showing high rate of 74.8% of comorbidity substance misuse in patients admitted

for psychiatric inpatient care, with 50.6% men and 29.2% women were screened positive for alcohol misuse, Cannabis use was 35.2% men and 11.2% women.

Chao-Cheng et al (27) looked the prevalence and type of substance abuse and dependence on a general hospital psychiatric unit Taipei, Taiwan. This study found that 18.4% out of 49 patients with mood disorder met the diagnostic criteria for psychoactive substance use disorders by DSM-III-R. Sedatives-hypnotics-anxiolytics was the most common substance use disorder (10.2%), followed by alcohol (6.1%). The prevalence of sedatives-hypnotics-anxiolytics use disorder among major depression patients was 35.7%, which was higher than that among bipolar disorder patients (0%). Male patients had a significantly higher percentage of substance use disorders than did female patients.

Rabinowitz et al (28) analyzed data from Israel National Psychiatric Case Registry on reported substance abuse among all 53,379 psychiatric discharges during 1989-1992. It was found that substance abuse comorbidity was 13.2% for males and 3.6% for females. Reported drug abuse for males increased with age until age 45, and alcohol abuse until age 65, whilst drug and alcohol abuse by females was highest for the patients under age 24 and declines with an increase in age.

A cohort study reported by Craig et al (29) examined mortality among 169,051 male Vietnam-era veterans aged 40 to 59 treated for psychiatric disorders by the US department of Veterans Affairs (VA) between April and September 1998. The risk-adjusted probability of dying was 55% higher among psychiatric patients with co-occurring substance use disorders than among those without substance use disorders. Overdoses and substance abuse-linked illnesses accounted for 27.6% of deaths among psychiatric patients with co-occurring substance use disorders, compared with only 8.8% of deaths among other psychiatric patients. Therefore, substance use disorders strongly contributed to premature death among male psychiatric patients.

## 2.2 SITUATION IN AFRICA

Three-week periods study in Ghana by Redvers et al (30) followed up patients attending the psychiatric outpatient clinic. They found that 8.6% out of 350 psychiatric outpatients had hazardous alcohol consumption; with the risk of being, a problem drinker was 4.2 times greater in men than women.

A study conducted by Acuda and Sebit (31) at Harare Central hospital Psychiatric Unit in Zimbabwe examined a total of 194 admitted patients, aged from 16 to 55 years with a mean age of 33.5 and (SD) 11.4 years. The psychiatric diagnoses were made according to the ICD 10 diagnostic criteria while the substance abuse was evaluated by the modified WHO AUDIT core questionnaire. The point prevalence rates of psychoactive substance abuse among the psychiatric inpatients were alcohol 28.4%, tobacco 27.6% and cannabis 14.3%. Therefore, these data have provided scientific evidence on the moderate prevalence and pattern of substance abuse among psychiatric patients in Zimbabwe.

A case study of patients at Mathari psychiatric hospital, Nairobi on substance abuse and psychiatric co-morbidities was done by Ndeti et al (32). The study found high co-morbidity rates of substance abuse in both general psychiatric wards and drug rehabilitation unit. 691 patients admitted at Mathari hospital, only 42 patients had a first working diagnosis of substance abuse but nearly 35% of the patients scored for a DSM IV diagnosis of alcohol dependence/abuse. There was a high co-morbidity of alcohol abuse/dependence with opiate, sedative and Khat use, as well as with mood and other psychiatric disorders. Substance abuse correlated significantly with other psychiatric disorders. Only 12 patients were in a drug rehabilitation unit, with a dual psychiatric diagnosis of affective disorder. That was a population survey.

Othieno et al (33) study on relationship between substance abuse, Nicotine use and positive and negative symptoms in schizophrenic patients in Mathari Hospital, Nairobi, found higher rates of substance abuse in males than in females. The most commonly abused substances were tobacco, alcohol and cannabis, with the lifetime prevalence rates for tobacco use and dependence were 37.1% and 28.6% respectively. In addition, there was no correlation found

between SAPS and SANS scores and substance abuse. However, this study focused mainly on patients with schizophrenia that do not represent the all group of psychiatric patients.

A study done by Bunyassi (34) found a high prevalence of substance abuse (74.8%) among forensic psychiatric inpatients at Maximum Security Unit, Mathari hospital, Nairobi. The psychiatric diagnoses were made according to the DSM IV diagnostic criteria while the substance abuse was evaluated by WHO ASSIST questionnaire. The most commonly abused substance being tobacco. This coupled with low screening rates as an important impact on the quality of treatment provided, including missing opportunities for substance abuse intervention. The study involved forensic psychiatric patients.

### **2.3 SITUATION IN TANZANIA**

Parry and Pluddenmann (17) reported that 30 of heroin addicts were received for emergency psychiatric services in Muhimbili Medical Centre in Dar es Salaam every year. The sample was small, specialized, preliminary, and focused primarily on HIV risk and HIV/AIDS subjects' lifestyle, and many of the methods and sampling techniques were not well described.

### **2.4 SUMMARY**

There is no study that has been done in Tanzania on Substance use in psychiatric patients, and therefore no evidence to inform on policy. There is therefore a need for such a study.

## **METHODOLOGY**

This chapter outlines the research design and methodology. The focus of the study was on the substance use among psychiatric patients at BMC, Mwanza.

### **3.1 STUDY DESIGN**

The study was a descriptive cross-sectional with an analytical component.

### **3.2 STUDY SITE**

The study was conducted at the BMC psychiatric ward and clinic.

To understand the research problem more clearly, it is necessary to give some background of the site at which the study was conducted.

Bugando Medical Centre is a consultant and teaching hospital for the Lake and Western zones of Tanzania, situated along the shores of Lake Victoria in Mwanza City.

Bugando Medical Centre (BMC), formerly Bugando Consultant and referral Hospital, was built by the Catholic Church from 1968-71 and was officially opened by the late Mwalimu Julius Kambarage Nyerere in December 1971. In 1972, the Tanzania government nationalized the hospital and administered it from 1972-1985 when it was handed back to the Tanzania Episcopal Conference of the Catholic Bishops of Tanzania up to date.

The hospital is in partnership with the Catholic Church, the Tanzania Government through the Ministry of Health, the Touch Foundation and other partnering well-wishers. It has 900 beds and approximately 900 employees. It is a referral centre for tertiary specialist care for six regions, including Mwanza, Mara, Shinyanga, Kagera, Tabora and Kigoma. It serves catchments population of approximately 13 million people.

It comprises several departments, one of which is the Psychiatry department, located at the ground floor of side C of BMC West. It operates 24 hours for inpatients, with two days for clinics per week i.e. Tuesdays and Thursdays. It has a capacity of 50 patients, admitting both males and females; however, the number of inpatients ranges from 40-45 at a time, with total number of outpatients per day 30-35 patients.

### 3.3 STUDY POPULATION

The study focused on the patients admitted in Psychiatric ward and those attending the psychiatric clinics at BMC who fulfilled the inclusion criteria.

### 3.4 INCLUSION CRITERIA

1. Psychiatric patients at BMC
2. Those of age 13 years and above (as target population)
3. Those who gave informed consent/assent for the minors (<18years)

### 3.5 EXCLUSION CRITERIA

1. Those patients with obvious clinical features of Organic Brain Disease
2. Those were psychotic (with no insight).

### 3.6 SAMPLE SIZE

The sample size was calculated by using the formula for descriptive studies: (Naing et al (35))

$$N = \frac{Z^2pq}{d^2}$$

Where N is the sample size

Z is the standard normal deviation usually set at 1.96, which corresponds to 95% confidence interval.

p is the hypothesized prevalence level 35% from other prevalence study on substance use and psychiatric comorbidities according to Ndeti et al (32) in Kenya.

q is 1-p

d is the degree of precision set at 0.07 (7%)

Therefore substituting the values as follows:

$$N = \frac{(1.96)^2 \times 0.35(1-0.35)}{(0.07)^2}$$
$$=178$$

Hence, the estimated sample size is 178 psychiatric patients but the investigator was able to get 184 participants.

### **3.7 LIMITATION**

Higher degree of precision (7%) was used to estimate sample size, the reason was due to small population under study and short duration of time available for the study (6 weeks). Thus, the results may not be as precise as when 5% was used. (Moderately significant)

### **3.8 SAMPLING METHOD**

The study focused on the total population of psychiatric patients at the Bugando hospital within the six weeks available to the researcher for the purpose of data collection. All the patients attending the twice a week outpatient psychiatric clinic and all the patients admitted in the psychiatric inpatient wards (one male ward and female ward) were approached for inclusion sequentially until the predetermined sample size (184) achieved, provided they met the inclusion criteria. Both the socio demographic and the ASSIST were personally administered by the researcher and took 10 to 15 minutes per participant and were interviewed only once.

### **3.9 STUDY INSTRUMENTS**

The following instruments were used in the study after the researcher was trained (ASSIST) on by the lead supervisor.

#### **1. Researcher designed socio-demographic data questionnaire**

The researcher designed questionnaire captured identification data and relevant demographic variables like age, Sex, Religion, Marital status, Occupation, level of education, previous admissions in psychiatric ward as well as family history of mental illness and substance use.

#### **2. ASSIST- Alcohol, Smoking and Substance Involvement Screening Test**

The ASSIST was developed in 1997 by the WHO and specialist addiction researchers in response to the overwhelming public health burden associated with psychoactive substance use worldwide (36).

It has undergone testing to ensure that it is feasible, reliable, flexible, comprehensive and cross-culturally relevant.

The ASSIST was developed principally for use in primary health care settings where harmful substance use among patients may go undetected and become worse. A risk score is provided for each substance and scores are grouped into low, moderate or high risk. The risk score



determines the level of intervention which can be treatment as usual, brief intervention or referral to specialist treatment.

The ASSIST provides information about:

- The substances people have ever used in their lifetime.
- The substances they have used in the past 3 months.
- Problems related to substance use.
- Risk of current or future harm.
- Dependence.
- Injecting drug use.

The ASSIST has been found to be a valid screening test for psychoactive substance use individuals who use a number of substances and have varying degrees of substance use by Newcombe et al (37).

### **3.10 ETHICAL CONSIDERATIONS**

Approval to carry out the research was obtained from the Department of Psychiatry of the University of Nairobi and clearance obtained from Weill Bugando Research and Publication Ethical Committee, Mwanza Tanzania and Kenyatta National Hospital Ethical committee Kenya. I sought written informed consent and assent from the study participants and their parent/guardian (those who met inclusion criteria) after full and detailed explanation of the study.

I made clear to the participants and their parent/guardian that participation in the study was voluntary; and they can withdraw their consent/assent at any stage of the interview without loss of benefits, because medical advice and treatment was offered to all patients whether or not they were included in the study.

There was no invasive procedure to the study participants like drawing of blood; however, some of the participant experienced emotional pain through asking emotionally painful questions and this was addressed appropriately. Initial advice was offered to participants with substance use problem.

The information obtained will benefit other patients, hospital and even the country from standardized diagnoses, which is a reflection of a normal clinical interview.

### **3.11 CONFIDENTIALITY**

Study participants were assured of confidentiality and anonymity. Their names were only appeared on the consent form, which was signed, and kept separately by the researcher for identifying and follow up those with a substance use problem. Other study documents/instruments were identified by a serial number and hospital registration number. Access to the data was limited to the researcher.

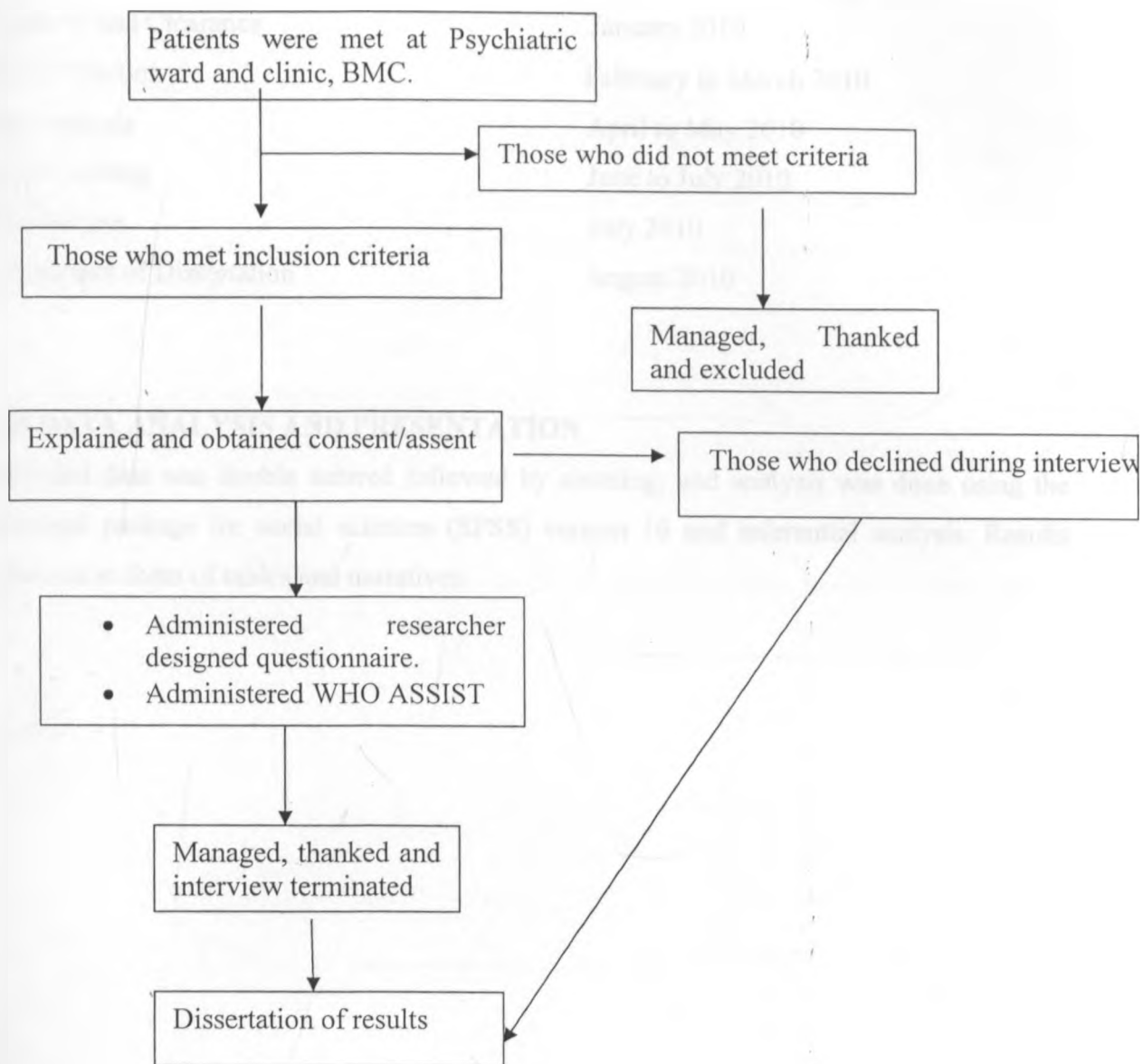
### **3.12 STUDY IMPLEMENTATION**

The researcher set five days in a week (Monday to Friday) to interview the participants over a period of 6 weeks; the interview took 10 to 15 minutes per participant. A total of 187 psychiatric patients were approached for consent/assent for the minor and the parent/guardian consent on behalf; 3 of whom declined consent and 184 consented and participated in the full interview.

Permission to conduct the study was obtained from the hospital administrator and was granted, assessment of participants for inclusion criteria was done. Those who did not meet the inclusion criteria were managed, thanked, and excluded from the study. For those who were found eligible and willing to participate in the study, were explained in details about the study, and an informed consent form was signed thereafter which included the name of the participant, parent/guardian and serial number (used in instrument), and kept separately from study instruments. Study instruments were administered and serial and hospital numbers were assigned instead of names.

At the end of the interview, the participant was managed, thanked and the interview terminated.

### 3.13 FLOW CHART ILLUSTRATING METHODOLOGY



### **3.14 TIME SCHEDULE**

Proposal Development	September to December 2009
Approval and Clearance	January 2010
Data Collection	February to March 2010
Data analysis	April to May 2010
Report writing	June to July 2010
Presentation	July 2010
Submission of Dissertation	August 2010

### **3.15 DATA ANALYSIS AND PRESENTATION**

Collected data was double entered followed by cleaning, and analysis was done using the statistical package for social sciences (SPSS) version 16 and inferential analysis. Results presented in form of tables and narratives.

# RESULTS

## 4.0 Introduction

This chapter presents the basic finding of the study. This study was done in February and March 2010 at Bugando Medical Centre in a Psychiatric unit. A total of 184 psychiatric patients who met inclusion criteria were interviewed by the researcher using the researcher designed socio-demographic profile and WHO ASSIST (Alcohol, Smoking and Substance Involvement Screening Test).

## 4.1 Socio-demographic multivariable (Table 1)

Table below shows the different socio-demographic variables their frequencies and percentages.

**Table 1: Socio-demographic variables and relationships with family history of mental illness and substance use**

Variable	Categories	Frequencies (n)	Percentages (%)
Age group (in years)	15-17	4	2.2
	18-25	36	19.6
	26-35	67	36.4
	36-45	48	26.1
	46-60	26	14.1
	60+	3	1.6
	<b>Total</b>	<b>184</b>	<b>100.0</b>
Gender	Male	130	70.7
	Female	54	29.3
	<b>Total</b>	<b>184</b>	<b>100.0</b>
Religion	Catholic	72	39.1
	Protestant	49	26.6
	Pentecostal	24	13.0
	Muslim	32	17.4
	Other	7	3.8
	<b>Total</b>	<b>184</b>	<b>100.0</b>
Marital status	Single	92	50.0
	Married	64	34.8
	Separated	9	4.9
	Divorced	13	7.1
	Widow/ed	6	3.3
	<b>Total</b>	<b>184</b>	<b>100.0</b>
Education level	No formal education	20	10.9
	Primary	112	60.9
	Secondary	37	20.1
	Tertiary	15	8.2
	<b>Total</b>	<b>184</b>	<b>100.0</b>
Occupation	Student	15	8.2
	Formal employment	19	10.3
	Informal employment (casual worker)	37	20.1

	Business person	18	9.8
	Unemployed	33	17.9
	Peasant/farmer	62	33.7
	<b>Total</b>	<b>184</b>	<b>100.0</b>
Family history of substance use	yes	135	73.4
	No	49	26.6
	<b>Total</b>	<b>184</b>	<b>100.0</b>
Family history of mental illness	Yes	59	32.1
	No	125	67.9
	<b>Total</b>	<b>184</b>	<b>100.0</b>
History of previous admission	Yes	107	58.2
	No	77	41.8
	<b>Total</b>	<b>184</b>	<b>100.0</b>
If Yes, number of previous admission	1	53	28.8
	2	28	15.2
	More than 2	26	14.1
	<b>Total</b>	<b>107</b>	<b>58.2</b>
Length of hospital stay	Days (less than a week)	17	9.2
	Weeks (less than a month)	63	34.2
	Months (More than a month)	21	11.4
	<b>Total</b>	<b>101</b>	<b>54.9</b>
Nature of previous admission	Voluntary	14	7.6
	Involuntary	80	43.5
	<b>Total</b>	<b>94</b>	<b>51.1</b>
Have you ever used substance?	Yes	126	68.5
	No	58	31.5
	<b>Total</b>	<b>184</b>	<b>100.0</b>

The range in age was 15-80 years, Mean 34.8 years, Median 33.5 years, Mode 33 years and kurtosis 0.356. More of the participants were in working age (18-60 years). There were more males 70.7% than females 29.3% with the female to male ratio of 1:2.4. 78.8% were Christians, 50.0% had never married, 34.8% were married, 12.0% were either divorced or separated and 3.3% were widowed.

10.9% had had no formal education, 60.9% had had primary (1-7 years) of formal education, and 20.1% had had secondary (8-13 years) of formal education and 8.2% more than high school education (Tertiary). 8.2% were students, 10.3% had formal (secure) employment, 20.1% were doing casual work (no formal employment), 9.8% were doing business, 17.9% unemployed, and 33.7% were peasants/farmers.

73.4% had had family history of substance use, 32.1% had family history of mental illness. 58.2% had had history of previous admissions.

**Table 2: What caused you to start using substances?**

Variable	Frequency	Percent
Not using substance	58	31.5
Curiosity	13	7.1
Escape problems (home, workplace, school)	4	2.2
No cause	7	3.8
Peer pressure	61	33.2
Peer pressure, curiosity	16	8.7
Peer pressure, curiosity, escape problems (home, workplace, school)	1	.5
Peer pressure, escape problems (home, workplace, school)	1	.5
Peer pressure, Curiosity	3	1.6
Poor relationship i.e. physical/psychological abuse, escape problems (home, workplace, school)	1	.5
Poverty	1	.5
Self medication	4	2.2
Self medication, escape problems (home, workplace, school)	4	2.2
Self medication, peer pressure	3	1.6
Self medication, peer pressure, curiosity	3	1.6
Self medication, peer pressure, escape problems (home, workplace, school)	1	.5
Self medication, poor relationship i.e. physical/psychological abuse	1	.5
Self medication, poor relationship i.e. physical/psychological abuse, escape problems (home, workplace, school)	2	1.1
<b>Total</b>	<b>184</b>	<b>100.0</b>

33.2% of those who used substances attributed it exclusively to peer pressure, 8.7% to both peer pressure and curiosity, and 7.1% exclusively to curiosity, and self-medication and escape problem (home, school and work place) accounted for 2.2% for each of them respectively. Poor relationship accounted for 2.1%.

#### 4.2: Substance ever used using ASSIST score risk

The table below shows the frequencies of individual substance ever used by participants.

**Table 3: Individual substance ever used using ASSIST scores**

Variable name	Never	Low	Moderate	High	Total
*Tobacco	114 (61.9%)	19 (10.3%)	47 (25.5%)	4 (2.2%)	184 (100.0%)
** Alcohol	75 (40.7%)	68 (37.0%)	34 (18.5%)	7 (3.8%)	184 (100.0%)
* Cannabis	130 (70.6%)	12 (6.5%)	33 (17.9%)	9 (4.9%)	184 (100.0%)
*Cocaine	181 (98.4%)	1(0.54%)	1 (0.54%)	1 (0.54%)	184 (100.0%)
*Amphetamines (khat-mirungi)	172 (93.5%)	4 (2.2%)	7 (3.8%)	1 (0.5%)	184 (100.0%)
*Inhalant (petrol)	176 (95.7%)	5 (2.7%)	3 (1.6%)	0 (0.0%)	184 (100.0%)
*Sedative ('valium')	173 (94.0%)	1 (5.4%)	1 (0.5%)	0 (0.0%)	184 (100.0%)
*Hallucinogens	184 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	184 (100.0%)
*Opioid (heroin)	180 (97.9%)	3 (1.6%)	1 (0.5%)	0 (0.0%)	184 (100.0%)
*Others (specify)	184 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	184 (100.0%)
*Injectable	184 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	184 (100.0%)

**Note: The ASSIST Substance Involvement scores:**

\*Low 0 -3; \*Moderate 4-26; \*High +27

\*\*Alcohol Low 0- 10; Moderate 11- 26; High +27

As shown in Table 3 above, 68.5% reported to ever used substance and 31.5% never used substances. Alcohol was the most frequently used substance by 59.3%. Tobacco accounted for 38.6% and cannabis 29.3%. Other substances cocaine 1.6%, Khat (mirungi) 6.5%, inhalants (petrol) 4.3%, 'valium' 6.0% and heroin 2.1% were the least frequently used with no participant reported to use hallucinogens, injectable or other types of substance use not mentioned in ASSIST.

#### 4.3: Social demographic Vs WHO ASSIST Score risk

The specific substance involvement scores are compared to see their association with socio-demographic variables.



**Table 4a: Gender Vs the diagnosis of substance used based on ASSIST- Tobacco, Alcohol and Cannabis**

Variable Name	Tobacco involvement scores					X2	df	p value
Gender	Do not use	Low	Moderate	High	Total			
Male	66	13	47	4	130	26.415	3	0.000*
	50.8%	10.0%	36.2%	3.1%	100.0%			
Female	49	2	3	0	54			
	90.7%	3.7%	5.6%	.0%	100.0%			
Total	115	15	50	4	184			
	62.5%	8.2%	27.2%	2.2%	100.0%			
	Alcohol involvement scores							
Male	44	40	28	18	130	14.924	3	0.002*
	33.8%	30.8%	21.5%	13.8%	100.0%			
Female	31	17	6	0	54			
	57.4%	31.5%	11.1%	.0%	100.0%			
Total	75	57	34	18	184			
	40.8%	31.0%	18.5%	9.8%	100.0%			
	Cannabis involvement scores							
Male	76	10	36	8	130	31.748	3	0.000*
	58.5%	7.7%	27.7%	6.2%	100.0%			
Female	54	0	0	0	54			
	100.0%	.0%	.0%	.0%	100.0%			
Total	130	10	36	8	184			
	70.7%	5.4%	19.6%	4.3%	100.0%			

\* Statistically significant

As shown in Table 4a above tobacco, alcohol and cannabis uses were predominantly associated with the male gender (49.2%, 66.2% and 41.5% respectively). This could be a reflection that most African cultures accept males to use substances more than they allow females.

**Table 4b: Male Vs Age in years Vs the diagnosis of substance use based on ASSIST- Cannabis**

Variable name	The diagnosis of substance use based on ASSIST-Cannabis				Total
	Do not use	Low	Moderate	High	
15-17	0	0	2	0	2
	.0%	.0%	100.0%	.0%	100.0%
18-25	5	2	9	5	21
	23.8%	9.5%	42.9%	23.8%	100.0%
26-35	17	4	15	2	38
	44.7%	10.5%	39.5%	5.3%	100.0%
36-45	13	3	6	2	24
	54.2%	12.5%	25.0%	8.3%	100.0%
46-60	12	3	1	0	16
	75.0%	18.8%	6.3%	.0%	100.0%
Total	47	12	33	9	101
	46.5%	11.9%	32.7%	8.9%	100.0%

\* Statistically significant

$$X^2 = 22.654; df = 12; p = 0.031^*$$

Table 4b above illustrates the age distribution of male gender used cannabis and was predominantly associated with young adulthood and in particular 18-25 years that accounted for 76.2% (16). The two-participant aged 15-17 years were 100% used cannabis. This could be a reflection of those who are in this vulnerable age group that there is increased influence and pressure from their peers, and the curiosity to experiment.

**Table 5: Age in years Vs the diagnosis of substance used based on ASSIST- Tobacco, Alcohol and Cannabis**

		Tobacco involvement scores										
Age in years	Do not use	Low	Moderate	High	Total	X <sup>2</sup>	df	P value				
15-17	4	0	0	0	4	7.250	15	0.950				
	100.0%	.0%	.0%	.0%	100.0%							
18-25	21	4	10	1	36							
	58.3%	11.1%	27.8%	2.8%	100.0%							
26-35	40	4	22	1	67							
	59.7%	6.0%	32.8%	1.5%	100.0%							
36-45	31	5	10	2	48							
	64.6%	10.4%	20.8%	4.2%	100.0%							
46-60	17	2	7	0	26							
	65.4%	7.7%	26.9%	.0%	100.0%							
60+	2	0	1	0	3							
	66.7%	.0%	33.3%	.0%	100.0%							
Total	115	15	50	4	184							
	62.5%	8.2%	27.2%	2.2%	100.0%							
		Alcohol involvement scores										
15-17	3	0	0	1	4				14.459	15	0.491	
	75.0%	.0%	.0%	25.0%	100.0%							
18-25	17	10	5	4	36							
	47.2%	27.8%	13.9%	11.1%	100.0%							
26-3	28	20	11	8	67							
	41.8%	29.9%	16.4%	11.9%	100.0%							
36-45	19	14	13	2	48							
	39.6%	29.2%	27.1%	4.2%	100.0%							
46-60	6	12	5	3	26							
	23.1%	46.2%	19.2%	11.5%	100.0%							
60+	2	1	0	0	3							
	66.7%	33.3%	.0%	.0%	100.0%							
Total	75	57	34	18	184							
	40.8%	31.0%	18.5%	9.8%	100.0%							
		Cannabis involvement scores										
15-17	2	0	2	0	4	21.111	15	0.133				
	50.0%	.0%	50.0%	.0%	100.0%							
18-25	20	2	9	5	36							
	55.6%	5.6%	25.0%	13.9%	100.0%							
26-35	46	3	17	1	67							
	68.7%	4.5%	25.4%	1.5%	100.0%							
	37	3	6	2	48							

36-45	77.1%	6.3%	12.5%	4.2%	100.0%		
46-60	22	2	2	0	26		
	84.6%	7.7%	7.7%	.0%	100.0%		
60+	3	0	0	0	3		
	100.0%	.0%	.0%	.0%	100.0%		
<b>Total</b>	130	10	36	8	184		
	70.7%	5.4%	19.6%	4.3%	100.0%		

According to Table 5 above, which shows substance involvement of both gender contrary to Table 4b above accounted for male gender with cannabis use only. The result showed that there were no significant variations between tobacco, alcohol and cannabis uses with age ( $p>0.05$ ).

**Table 6: Religion Vs the diagnosis of substance used based on ASSIST- Tobacco, Alcohol and Cannabis**

Religion variable	Tobacco involvement scores					X <sup>2</sup>	df	p value
	Do not use	Low	Moderate	High	Total			
Catholic	40	6	24	2	72	13.126	12	0.360
	55.6%	8.3%	33.3%	2.8%	100.0%			
Protestant	34	4	10	1	49			
	69.4%	8.2%	20.4%	2.0%	100.0%			
Pentecostal	19	3	2	0	24			
	79.2%	12.5%	8.3%	.0%	100.0%			
Muslim	16	2	13	1	32			
	50.0%	6.3%	40.6%	3.1%	100.0%			
Other	6	0	1	0	7			
	85.7%	.0%	14.3%	.0%	100.0%			
Total	115	15	50	4	184			
	62.5%	8.2%	27.2%	2.2%	100.0%			
Alcohol involvement scores						16.314	12	0.177
Catholic	28	19	20	5	72			
	38.9%	26.4%	27.8%	6.9%	100.0%			
Protestant	23	13	7	6	49			
	46.9%	26.5%	14.3%	12.2%	100.0%			
Pentecostal	8	12	1	3	24			
	33.3%	50.0%	4.2%	12.5%	100.0%			
Muslim	11	11	6	4	32			
	34.4%	34.4%	18.8%	12.5%	100.0%			
Other	5	2	0	0	7			
	71.4%	28.6%	.0%	.0%	100.0%			
Total	75	57	34	18	184			
	40.8%	31.0%	18.5%	9.8%	100.0%			

	Cannabis involvement scores							
Catholic	47	5	17	3	72	23.522	12	0.024*
	65.3%	6.9%	23.6%	4.2%	100.0%			
Protestant	35	0	10	4	49			
	71.4%	.0%	20.4%	8.2%	100.0%			
Pentecostal	17	5	2	0	24			
	70.8%	20.8%	8.3%	.0%	100.0%			
Muslim	24	0	7	1	32			
	75.0%	.0%	21.9%	3.1%	100.0%			
Other	7	0	0	0	7			
	100.0%	.0%	.0%	.0%	100.0%			
Total	130	10	36	8	184			
	70.7%	5.4%	19.6%	4.3%	100.0%			

\* Statistically significant

According to Table 6 above, tobacco and alcohol use did not show significant variations with religion ( $p > 0.05$ ). This could be explained with the fact that tobacco and alcohol are legally permitted. The marginally significant association between religion and cannabis use ( $p = 0.024$ ) is attributable to higher use among the Catholics 34.7% (25).

**Table 7: Level of Education Vs the diagnosis of substance used based on ASSIST- Tobacco, Alcohol and Cannabis**

Highest level of education	Tobacco involvement scores					X <sup>2</sup>	df	p value			
	Do not use	Low	Moderate	High	Total						
No formal education	12	0	7	1		20.044	9	0.018*			
	60.0%	.0%	35.0%	5.0%	100.0%						
Primary	78	8	26	0	112						
	69.6%	7.1%	23.2%	.0%	100.0%						
Secondary	15	6	13	3	37						
	40.5%	16.2%	35.1%	8.1%	100.0%						
Tertiary	10	1	4	0	15						
	66.7%	6.7%	26.7%	.0%	100.0%						
Total	115	15	50	4	184						
	62.5%	8.2%	27.2%	2.2%	100.0%						
Alcohol involvement scores									13.637	9	0.136
No formal education	12	5	1	2	20						
	60.0%	25.0%	5.0%	10.0%	100.0%						
Primary	51	33	19	9	112						
	45.5%	29.5%	17.0%	8.0%	100.0%						
Secondary	10	12	10	5	37						
	27.0%	32.4%	27.0%	13.5%	100.0%						
Tertiary	2	7	4	2	15						
	13.3%	46.7%	26.7%	13.3%	100.0%						
Total	75	57	34	18	184						
	40.8%	31.0%	18.5%	9.8%	100.0%						
Cannabis involvement scores						29.863	9	0.000*			
No formal education	15	0	4	1	20						
	75.0%	.0%	20.0%	5.0%	100.0%						
Primary	87	6	18	1	112						
	77.7%	5.4%	16.1%	.9%	100.0%						
Secondary	15	4	12	6	37						
	40.5%	10.8%	32.4%	16.2%	100.0%						
Tertiary	13	0	2	0	15						
	86.7%	.0%	13.3%	.0%	100.0%						
Total	130	10	36	8	184						
	70.7%	5.4%	19.6%	4.3%	100.0%						

**Statistically significant**

The above Table 7 shows significant association between tobacco and cannabis uses with level of education in particular secondary school (p=0.018 and p=0.000, 59.5% for each one respectively). This implies that tobacco and cannabis use has a positive impact in these specific variables. Alcohol use was not associated with any level of education (p>0.05).

**Table 8: Marital Status Vs the diagnosis of substance used based on ASSIST- Tobacco, Alcohol and Cannabis**

Marital Status variable	Tobacco involvement scores					X <sup>2</sup>	df	p value			
	Do not use	Low	Moderate	High	Total						
Single	53	8	27	4	92	10.319	12	0.588			
	57.6%	8.7%	29.3%	4.3%	100.0%						
Married	41	4	19	0	64						
	64.1%	6.3%	29.7%	.0%	100.0%						
Separated	6	2	1	0	9						
	66.7%	22.2%	11.1%	.0%	100.0%						
Divorced	10	1	2	0	13						
	76.9%	7.7%	15.4%	.0%	100.0%						
Widow/ed	5	0	1	0	6						
	83.3%	.0%	16.7%	.0%	100.0%						
Total	115	15	50	4	184						
	62.5%	8.2%	27.2%	2.2%	100.0%						
<b>Alcohol involvement scores</b>											
Single	44	23	15	10	92				17.999	12	0.116
	47.8%	25.0%	16.3%	10.9%	100.0%						
Married	17	25	15	7	64						
	26.6%	39.1%	23.4%	10.9%	100.0%						
Separated	2	5	2	0	9						
	22.2%	55.6%	22.2%	.0%	100.0%						
Divorced	7	4	1	1	13						
	53.8%	30.8%	7.7%	7.7%	100.0%						
Widow/ed	5	0	1	0	6						
	83.3%	.0%	16.7%	.0%	100.0%						
Total	75	57	34	18	184						
	40.8%	31.0%	18.5%	9.8%	100.0%						
<b>Cannabis involvement scores</b>											
Single	50	6	28	8	92	34.484	12	0.001*			
	54.3%	6.5%	30.4%	8.7%	100.0%						
Married	57	1	6	0	64						
	89.1%	1.6%	9.4%	.0%	100.0%						
Separated	7	2	0	0	9						
	77.8%	22.2%	.0%	.0%	100.0%						
Divorced	10	1	2	0	13						
	76.9%	7.7%	15.4%	.0%	100.0%						
Widow/ed	6	0	0	0	6						
	100.0%	.0%	.0%	.0%	100.0%						
Total	130	10	36	8	184						
	70.7%	5.4%	19.6%	4.3%	100.0%						

**\* Statistically significant**

As illustrated in Table 8 above Cannabis use was predominantly associated with marital status (p=0.001). 45.7% of the singles used cannabis, followed by divorced 23.1%, and then separated 22.2%, with married accounting for 10.9% and no widow reported to use cannabis. This could be a reflection of how some individuals with cannabis use involvement trying to cope with loneliness, low self-esteem, and having no family responsibilities contributes to it. There were no significant variations between tobacco and alcohol uses with marital status (p>0.05).



**Table 9: Occupation Vs the diagnosis of substance used based on ASSIST-Tobacco, Alcohol and Cannabis**

		Tobacco involvement scores					X <sup>2</sup>	df	p value
		Do not use	3 - Low	Moderate	High	Total			
Student		8	3	4	0	15	7.959	1	0.256
		53.3%	20.0%	26.7%	.0%	100.0%			
Formal employment		10	1	8	0	19			
		52.6%	5.3%	42.1%	.0%	100.0%			
No formal employment (casual work)		23	4	8	2	37			
		62.2%	10.8%	21.6%	5.4%	100.0%			
Business person		12	0	6	0	18			
		66.7%	.0%	33.3%	.0%	100.0%			
Unemployed		27	2	3	1	33			
		81.8%	6.1%	9.1%	3.0%	100.0%			
Peasant/farmer		35	5	21	1	62			
		56.5%	8.1%	33.9%	1.6%	100.0%			
Total		115	15	50	4	184			
		62.5%	8.2%	27.2%	2.2%	100.0%			
		Alcohol involvement scores					X <sup>2</sup>	df	p value
		Do not use	3 - Low	Moderate	High	Total			
Student		6	6	2	1	15	4.865	2	0.052*
		40.0%	40.0%	13.3%	6.7%	100.0%			
Formal employment		3	7	8	1	19			
		15.8%	36.8%	42.1%	5.3%	100.0%			
No formal employment (casual work)		15	11	5	6	37			
		40.5%	29.7%	13.5%	16.2%	100.0%			
Business person		7	9	0	2	18			
		38.9%	50.0%	.0%	11.1%	100.0%			
Unemployed		12	11	5	5	33			
		36.4%	33.3%	15.2%	15.2%	100.0%			
Peasant/farmer		32	13	14	3	62			
		51.6%	21.0%	22.6%	4.8%	100.0%			
Total		75	57	34	18	184			
		40.8%	31.0%	18.5%	9.8%	100.0%			

	Cannabis involvement scores					28.344	15	0.020*
	5	2	5	3	15			
Student	5	2	5	3	15			
	33.3%	13.3%	33.3%	20.0%	100.0%			
Formal employment	16	0	3	0	19			
	84.2%	.0%	15.8%	.0%	100.0%			
No formal employment (casual work)	28	3	4	2	37			
	75.7%	8.1%	10.8%	5.4%	100.0%			
Business person	17	0	1	0	18			
	94.4%	.0%	5.6%	.0%	100.0%			
Unemployed	24	1	6	2	33			
	72.7%	3.0%	18.2%	6.1%	100.0%			
Peasant/farmer	40	4	17	1	62			
	64.5%	6.5%	27.4%	1.6%	100.0%			
Total	130	10	36	8	184			
	70.7%	5.4%	19.6%	4.3%	100.0%			

\* Statistically significant

Table 9 above indicates that there were significant association between alcohol use and occupation ( $p=0.052$ ). Those with formal employment had had highest percentage of alcohol use (84.2%), unemployed 63.6%, business people 61.1%, and students 60.0%, 59.5% those with no formal employment (casual workers) and peasants/farmers 48.4%. Cannabis use was predominantly associated with occupation ( $p=0.020$ ). In particular, the students had the higher rate of cannabis use showed 66.7%, peasants/farmers 35.5%, unemployed 27.3%, those with no formal employment (casual workers) 24.3% and 15.8% with formal employment, business people were the least users 5.6%. There were no significant variations between tobacco use and the occupation ( $p>0.05$ ).

**Table 10: Substance use (ASSIST) Vs family history of substance use and Family history of mental illness**

Have you ever used substance?	Family history of substance use		Total	X <sup>2</sup>	df	p value
	yes	No				
Yes	107 (84.9%)	19 (15.1%)	126 (100%)	27.297	1	0.000*
No	28(48.2%)	30 (51.8%)	58 (100%)			
<b>Total</b>	135	49	184			
	<b>Family history of mental illness</b>					
	Yes	No		3.622	1	0.057*
Yes	46 (36.5%)	80 (63.5%)	126 (100%)			
No	13 (22.4%)	45 (77.6%)	58 (100%)			
<b>Total</b>	59	125	184			

**\* Statistically significant**

According to Table10 above substance use among the individuals had significant association with family history of substance use (p=0.000). Most of those who reported Yes to ever used substance accounted for 84.9% and 48.2% for those reported No. Family history of mental illness was associated with substance in particular those reported Yes to ever used substance (p=0.057, 36.5% respectively).

**Table 11: Have you ever used substance Vs variables**

Variable name		Have you ever used substance				
		Yes	No	X <sup>2</sup>	df	p-value
1. History of previous admission	Yes	72	35	0.167	1	0.682
	No	54	23			
	Total	126	58			
2. Number of previous admissions	1	36	17	0.169	2	0.919
	2	18	10			
	>2	18	8			
	Total	72	35			
3. Length of hospital stay	Days (less than a week)	13	4	1.228	2	0.541
	Weeks (less than a month)	40	23			
	Months (More than a month)	15	6			
	Total	68	33			
4. Nature of previous admission	Voluntary	8	6	0.726	1	0.394
	Involuntary	55	25			
	Total	63	31			

In terms of previous history of admission, number of previous admission, length of hospital stay and nature of admission as illustrated in Table 11 there were no significant differences amongst who used substances and those who did not use  $p > 0.05$ .

## DISCUSSION

The main objective of this study was to determine the prevalence of substance use, associated socio demographic variables and the types of substances used among psychiatric patients at BMC.

As far as the author's search was concerned, this is the first hospital-based study on substance abuse in a psychiatric population in Tanzania, and therefore a baseline study for future reference.

### 5.1 SOCIO DEMOGRAPHIC PROFILE

The finding in this study that there were more males 130 (70.7%) than females 54 (29.3%) in the psychiatric patients could be explained in several ways, though speculative. It is feasible that females are taken care of early enough and do not end up with severe illness, whereas males are expected to be strong and able to overcome their stressors without sharing it and in the process are more likely to end up with severe mental illness. Further most African cultures tolerate substance use more in males than they do for females, with higher intolerance for young females still in productive age than for elderly women. This finding of higher substance use rate in males than in females (Tables 1, 3, 4a and 4b) is similar to findings in other studies across the world (23, 26-28, and 33).

The finding that in this study there was no significant variations between substance use (tobacco, alcohol and cannabis- Tables 5) and age is different from a finding in Mbabane, Swaziland that ages 14 and 16 years were significantly associated with cigarette, alcohol and cannabis use (38). This could be explained by the fact that Mhlongo did a study to target population of street children, whilst this study concentrated on hospital based population who came for psychiatric problems.

Other studies have found different age related patterns on substance use specifically alcohol; for example Rabinowitz et al (28) in Israel found that drug abuse for males increase with age until age 45 years in Israel in general, and for alcohol until age 65. Rabinowitz et al (28) also found drug and alcohol abuse by females was highest for patients under age 24 years and declined with increase in age. The finding was similar with this study. This could be that as

individual grow older they become more responsible in their decision making whether or not to take drugs.

The marginally significant association between religion and cannabis use ( $p=0.024$ ) is attributable to higher use among the Catholics (Table 6). The researcher has no explanation for this observation.

The fact that there was no significant variation between tobacco use and religion (Table 6) could be because tobacco products are legally permitted while there are age restrictions on alcohol.

Although Catholics, unlike other religions, are allowed moderate use of alcohol, there were no significant variations between alcohol use and this religion (Table 6) suggesting other determinants of alcohol use in this particular population over and above religious deterrent.

The observation that secondary school level of education was significantly associated with tobacco use (Table 7) could be explained in several but speculative ways. Secondary school students could receive more pocket money from their parents/guardians on the assumptions that they are mature enough to handle more money on their own without direct supervision from their parents/guardians.

This occurs at a time when the secondary school students begin to have a sense of independence from their parents/guardians, increased influence and pressure from their peers, and the curiosity to experiment. All of these factors compound each other to create mental conflicts which in turn become a source of stress which then predisposes them to take tobacco- itself is a psycho-stimulant and therefore as a form of self medication.

These speculative explanations receive support from literature that peer pressure, curiosity and emotional disorders are the most important reasons why youth start taking drugs in the first place more so if those drugs are readily affordable (1, 38 and 39).

The same observation for cannabis use (Table 7) can be explained in the same way as for tobacco above.

The observation that occupation and in particular secure formal employment was significantly associated with alcohol use (Table 9) is similar to the finding of Chande et al (15) in Dar-Es-Salaam. A plausible explanation for this is affordability through disposable income.

The finding in this study that the occupation status of 'student' was more associated with cannabis use (Table 9) rather than any other occupation including employed status is a mirror reflection of the finding that secondary school level of education was associated with cannabis use and the explanations are therefore likely to be the same as already explained above.

Being single is more likely to happen in young people and therefore the more frequent use of cannabis in the single marital status (Tables 4b and 8) is more likely a reflection of age for reasons already discussed above rather than marital status per se. Further, having no family responsibilities may place in their hands relatively more flexibility in disposable income.

The observation that family history of substance use was significantly associated with substance use (Table 10) could be explained in two possible ways: Role models provided by family members who take substances and inherited genetic predisposing (40 and 41).

The finding that for the psychiatric patients there was a significant family history of mental illness (Table 10) suggests genetic predisposition and is in agreement with family risk studies which have shown that the first-degree relatives (mother, father and siblings) are more likely to develop mental illness more than distant relatives or the general population (40 and 41).

The non-significant variations between substance use and previous history of admission, number of previous admission, length of hospital stay and nature of admission (Table 11), is probably a reflection of the fact that substance use had not been and still was not the reason for admission and just happens to be a co-morbid disorder that had not been recognized by the clinicians and therefore not managed. This is contrary to the finding in UK by Isaac et al (19) that cannabis abuse was associated with long hospital stay among patients with psychosis and personality disorders, suggesting that cannabis use worsened co-morbid psychiatric disorders.

As earlier intimated, substance use attributed the cause to peer pressure exclusively 33.2%, both peer pressure and curiosity 8.7%, curiosity exclusively 7.1% and poor relationship at home 2.2% (Table 2), and is in agreement with findings from Swaziland by Mhlongo (38)

that peer pressure, curiosity and poor relationship at home accounted for 20%, 16.7% and 16.7% respectively of the reasons of taking drugs. Poor relationship could be the family environmental factor for the earlier observation that there was family history of substance use.

## 5.2 THE PREVALENCE AND TYPES OF SUBSTANCE USE

The 68.5% prevalence of substance use in this study (Table 3) is within range reported elsewhere: 60% by Cassidy et al (23) in UK, 74.8% by both Sinclair et al (26) in UK and Bunyassi (34) in Kenya.

The 38.6% tobacco use (Table 3) is similar to 37.1% reported by Othieno et al in Kenya (33) among schizophrenic patients and higher than the 27.6% reported by Acuda and Sebit in Zimbabwe (31). However, this clinical finding in BMC is less than the 81% tobacco use among street children in Mwanza city (7) where BMC is also located and where both groups have the same legal access to tobacco. The high use in both groups could be speculatively explained by the fact that tobacco is socially and legally permitted by the society and the authority.

The 59.3% prevalence rate (Table 3) of alcohol use is similar to the 60% found in the community in the same city (7) but lower than the 35% found by Ndetei et al (32) in psychiatric patients admitted at the Mathari psychiatric hospital in Nairobi Kenya.

The cause and effect relationship between alcohol use (and indeed any other substance use) and psychiatric disorders was not investigated in this study. However it is plausible that patients could use alcohol as a self medication to cope with their psychiatric symptoms.

The 29.3% cannabis use (Table 3) was double the 14.3% found by Acuda and Sebit (31) in Zimbabwe. The 4.3% and 2.2% respective prevalence of petrol and heroin use (Table 3) corresponds with community findings in the same city (7). Where as the 2.2% for heroin could be explained by the relative unavailability because of costs and strict legal controls this can not be the same explanation for the relatively low level of 4.3% for petrol which is relatively available in terms of cost and liberal controls.



Therefore the most likely explanations in the case of the petrol is the non existence of the culture of petrol sniffing, which culture could easily evolve if no preventive and proactive interventions are put in place now.

The 1.6% prevalence of cocaine use in this study, remarkably lower than 23% among schizophrenic patients reported by Volkow (24) in USA, can be explained the same way as for heroin above.

The difference between 6.5% prevalence of amphetamines- Khat/ mirungi (miraa) use in this study (Table 3) and the 58.8% in a similar population in Kenya by Ndetei et al (32), can be attributed to the fact that Khat/miraa is legally permitted and grown in Kenya whilst in Tanzania this product is illegal. In addition Ndetei et al (32) found a higher rate for sedatives use 'valium' at 71.4% as opposed to 6.0% in this study.

It may be that patients in this study have alternative substances or may not have direct access to 'valium' due to the restrictive drug policy use on drug of addictions in Tanzania.

It is gratifying that there were no hallucinogens or injectable drugs despite screening for them using the ASSIST. This gratification is more so given the dangerousness of hallucinogens in precipitating overt psychotic symptoms and the injectable drugs as vehicles for HIV transmission. Like in the case of petrol sniffing this calls for proactive surveillance and preventive measures.

# CONCLUSIONS AND RECOMMENDATIONS

## 6.1 CONCLUSIONS

There is high prevalence 68.5% of substance use among psychiatric patients (i.e. co-morbidity) at BMC.

Substance use is predominantly in male high school level of education adolescents.

Alcohol, tobacco and cannabis are the leading drugs of abuse among psychiatric patients.

Hallucinogens and injectable drugs were not detected.

The following variables were significantly associated with and likely to be causative of substance use: income/occupation (and therefore affordability), being a student and therefore peer pressure, curiosity (most likely out of lack of proper information), poor relationships at home, family history of substance use and mental illness.

## 6.2 RECOMMENDATIONS

These recommendations are derived directly from the findings of this research and provide the evidence for appropriate clinical practices and policy.

- 1) BMC should put in place a policy on routine screening to pick out substance abuse using an appropriate instrument such as WHO ASSIST as a standard clinical practice in all psychiatric patients for purposes of diagnosing co-morbidity and appropriate management.
- 2) There is need for CME to medical personnel to raise awareness and increase skills in dual diagnosis and management of co-morbidity involving substance use.
- 3) The ministry of Education in collaboration with other relevant ministries and other stake holders should develop policies on health education to the most vulnerable groups and in particular school pupils and students on the dangers of substance use and coping skills to deal with peer pressure and curiosity.

- 4) The relevant ministries and other stake holders should develop policies on health education targeting families on the different types of drugs abused by the youth and the roles of the families as positive role models.
- 5) Further research is needed to determine the co-morbidity of substance use and specific psychiatric disorders among psychiatric patients at Bugando Medical Centre.

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## APPENDICES

### APPENDIX 1. CONSENT FORM

#### 1a. INFORMED CONSENT EXPLANATION

To be read and questions answered in a language in which the study participant and the parent/guardian are conversant (English or Kiswahili).

I, Dr Kiyeti Agnes Hauli, wish to do a study entitled “**The Prevalence of Substance use among psychiatric patients at BMC, Mwanza**” as partial fulfillment of my master degree in medicine in psychiatry, University of Nairobi. My supervisors are Prof. D. M. Ndetei a lecturer at the Department of Psychiatry, University of Nairobi, Kenya; Prof. Jande and Dr. R. Kabangila lecturers at Weill Bugando University College of Health Sciences, Mwanza Tanzania.

The purpose of the study is to establish the magnitude of Substance use among Psychiatric patients at BMC, Mwanza-Tanzania. Your participation is voluntary and you may withdraw consent at any time in the course of the interview. This will not in any way affect the way you will be managed in this clinic and in the ward.

The procedure will involve me asking you in collaboration with your parent/guardian, questions concerning your history of use of substances such as alcohol, tobacco, cannabis, Khat (miraa/mirungi) and others. I will also ask whether your use has led to any health, social, legal or financial problems. I will ask you questions about your feelings, thoughts and behaviour too. These will be in form of questionnaires. No invasive procedures such as drawing blood will be involved however; you may have emotional pain through me asking you emotionally painful questions.

All the information obtained from this study will remain confidential and your privacy will be upheld. Identification will be by hospital registration and serial numbers only; no names will be used in this study or in its future publications. The names will be used in the consent form (kept separately by the researcher only) solely for identifying those with a substance use disorder who need psychiatric intervention.

I hope that information generated by this study will be of benefit, leading to the implementation of better interventions and comprehensive care for the psychiatric patients to enable them become and remain alcohol and drug free.

If you have any questions related to this study, or your health you can call me on my phone numbers **+254738643098** or **+255755338513** or my lead supervisor Prof. Ndetei **+254722518365** at the department of psychiatry, University of Nairobi, Kenya or Prof. Jande **+255754298978** at the department of pharmacology, Weill Bugando University College of Health Sciences, Tanzania. Research and Publication, Weill Bugando University College of Health Sciences, Po Box 1464 Mwanza Tanzania. **+255 28 250 0881 Fax +255 28 2502678**. KNH/ UON Ethics and Research Committee at Kenyatta Hospital, P.O BOX 20723 Nairobi phone number **+254 726300-9 Fax +254 725272**. Email: [KNHplan@Ken.Healthnet.org](mailto:KNHplan@Ken.Healthnet.org)



**1b. CONSENT FORM**

I, the undersigned do hereby volunteer to participate in this study. Dr Kiyeti A. Hauli has explained the nature and purpose of the study.

I understand that all information gathered will be used for the purpose of this study only and I can withdraw at any point without losing my benefits.

NAME-----SIGNATURE-----DATE -----

(Participant's name)

NAME-----SIGNATURE-----DATE-----

(Parent/guardian)

SIGNATURE-----DATE-----

(Dr Kiyeti A. Hauli- witness)

SERIAL NUMBER-----

NB: This form will be stored separately from the research documents/instruments.

## APPENDIX 2 : QUESTIONNAIRES

Researcher designed questionnaire

### 2a. SOCIODEMOGRAPHIC QUESTIONNAIRE

Date:

Serial number:

Hospital registration number:

1. Age (years)
2. Sex
3. Residence (usual)
4. Religion (Tick where appropriate)
  - 1) Catholic
  - 2) Protestant
  - 3) Pentecostal
  - 4) Muslim
  - 5) Other (please specify)
5. Highest level of education
  - 1) Informal
  - 2) Primary
  - 3) Secondary
  - 4) Tertiary (College/University)
6. Marital status
  - 1) Single
  - 2) Married
  - 3) Separated
  - 4) Divorced
  - 5) Widow/ed
7. Occupation
  - 1) Student
  - 2) Formal employment
  - 3) Informal employment
  - 4) Business person
  - 5) Unemployed
  - 6) Peasant/farmer
8. Family history of substance use
  - 1) Yes
  - 2) No
9. Family history of mental illness
  - 1) Yes
  - 2) No

10. History of previous admissions?

1) Yes

2) No

If Yes,

i) Number of previous admissions

a) 1

b) 2

c) More than 2

ii) Length of hospital stay

a) Days

b) Weeks

c) Months

iii) Nature of previous admission

a) Voluntary

b) Involuntary

11. What caused you to start using substances? (Tick all the appropriate)

1. Self medication

2. Peer pressure

3. Curiosity

4. poor relationship i.e. physical/psychological abuse

5. escape problems (home, work place, school)

6. poverty

7. no cause

## b. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)

1. In your life, which of the following substances have you ever used?	0=No	1 = Yes			
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (gongo.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa/ mirungi / )					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )					
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)					
10. Other - specify:					
<b>Q2 – Q5 tick: 0=Never, 1=once or twice, 2=Monthly, 3=Weekly 4=Daily or almost daily</b>					
2. In the past 3 months, how often have you used the substances you mentioned?	0	1	2	3	4
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (gongo.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa/ mirungi )					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )					
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)					
10. Other - specify:					
3. During the past 3 months, substance you have mentioned in Q1 how often have you had a strong desire or urge to use them?					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa,(gongo.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa/ mirungi )					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )					
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)					
10. Other - specify:					
4. During the past 3months, how often has your use of drugs mentioned in question Q1 led to health, and social, legal or financial problems?	0	1	2	3	4
<b>a) Health Problems</b>					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (gongo.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa/					

mirungi)					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )					
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)					
10. Other - specify:					
<b>b) Social Problems</b>					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (gongo.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa/ mirungi )					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )					
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)					
10. Other - specify:					
<b>c) Legal Problems</b>					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (gongo.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa/ mirungi )					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )					
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)					
10. Other - specify:					
<b>d) Financial</b>					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (gongo.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa/ mirungi )					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )					
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)					
10. Other - specify:					
5. <b>During the past 3 months, how often have you failed to do what was normally expected of you because of your use of:</b>					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (gongo.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa/ mirungi )					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					

7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )				
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )				
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)				
10. Other - specify:				

**Q6-Q8 Tick 0=No, never, 1=Yes, but not in the past 3 months, or 2=Yes in the past 3months**

<b>6. Has a friend or relative or anyone else ever expressed concern about your use of</b>	<b>0</b>	<b>1</b>	<b>2</b>
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)			
2. Alcoholic beverages (beer, wine, spirits, changaa, (gongo.)			
3. Cannabis (marijuana, pot, grass, hash, bhang)			
4. Cocaine (coke, crack, etc.)			
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa/ mirungi )			
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)			
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )			
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )			
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)			
10. Other - specify:			
<b>7. Have you ever tried to control, cut down or stop using</b>			
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)			
2. Alcoholic beverages (beer, wine, spirits, changaa, (gongo.)			
3. Cannabis (marijuana, pot, grass, hash, bhang)			
4. Cocaine (coke, crack, etc.)			
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa )			
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)			
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )			
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )			
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)			
10. Other - specify:			
<b>8. Have you ever used any drug by injection (non-medical use only)?</b>			
1. Cocaine (coke, crack, etc.)			
2. Amphetamine type stimulants (speed, diet pills,)			
3. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )			
4. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )			
5. Opioids (heroin/unga, morphine, codeine, Brown sugar)			
6. Other - specify:			

**Specific Substance involvement scores**

<b>Substance</b>	<b>Score</b>	<b>Risk level</b>
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)		0-3 low 4-26 moderate 27+ High
2. Alcoholic beverages (beer, wine, spirits, changaa, (gongo.)		0-10 low 11-26 moderate 27+ High
3. Cannabis (marijuana, pot, grass, hash, bhang)		0-3 low 4-26 moderate 27+ High
4. Cocaine (coke, crack, etc.)		0-3 low 4-26

		<b>moderate</b> <b>27+ High</b>
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa/ mirungi )		<b>0-3 low</b> <b>4-26 moderate</b> <b>27+ High</b>
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)		<b>0-3 low</b> <b>4-26 moderate</b> <b>27+ High</b>
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, )		<b>0-3 low</b> <b>4-26 moderate</b> <b>27+ High</b>
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, )		<b>0-3 low</b> <b>4-26 moderate</b> <b>27+ High</b>
9. Opioids (heroin/unga, morphine, codeine, Brown sugar)		<b>0-3 low</b> <b>4-26 moderate</b> <b>27+ High</b>
10. Other - specify:		<b>0-3 low</b> <b>4-26 moderate</b> <b>27+ High</b>

# **BUCHS/BMC Research Ethical Committee (BREC)**

Research Clearance Certificate No. **BREC/001/03/2010**

Ethical clearance is hereby granted to

**DR. KIYETI AGNES HAULI OF THE DEPARTMENT OF PSYCHIATRY OF THE UNIVERSITY OF NAIROBI KENYA.**

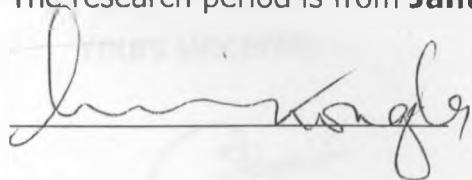
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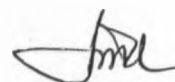
On this day of: **21<sup>ST</sup> JANUARY 2010** to conduct health research

Involving human subjects titled: **THE PREVELANCE OF SUBSTANCE USE AMONG PSYCHIATRIC PATIENTS AT BUGANDO MEDICAL CENTRE MWANZA, TANZANIA.**

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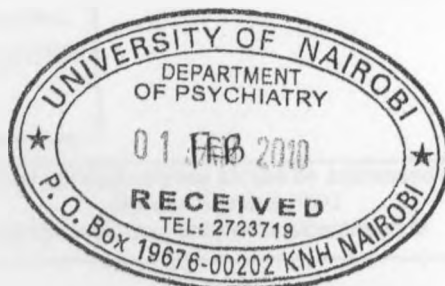
The research period is from **January, 2010** to **December, 2010**





**BREC Chairman**

**BREC Secretary**







# BUGANDO MEDICAL CENTRE

Consultant and Teaching Hospital

P.O. Box 1370  
Mwanza, Tanzania  
Telephones 2540610/5  
2500513  
Fax: 255 – 028 - 2500799  
E-mail: hospital@bugandomedicalcentre.go.tz

Department of: Administration  
Our Ref: P/F NO. 3757/69  
Date: 25<sup>th</sup> February, 2010

Dr. Kiyeti A. Hauli,  
M. Med. Psychiatry. UON,  
P.O. BOX 1370,  
MWANZA.

**RE: PERMISSION TO CARRY OUT A STUDY AT BUGANDO MEDICAL CENTRE (BMC) MWANZA.**

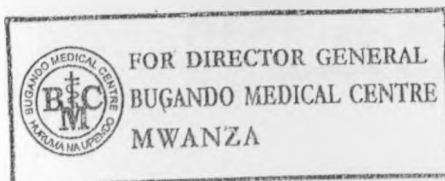
Please refer to your letter of 22<sup>nd</sup> February, 2010 on the above subject.

I am pleased to inform you that permission has been granted to you to carry out a study entitled “ Prevalence of substance use among psychiatric patients at Bugando Medical Centre, Mwanza” as part of your degree as per your request.

Wishing you all the best.

Yours sincerely

Joachim L. Wangabo  
FOR; DIRECTOR GENERAL





**KENYATTA NATIONAL HOSPITAL**  
Hospital Rd. along, Ngong Rd.  
P.O. Box 20723, Nairobi.  
Tel: 726300-9  
Fax: 725272  
Telegrams: MEDSUP", Nairobi.  
Email: [KNHplan@Ken.Healthnet.org](mailto:KNHplan@Ken.Healthnet.org)  
7<sup>th</sup> July 2010

Ref: KNH-ERC/ A/521

Dr. Kiyeti Agnes Hauli  
Dept. of Psychiatry  
School of Medicine  
University of Nairobi

Dear Dr. Hauli

**RESEARCH PROPOSAL: "THE PREVALENCE OF SUBSTANCE USE AMONG PSYCHIATRIC PATIENTS AT BUGANDO MEDICAL CENTRE, MWANZA TANZANIA"**  
(P83/02/2010)

This is to inform you that the KNH/UON-Ethics & Research Committee has reviewed and **approved** your above revised proposal for the period 7<sup>th</sup> July 2010 to 6<sup>th</sup> July 2011.

You will be required to request for a renewal of the approval if you intend to continue with the study beyond the deadline given. Clearance for export of biological specimens must also be obtained from KNH/UON-Ethics & Research Committee for each batch.

On behalf of the Committee, I wish you a fruitful research and look forward to receiving a summary of the research findings upon completion of the study.

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

Yours sincerely

**PROF A N GUANTAI**  
**SECRETARY, KNH/UON-ERC**

c.c. Prof. K. M. Bhatt, Chairperson, KNH/UON-ERC

The Deputy Director CS, KNH

The Dean, School of Medicine, UON

The Chairman, Dept. of Psychiatry, UON

The HOD, Records, KNH

Supervisors: Prof. David M. Ndeti, Dept. of Psychiatry, UON

Dr. Fredrick Owiti, Dept. of Psychiatry, UON

Prof. M.B. Jande, Weill Bugando University College of Health Sciences, Tanzania

Dr. R. Kabangila, Weill Bugando University College of Health Sciences, Tanzania