



ST. PAULS HOSPITAL MILLENNIUM MEDICAL COLLEGE DEPARTMENT OF PSYCHIATRY

**Addis Ababa,
August, 2019.**

**ADMISSION PATTERN AND OTHER
ASSOCIATED FACTORS OF PATIENTS WITH
SUBSTANCE USE DISORDER ADMITTED IN ST.
PAUL'S HOSPITAL MILLENNIUM MEDICAL
COLLEGE FROM (MAY 2008- MAY 2019 G. C) A
RETROSPECTIVE CHART REVIEW**

**By
Aida Kebede (M.D)**

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**A Thesis Proposal Submitted to St. Paul's hospital millennium medical
college, department of psychiatry in partial fulfillment of the post graduate
program in psychiatry**

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Acknowledgement

First and foremost, my deepest gratitude is to the Almighty for paving my path. Then I would like to thank the department of psychiatry for giving me this opportunity to conduct this research. I would also like to thank my advisors for their valuable input. I am also indebted to my husband who was supportive throughout my endeavor.

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Acronyms and abbreviation

- SPHMMC: St Pauls Hospital Millennium Medical College
- AMSH: Amanuel Mental Specialized Hospital
- ZMH: Zewditu Memorial Hospital
- SUD: Substance Use Disorder
- GDB: Global Disease Burden
- WHO: World Health Organization
- EC: Ethiopian Calendar
- GC: Gregorian Calendar
- HIV: Human Immunodeficiency Virus
- DSM: Diagnostic Statistical Manual
- APA: American Psychiatry Association
- IRB: Institutional Review Board

Chapter One

1. Introduction

1.1. Background

In a country like Ethiopia where we have more than 50% of youth population (Ethiopia Central Statistical Agency, 2017) it is of paramount importance to have properly functioning and well-established addiction treatment facilities because this population group is particularly vulnerable to have substance use problem if not disorder. Few years back this was regarded as a minor problem but currently with the increasing rate of youth unemployment addiction to various types of substances is becoming mundane. For instance, chat use is being practiced by large amount of Ethiopian population. This problem steals the productivity and in turn has huge socio-economic ramifications.

Despite the gravity of the problem the government has paid little attention to this area which is demonstrated by having scanty treatment facilities for addiction problem. Currently there are only three governmental addiction units for inpatient treatment found in SPHMMC, AMSH, ZMH having huge number of case load. In the private sector as well there few inpatient treatment facilities.

So, the purpose of this study is to look up on the admission patterns of patients who were enrolled in addiction unit of St. Paul's hospital during the past five years. The study will also try to determine clinical characteristics and other associated factors. I hope this study will provide relevant information for the government to call attention to the issue. Private stakeholders will also get a glimpse to the area and get involved by building well equipped rehabilitation facilities.

1.2. Statement of problem

One of the most important challenges low-income countries like Ethiopia face today is perhaps the increase substance use by the youth and adult population in part due to unemployment and globalization and social media that glamorize a culture which promotes substance use. For this reason, it is important to know the pattern and trends of substance abuse so that appropriate intervention can be used for early identification and decreasing the for future substance use problem (Istanbul)

This study will try to investigate how many patients have benefited from the service provided, the type of treatment received and the sociodemographic and clinical characteristics of admitted patients. The findings from this will be an entry point to enhance service delivery and continue the strong accomplishments. It will also be an entry point for other stake holders who wish to be involved in the care of people with substance use problem.

1.3. Objectives

1.3.1. General objective

To determine the admission patterns and associated factors of patients admitted in substance unit of SPHMMC from May 2008 – May 2019 G.C

1.3.2. Specific objective

- To identify socio demographic characters of admitted patients
- To demonstrate the clinical characteristics of the admitted patients
- To identify other significant factors associated with SUD

1.4. Significance of the study

Although there are prevalence studies regarding substance use in this country there are no published studies to demonstrate the admission pattern, sociodemographic and clinical characteristics and associated factors of patients who have been admitted to our resource limited rehabs. The data regarding characteristics of the subjects are necessary for monitoring changes and trends for adapting treatment and prevention programs based on the findings. This study will try to fill in this gap by providing important data in this regard. Having this knowledge will be a steppingstone for policy makers and other stake holders to design strategies for the growing public health problem.

1.5. Scope of the study

The scope of this study is to know the admission pattern of substance abuse of patients admitted in SPHMMC addiction unit. However, treatment outcome is out of scope of this study.

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Chapter Two

2. Literature Review

2.1.Introduction

The purpose of this chapter is to assess other related researches done on admission patterns of patients admitted to de-addiction facilities. Literature review contributed to build a foundation for the current study and to identify gaps. The review focuses on the global prevalence of substance use problem and identify sociodemographic correlates and other associated factors. It will also review studies done to assess' admission patterns of patients in rehabilitation facilities globally.

Alcohol and drug use can have negative consequences on the health, economy, productivity, and social aspects of communities posing serious societal problems, with 11.3% of Americans engaging in substance abuse in any given year (SAMHSA, 2014). In our country Vulnerable populations such as the unemployed youth and other low-income populations are particularly hard-hit, with twice the risk of being problem drinkers or illicit drug users. In turn, substance abuse affects productivity and the capacity for employment. Thus, access to substance abuse treatment facility is an important step to address this problem.

In Ethiopia there is an ever-increasing number in the young population with more than 50% of the population being between 15 and 35 yrs. This youth population is at a higher risk for substance abuse than the rest.

In one population-based study the prevalence of Chat chewing was found to be 31.7 %. The study also found that Muslims more than Christians, males more than females, those between the ages 15 and 34 years more than other age groups were habitual users. The factors which were found to be significantly associated with chat use were: physical illness (OR= 1.52, 95% CI= 1.14-2.02); injuries (OR=2.3, 95% CI= 1.42-3.79); undernutrition (OR=1.76, 95% CI= 1.24-2.48); mental distress (OR=8.30, 95% CI= 5.20-13.31). The study also found that family functioning among Chat users was significantly higher than non-users (OR=1.56, 95% CI=1.04-2.28). Social functioning and economic well-being were not significantly associated with Chat use (Mesfine Belew, 2000)

In Ethiopia a review done in 2007 found wide variation in the prevalence of Chat-chewing across studies (0.3–64.7%), seeming to be particularly high in young men and students as well as in traditional Chat-producing area (Abebaw Fekadu et.al, 2007)

In Butajira, Ethiopia, a large population survey of 10,468 adults reported that 55.7% of the sample had used Chat at sometime in their lives, 50% were current users and 17.4% reported using on a daily basis. Chat use was associated with being male, being Muslim (80% of current chewers used Chat to gain concentration for prayer), higher educational achievement and tobacco-smoking. In this it was also found that prevalence of hazardous alcohol use was 16%. The overall prevalence of alcohol use disorder 3.7%; 7.5% for men and 0.9% for women. Stratified analysis by sex and religion showed that Christian religion, male sex and smoking were strongly associated with problem drinking in both sexes. Marital status, mental distress and income were only associated with problem drinking in males (Alem A et.al, 1999)

A survey done on Zeway islanders found the prevalence of alcohol and cigarette dependence to be 1.5% and 0.4% respectively (Kebede D et.al, 2005). In a survey of 1700 adults from semi-nomadic population at the southern border of the country estimated prevalence of substance abuse was 10.1% most of whom were men (13.7% vs 7.5%). Tobacco dependence was the commonest, with a prevalence of 3.6% and equally distributed among men and women. Alcohol dependence was identified in 1.6% almost exclusively among men (Beyero T et.al, 2004)

A large population-based study done in 2006 using 28,686 adults aged 15-49 across 10 occupational groups to assess the use of alcohol, Chat and other substances (cannabis cocaine, benzene, 'crack cocaine' shisha). Prevalence of use was determined for the four-week period prior to interview for these substances and for the preceding 12 months for injectable drugs. Weekly and daily alcohol use was highest among female commercial sex workers 72% and lowest among farmers and pastoralists 5-7%. Weekly and daily Chat use was also highest among female sex workers 43%. Over 30% long distance drivers also chewed Chat weekly or daily. The overall prevalence of other substances was 3.9% and that of injectable drugs was 0.7% (Kebede et al., 2005)

The aforementioned studies can clearly demonstrate the gravity of the substance use problem in our country. So as a nation Ethiopia needs to be prepared for growing number of people affected by Substance Use Disorder (SUD). Having de-addiction and rehabilitation facilities is not a matter of choice rather a compulsory issue.

2.2.Prevalence of SUD globally

According to the WHO report the harmful use of alcohol results in 3.3 million deaths each year. At least 15.3 million people worldwide have substance use disorders. Injecting drug use reported in 148 countries of which 120 report HIV infection among this population (WHO Africa, 2017). Smoking has been identified the first risk factor causing early death and disability among men and alcohol standing fourth on the list (EMCDDA, 2018)

Globally, alcohol use disorders were the most prevalent of all substance use disorders with 100.4 million estimated cases in 2016 (age standardized prevalence 1320.8 cases per 100,000 people 95% uncertainty interval (95%UI) 1181.2-1468.0). The most common drug use disorders were cannabis dependence (22.1 million cases; age standardized prevalence 289.7 cases per 100,000 people, 95% UI 248.9-339.1) and opioid dependence (26.8 million; age standardized prevalence 353.0 cases per 100 000 people, 309.9–405.9). Globally in 2016, 99.2 million DALYs (95% U 88.3–111.2) and 4.2% of all DALYs (3.7–4.6) were attributable to alcohol use, and 31.8 million DALYs (27.4–36.6) and 1.3% of all DALYs (1.2–1.5) were attributable to drug use as a risk factor (Louisa Degenhardt et.al, 2018)

An estimated 24.6 million Americans aged 12 or older 9.4% of the total population had used an illicit drug use. This number has shown increment from previous years. Marijuana being the most commonly used illicit drugs. In 2013, 9.5% of men and 3.3% of women reported heavy alcohol use. During the same year the survey has shown that 55.8 million Americans aged 12 or older or 21.3% of the population was cigarette smoker (SAMHSA, 2014)

In 2013, 17.3 million Americans 6.6% of the population were dependent on alcohol. After alcohol marijuana has the highest rate of dependence 4.2 million Americans met clinical criteria for marijuana dependence. In the same year, an estimated 22.7 million Americans needed treatment for problem related to alcohol or drug abuse but only 2.5 million (0.9%) received treatment in a specialty facility (SAMHSA, 2014)

Drug use in Europe now encompasses a wider range of substances than in the past. Among drug users, polydrug consumption is common and individual patterns of use range from experimental to habitual and dependent consumption. The prevalence of cannabis use is about five times that of other substances. While the use of heroin and other opioids remains relatively rare, these continue to be the drugs most commonly associated with the more harmful forms of use including injecting drug use. Use of all drugs is generally higher among

males, and this difference is often accentuated for more intensive or regular patterns of use (EMCDDA, 2018)

In the UK and Wales around 1 in 12 or 8.5% adults aged 16 to 59 had taken an illicit drug. Amongst this 6.6% of adults aged 16 to 59 use cannabis. Prevalence was found to be higher in males 4.3% than females 1.9%. From these 279,793 individuals received treatment for opiate and alcohol use problem. This number has shown increment from previous year (EMCDDA, 2018).

It is estimated that 87.6 million adults in the European Union (aged 15–64), or 26.3 % of this age group, have tried cannabis during their lives. Of these, an estimated 17.2 million young adults (aged 15–34), or 14.1 % of this age group, used cannabis in the last year, with 9.8 million of these aged 15–24 (17.4 % of this age group). Last year prevalence rates among 15- to 34-year-olds range from 3.5 % in Hungary to 21.5 % in France. Among young people using cannabis in the last year, the ratio of males to females is two to one (EMCDDA, 2018).

Data on those entering treatment for cannabis use problem can provide information on the nature and scale of high-risk cannabis use in Europe. In 2016 more than 150,000 people entered drug treatment in Europe for problems related to cannabis use; of those about 83,000 were entering treatment for the first time in their lives. In the 25 countries with available data, the overall number of first-time entrants for cannabis problems increased by 76 % between 2006 and 2016, with the majority (18) of the countries reporting an increase over this period. Multiple factors may lie behind this rise, including higher prevalence of cannabis use among the general population, increases in the number of intensive users, the availability of higher potency products, changes in the perception of risk, increases in the levels of treatment provision and of referral to treatment, in particular from the criminal justice system. (EMCCDA, 2018)

In one hospital-based study done in Istanbul, turkey data was collected from 1969 charts in statistical analysis. Proportion of males (82.4%, n=1623) were higher than females (17.6%, n=346). Most of the children and youth (59.1%) were living with their parents and parents accompanied most of the patients (77.3%, n=1523) in the treatment. The rates of non-voluntary referrals from forensic (probation, child health-custody) and social services were 9.7% (n=192) and 3.8% (n=75), respectively. The ratio of substance use in parents was as low as 2.8% while the substance use ratio in second-degree relatives was as high as 19.2%. In the study Cannabis was the most prevalent (60.1%) substance used, followed by solvents/inhalants (38.3%) and ecstasy (33.4%). Synthetic cannabinoid use had a prevalence

of 14%. The remaining drugs (lysergic acid diethylamide, psilocybin mushrooms, unspecified mushrooms, ketamine, research chemicals, such as mephedrone or butylon, crystal meth and spice) had a lower prevalence of approximately 4.4%. The proportion of poly substance use was 60.2 % (n=1185). Regarding onset of substance abuse, cannabis was the most commonly used substance at the onset of substance use, followed by alcohol and solvents/inhalants. Use of solvent/inhalants was more common among men (male 51%, female 34.1%) whereas ecstasy (male 38.9%, female 57.8%) and cocaine (male 5.6%, female 11.5%) use was more common among women (Arzu Ciftci Demirci et.al, 2014)

In one large scale longitudinal study done in Helsinki, Finland baseline data of 4817 clients (3365 male and 1452 female) aged 11-65 years was collected. Majority (56%) of clients were between 15 and 24 years, educated at elementary school level (75%) and unemployed (57%). Opiates (30%) were the primary drug of abuse. The primary drugs were mostly injected (45%) and were abused daily during the past month (44%). Cannabis was the second most common drug of abuse (34%) and was abused once per week or less frequently during the past month (33%). Age at onset of illicit drug abuse ranged from 5-49 years. Polydrug abuse was common, with a mean consumption of 3.5 concurrent polydrug use, which were combined from 3 or more drug classes. The lifetime prevalence of IV drug abuse was 64% and past month iv drug abuse was also 64% and 13% reported sharing injecting equipment during the past month (Ifeoma N Onyeka et.al., 2012)

In a retrospective study done in Saudi Arabia 612 patients admitted at a rehabilitation center were included. The majority of patients (73%) were 21-40 years of age. Polysubstance abuse (60%) and amphetamine (24%) abuse were most predominant in the 20-40 year olds (45%) and high school dropout (41%). The average number of drugs being used by polysubstance abusers was 2.5 (and the maximum was 6). There was no relationship of family history of drug abuse and mental illness (Ibrahim et al., 2018)

In a study done Cape Town, South Africa on 95 male and female patients who were admitted to addiction units were included in the study. The study showed that the sample was largely male, Coloured, Muslim and single. Cannabis (51.6%) and crystal methamphetamine (17.9%) were the most common first substances of use. Heroin (53.7) and crystal methamphetamine (33.7%) were the most common substances for which treatment was sought (primary substances). The most common comorbid psychopathologies were anti-social personality disorder (ASPD 87.4%) and conduct disorder (CD 67.4%). Regression analyses showed a marginally significant association between specific phobia and first use of cannabis, but

indicated no statistically significant associations between psychopathology and substance use (Saban1et al., 2018)

In a study done in Western Cape, South Africa at Tygerberg hospital a retrospective chart review of adolescent psychiatric admissions to the psychiatric unit was conducted. Results suggest a high prevalence of SUD among adolescents presenting with a first-episode psychosis. Statistically significant correlations with lower levels of education were found in those with ongoing substance abuse (specifically cannabis and methamphetamine), and a significant relationship between choice of debut drug and ongoing drug use was also demonstrated. Risk factors for SUD (psychosocial adversities, childhood trauma, family and community exposure to substances, early debut drug ages), risky sexual behaviours, and clinical psychiatric profiles of adolescents with dual diagnosis are described (Lachman et al., 2012).

In a cross-sectional study done among high school students in Nigeria on the sociodemographic characters and patterns of psychoactive substance use including 293 participants showed that mean age was 23.89(3.148) years and they were mainly between 21-30yrs. Respondents were mainly males 166 (56.7%), in the 4th year class 85(29.0%) and had no family history of use of psychoactive substances 239(81.6%). The prevalence of psychoactive substance use was 65.5%. the odds for use of the drugs was highest with alcohol 178(60.8%) and least for inhalational solvents 75(25.6%). There was significant association between gender and the use of: Cannabis $X^2 = 7.846$, $df=1$, $p<0.05$, Cocaine $X^2 = 36.602$, $df=1$, $p<0.05$, Other opioids $X^2 = 29.847$, $df=1$, $p<0.05$, Sleeping pills $X^2 = 9.862$ $df=2$, $p<0.05$. Nicotine $X^2 = 17.264$, $df=1$, $p<0.05$, Inhalational solvents $X^2 = 6.598$, $df=1$, $p<0.05$. Similarly, there was significant association between academic class and:- Cannabis $X^2 = 14.916$, $df=5$, $p<0.05$, Heroin $X^2 = 12.272$, $df=5$ $p<0.05$, Codeine $X^2 = 9.577$, $df=1$, $p<0.05$, Other Opioids $X^2 = 15.962$, $df=5$, $p<0.05$, Nicotine $X^2 = 15.496$, $df=5$, $p<0.05$, Caffeine $X^2 = 13.428$, $df=5$, $p<0.05$, Inhalational solvents $X^2 = 21.505$, $df=5$, $p<0.05$. Also there was significant association between family history of use of psychoactive substances and use of Opioids $X^2 = 8.157$, $df=1$, $p<0.05$ (Chukwujekwu Chidozie Donald., 2017)

Chapter Three

3. Methodology

3.1. Study Area

The study will be conducted at St. Paul Hospital Millennium Medical College (SPHMMC). St Paul's Hospital is found in Addis Ababa, Ethiopia. It is teaching and referral Hospital located in western part of Addis Ababa. An estimated 800 clinical and nonclinical staff provide care to approximately 110,000 people each year. St. Paul's receives referrals from around the country and the hospital provides outpatient and inpatient services with a total of 372 beds. The hospital has a substance inpatient unit run by the psychiatry department. The unit is involved in clinical service and training of psychiatry residency program. The facility has 5 beds and it gives service only for male clients due to limited resources. And this retrospective chart review study will be conducted in this facility.

Patients are usually admitted at the facility for opioid and alcohol detoxification. During inpatient stay patients are provided medication for symptomatic management of withdrawal symptoms. Treatment for co-occurring psychiatric disorders is also provided and the facility has a close liaison with the teaching general hospital for management of concurrent medical illnesses.

The inpatient records will be used as a source of data. The detailed demographic and clinical data such as age, sex, address (place of residence), admission and discharge diagnoses, substance use, history of admission, and medication received. Date of admission and discharge were also recorded and used to calculate duration of stay. A global clinical rating of outcome was recorded at discharge and categorized as follows; improved, unchanged, absconded and deceased. This rating was completed by the psychiatrist or the senior resident.

The lead consultant psychiatrist for the 32 ward has primary responsibility for making a clinical diagnosis. Discharge diagnoses were preferred to admission diagnoses as a more valid and final categorization. For data analysis, discharge diagnoses were summarized into broad diagnostic classes according to the Diagnostic and Statistical Manual of Mental Disorders, DSM-V. The DSM-V is a diagnostic system used in clinical and research settings in many parts of the world, including Ethiopia.

3.2. Study period

Study will be conducted from May 15- June 15 2019GC

3.3.Study design

Hospital based retrospective chart review (May 2008- May 2019 G.C)

3.4.Study Population

All patients who have been admitted at the facility since the establishment of the center, Feb 2003 G.C is 518 but charts which are longer than 10 years are difficult to retrieve. So this study will incorporate charts dated from May 2008 G.C onwards. So, the study population will be 380.

3.5.Inclusion and exclusion criteria

Inclusion criteria- age >17

Sex – male

Exclusion criteria - age <18

Sex - female

3.6.Sample Size determination

The number of patients to be involved in the study is determined by the below mentioned formula which is used to calculate sample size in a study where the study population is finite.

$$n = \frac{\frac{z^2 * p * (1 - p)}{e^2}}{(1 + \frac{z^2 * p * (1 - p)}{z^2 * N})}$$

Where:

n= sample size

p = prevalence of substance use disorder/Population or sample proportion

Z = Z-score at 95% confidence interval (1.96)

e = Assumed margin of error

N = population size

Various studies done Ethiopia put the prevalence ranging from 7% up to 72% for variety of substances abuse and the average prevalence value becomes 40% (p=0.4) (Beyero T et.al, 2004) (Kebede et al., 2005). However, to be more precise (to produce larger sample size number) a conservative prevalence value of 0.5 is taken, as advised by different literatures, for this study. A total of 380 patients were admitted to the detoxification unit of SPHMMC as

of 2008 G C. so, the population size for this study becomes 380. And, 6% margin of error, $e=0.06$, is assumed as well for computation of the sample size.

Accordingly, $z=1.96$, $p=0.5$, $N=380$, and $e=0.06$. when we substitute these values in the above formula we get a sample size of $n=157$.

$$n = \frac{(1.96^2 * 0.5 * (1 - 0.5)) / 0.06^2}{1 + \frac{1.96^2 * 0.4 (1 - 0.4)}{(0.06^2 * 380)}}$$

$$n = 266.77 / 1.702 = 156.74$$

$$n = 157$$

3.7. Sampling technique

To get representative sample from every year of admission, systematic probabilistic sampling has been used with sampling interval of n^{th} value until the required sample size number is reached. The sampling interval, n^{th} value is determined by dividing the population size ($N=380$) by sample size ($n=157$ sample) which yield 2.4 and approximated value of 2 has been used as sampling interval. However, during data collection there were missing charts, and for every chart that was found to be missing the next will be automatically used instead. Patients who were admitted more than once were only included once in the sample.

3.8. Study variables

The below listed are independent variables which are going to be used to study the admission pattern.

A. Sociodemographic variables

- Age
- Religion
- Occupation (profession)
- Educational level
- Address
- Marital status

B. Patient's family history

- Partner substance abuse
- Family history of substance abuse
- Family history of other mental illness

C. Substance abuse history

- Type of substance use
- Diagnosis at admission
- Age of start of substance abuse
- Duration of substance abuse
- History of comorbid mental illness
- History of comorbid general medical condition
- Source of referral
- Clinical status at admission
- Number of admission at this and other rehabilitation center
- Criminal history

D. Substance abuse history

- Medication received
- Clinical status at discharge
- Duration of stay in the ward
- Type of discharge

3.9.Data collection

Data was collected from chart review of patients who stayed in SPHMMC addiction unit for more than 24 hours. It was conducted by the principal investigator and one assistant health professional and summarized the data on data collection sheet prepared for this study purpose (Annex 1). The assistant data collector was given a two-hour training on how to gather the data and fill into the data collection sheet. Charts were reviewed at St. Paul's archive department office. Collected data were kept secured in the personal locker of the PI. All charts were given codes which were only known by the PI. So, patient information was kept anonymous. Missing data were imputed on the statistical analysis by averaging or maximum likelihood strategies. In this study maximum likelihood strategy shall be used i.e assigning the missing value as one response, such as with a "yes" or 'no' question where the absence of a 'yes' results in an immediate 'no' (Robin E. et al., 2006).

For the purpose of this study patients admitted at SPHMMC addiction unit as of May 2008G.C were included in the study population. Those admitted prior to the mentioned date were excluded from the study because it was not possible to access their charts, since the hospital discards charts which were older than 11 years.

3.10. Data analysis

Data is analyzed using SPSS version 20 and the results are presented using tables & graphs as required. Study variables are described by mean, frequency, and standard deviation. Significant associations are determined using chi square test.

3.11. Data quality assurance

Pilot study was conducted from May 1-15 2019 before the main study is conducted by using of 10% of the sample to check completeness of the data and institute corrective measure for any unforeseen problems in data abstraction and for future analysis work.

3.12. Ethical Considerations

Ethical clearance has been obtained from IRB of SPHMMC. Patient whose charts are being used for this review are not subjected to any harm. No financial incentive was considered. If there are cases who require further treatment they will be contacted via their address and asked to come back for treatment. This study does not directly involve subjects so consent is waived.

Retrospective chart review technique will be used, individual information will not be disclosed to any third party without the permission of the study participant. Therefore, privacy and confidentiality of patient's information is kept. Study participant names and chart numbers will not be mentioned, instead it will be code.

Chapter Four

4. Results

4.1. Sociodemographic profile

Age: The age range of the sample is shown below. Majority of the patients are in the age between 21-40 yrs. The mean age range falls in (31-35) with standard deviation value of 1.871.

Age Group	Frequency	Percent
15-20	9	5.7
21-25	28	17.8
26-30	37	23.6
31-35	28	17.8
36-40	23	14.6
41-45	13	8.3
46-50	9	5.7
greater than 51	10	6.4
Total	157	100.0

Table 4.1 Age distribution of substance abuse

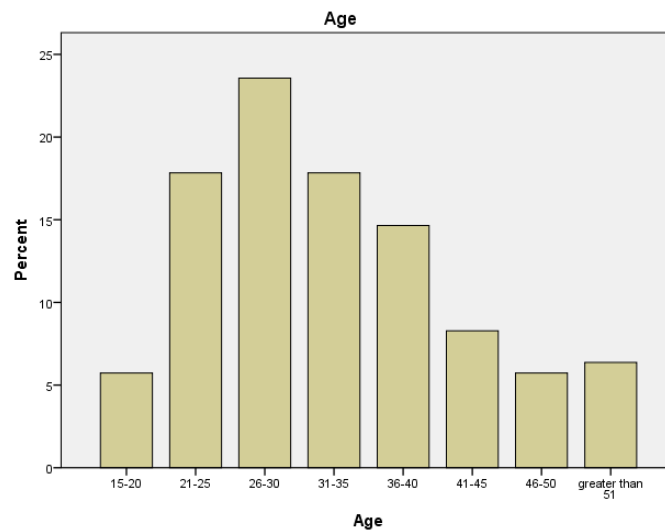


Figure 1. Age distribution of patients

Educational status. Fifty-one percent of the patients were high school student and dropouts from high school. Thirty one percent of the patient were also preparatory school student and dropout.

Educational Status	Frequency	Percent
Primary (Grade 8 & Below)	21	13.4
High School (Grade 9-10)	51	32.5
Preparatory (Grade 11-12)	31	19.7
Certificate	6	3.8
Diploma	15	9.6
First Degree	30	19.1
Second Degree	2	1.3
Total	156	99.4
Total	157	100.0

Table 4.2. Education distribution of substance abuse

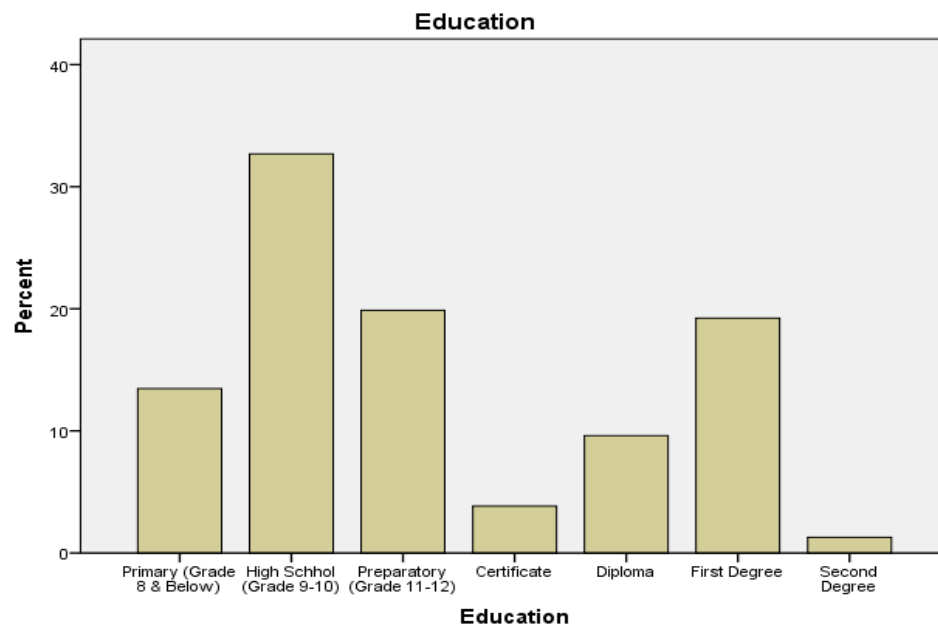


Figure 4.2. Education distribution of patients in percentage

Occupation. Fifty seven percent of the patients in this sample are unemployed. Among the employed professionals 10 were health professionals: 6 medical doctors, 1 nurse, 1 pharmacist 1, health officer and 1 dentist

Occupation	Frequency	Percent
Governmental Employee	21	13.4
Private Employee	25	15.9
Self-employed	10	6.4
Unemployed	90	57.3
Others	11	7.0
Total	157	100.0

Table 4.3. Occupation distribution of substance abuse

Marital status. Seventy percent of the patients in this sample are single

Marital Status	Frequency	Percent
Single	111	70.7
Married	33	21.0
Divorced	10	6.4
Widowed	3	1.9
Total	157	100.0

Table 4.4. Marital status distribution of patients

Region. Eighty four percent of the patients in this sample are from Addis.

Region	Frequency	Percent
AA	132	84.1
Amhara	12	7.6
Oromia	7	4.5
South	2	1.3
Total	153	97.5
Total	157	100.0

Table 4.5 Regional distribution of patients

Religion. Seventy five percent of the patients in the sample are orthodox Christian religion followers.

Religion	Frequency	Percent
Orthodox Christian	118	75.2
Protestant	21	13.4
Muslim	15	9.6
Others	2	1.3
Total	156	99.4
System	1	.6
Total	157	100.0

Table 4.6 Religion distribution of substance abuse

4.2.Clinical characteristics of patients

Distribution of substance type: The odds for the use of psychoactive substance was highest with alcohol 139(88.5%) followed by nicotine 111(70%), chat 101 (64%), cannabis 41(26%), opioid 11 (7%). The least used was cocaine 1(0.2%). As depicted clearly on figure xxx 64.3 % of the patients use 2 or more substance other than nicotine making the prevalence of poly substance use to be 64.3%.

Type of substance abuse		Responses		Percent of Cases
		N	Percent	
	Chat abuse	101	25.0%	64.3%
	Alcohol abuse	139	34.4%	88.5%
	nicotine abuse	111	27.5%	70.7%
	Cannabis abuse	41	10.1%	26.1%
	Opioid abuse	11	2.7%	7.0%
	Cocaine abuse	1	0.2%	0.6%
Total		404	100.0%	257.3%
^a Dichotomy group tabulated at value 1				

Table 4.7. Distribution of substance type

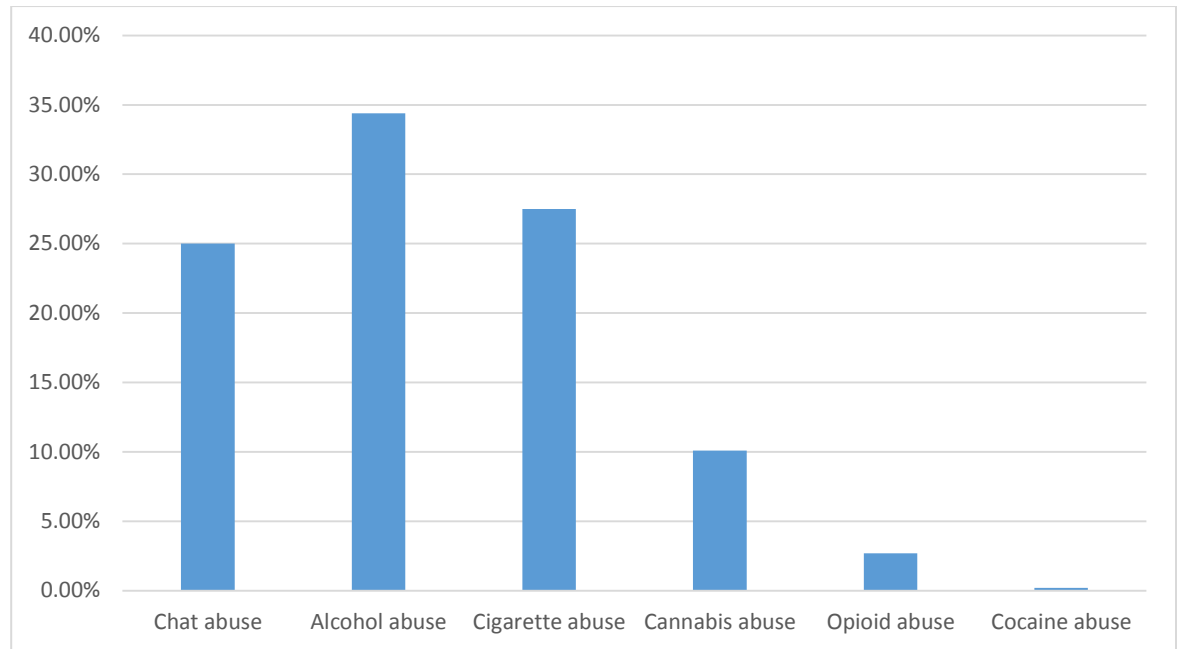


Figure 4.3. Distribution of types of substances (n=157)

Duration of substance abuse: As it can be seen from the below report table 4.8, the mean time of substance use duration is 12.89 years with maximum value of 35 and minimum 1 years.

Valid	157
Missing	0
Mean	12.89
Median	12.00
Mode	15 ^a
Std. Deviation	8.046
Range	35
Minimum	1
Maximum	35
a. Multiple modes exist. The smallest value is shown	

Table 4.8 Duration of substance abuse statistics summary

Age of start of substance abuse. Forty seven percent of the patients in this sample started to use substance between age of 21-25.

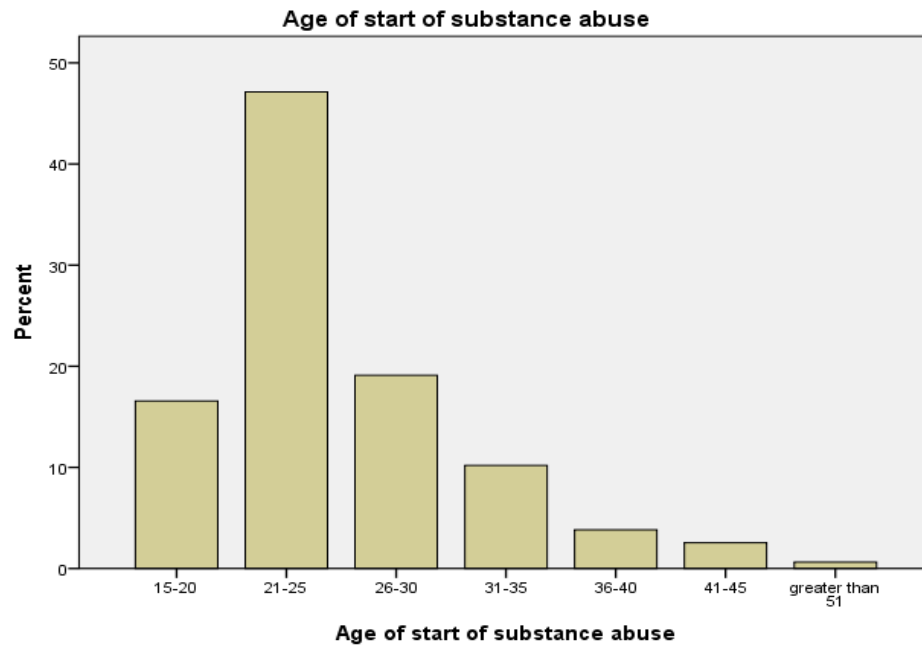


Figure 4.4 Age of start of substance abuse (n=157)

Source of referral. Sixty three percent of the patients were voluntarily admitted by themselves whereas 15 % of the patients were referred by their family and 19% were referred by hospitals.

Source of referral	Frequency	Percent
Self	100	63.7
Family	25	15.9
Hospital	30	19.1
Friends	2	1.3
Total	157	100.0

Table 4.9 Source of referral

Number of admissions. Ninety one percent of the patients were only admitted once, 7.6% were admitted twice and only 1.3% admitted trice.

No. of addition	Frequency	Percent
Once	143	91.1
Twice	12	7.6
Three times	2	1.3
Total	157	100.0

Table 4.10 No. of admission at this hospital

Comorbid mental illness. Thirty-two patients had comorbid major depression and 15 patients have given history of psychotic spectrum disorder. Two patients had anxiety disorder. Personality disorder was not documented for any patient.

Comorbid mental illness	Frequency	Percent
Major depression	32	20.4
psychotic spectrum disorder	15	9.6
anxiety disorder	2	1.3
Total	50	31.8
System	107	68.2
Total	157	100.0

Table 4.11 Types of comorbid mental illness

Admission diagnosis. Seventy-seven percent (121) patients were admitted with diagnosis of poly substance use disorder i.e. patients who use more than one substance of any type. Sixteen percent were admitted with alcohol use disorder and 6% were admitted with pethidine use disorder as shown in the table below.

Admission diagnosis	Frequency	Percent
Alcohol use disorder	25	15.9
Cannabis use disorder.	1	.6
Poly substance use disorder	121	77.1
Pethidine use disorder	10	6.4
Total	157	100.0

Table 4.12: Clinical diagnose at admission

Criminal history. Only 9 patients had criminal history among the 157 patients

Criminal history	Frequency	Percent
Yes	9	5.7
No	148	94.3
Total	157	100.0

Table 4.13: Criminal history

Duration of ward stay. The mean duration of ward stay was 5.83 week

Duration of ward stay	Frequency	Percent
24hr	2	1.3
1 week	9	5.7
2 weeks	11	7.0
3 weeks	14	8.9
4 weeks	33	21.0
5 weeks	33	21.0
6 weeks	25	15.9
7 weeks	14	8.9
8 weeks	3	1.9
More than 8 weeks	13	8.3
Total	157	100.0

Table 4.13: Duration of stay in the ward

4.3. Test for significance and association

Table 4.14 demonstrates that, there is statistically significant association between age and chat abuse $\chi^2=29.058$ $df=7$, $p<0.05$, age and alcohol ($\chi^2 = 15.782$ $df=7$ $p<0.05$), age and cannabis ($\chi^2= 18.361$ $df=7$ $p<0.050$). There is statistically significant association between education and opioid ($\chi^2= 16.499$ $df=6$ $p<0.05$). There is also found to be statistically significant association between marital status and chat abuse ($\chi^2= 20.948$ $df=3$ $p<0.05$), between marital status and nicotine ($\chi^2=10.349$ $df=3$ $p<0.05$). There is statistically significant association between occupation and chat abuse ($\chi^2=11.167$ $df=4$ $p<0.05$), between occupation and alcohol abuse

($\chi^2=18.598$ $df=4$ $p<0.05$) , between occupation and cannabis ($\chi^2=13.982$ $df=4$ $p<0.05$) , between occupation and opioid use ($\chi^2=27.596$ $df=4$ $p<0.05$)

Demographic Character	Measurement Parameters	Chat	Alcohol	nicotine	Cannabis	Opioid	Cocaine
Age	χ^2	29.058	15.782	12.835	18.361	6.704	5.863
	df	7	7	7	7	7	7
	p-value	.000	.027	.076	.010	.460	.556
	Phi	.430	.317		.342		
Education	χ^2	4.415	6.707	3.008	9.221	16.499	4.227
	df	6	6	6	6	6	6
	p-value	.621	.349	.808	.162	.011	.646
	Phi					0.325	
Religion	χ^2	2.55	2.027	0.953	16.095	1.545	0.324
	df	3	3	3	3	3	3
	p-value	.466	0.567	.813	.001	.672	.955
	Phi				0.321		
Marital status	χ^2	20.948	2.729	10.349	6.291	5.706	0.417
	df	3	3	3	3	3	3
	p-value	.000	.435	.016	.098	.127	.937
	Phi	0.365		0.016			
Occupation	χ^2	11.167	18.598	4.877	13.982	27.596	5.314
	df	4	4	4	4	4	4
	p-value	.025	.001	.300	.007	.000	.257
	Phi	0.365	0.344		0.298	0.419	

Table 4.14 Association between sociodemographic variables and types of substance abuse

As it can be seen from table 4.15, there is no statistically significant association between patient family history of substance abuse, patients' family history of mental illness, and patient comorbid mental illness with type of substance abused.

Patient history	Measurement Parameters	Chat	Alcohol	Cigarette	Cannabis	Opioid	Cocaine
Patient's family history of substance abuse	χ^2	3.456	0.352	0.105	1.506	0.045	0.191
	df	1	1	1	1	1	1
	p-value	.063	.553	.746	.220	.832	.662
	Phi						
Patient's family history of mental illness	χ^2	1.472	0.949	0.65	0.023	0.552	0.047
	df	1	1	1	1	1	1
	p-value	.225	.330	.420	.880	.457	.828
	Phi						
Patient history of comorbid mental illness	χ^2	0.164	1.852	0.127	0.945	2.572	0.443
	df	1	1	1	1	1	1
	p-value	.685	.174	.722	.331	.109	.506
	Phi						

Table 4.15 Association between patient history of mental illness and family history of substance use problem

There is statistically significant correlation between chat chewing and drinking alcohol, smoking cigarette and cannabis. Chat chewing has also negative correlation with opioid. But chat has no correlation with cocaine use in this study as showed in table 4.16.

There is statistically significant correlation between alcohol abuse and cigarettes smoking and has negative correlation with opioid use, table 4.16. But no significant correlation between alcohol and cannabis smoking and cocaine abuse.

As it is depicted in table 4.16, there is statistically significant correlation between smoking cigarette and smoking cannabis and negative correlation with opioid use, but no significant correlation between smoking cigarette and cocaine use.

There is no statistically significant correlation between cannabis smoking and opioid use and cocaine use, table 4.16. There is no statistically significant association between opioid use and

cocaine use, table 4.16. Cocaine has no statistically significant correlation with any of the substances in this study.

		Chat abuse	Alcohol abuse	Nicotine abuse	Cannabis abuse	Opioid abuse	Cocaine abuse
Chat abuse	Pearson Correlation	1	.191*	.602**	.231**	-.317**	.060
	Sig. (2-tailed)		.016	.000	.004	.000	.458
	N	157	157	157	157	157	157
Alcohol abuse	Pearson Correlation	.191*	1	.208**	-.059	-.606**	.029
	Sig. (2-tailed)	.016		.009	.462	.000	.720
	N	157	157	157	157	157	157
nicotine abuse	Pearson Correlation	.602**	.208**	1	.160*	-.317**	.052
	Sig. (2-tailed)	.000	.009		.046	.000	.521
	N	157	157	157	157	157	157
Cannabis abuse	Pearson Correlation	.231**	-.059	.160*	1	-.106	.135
	Sig. (2-tailed)	.004	.462	.046		.185	.093
	N	157	157	157	157	157	157
Opioid abuse	Pearson Correlation	-.317**	-.606**	-.317**	-.106	1	-.022
	Sig. (2-tailed)	.000	.000	.000	.185		.785
	N	157	157	157	157	157	157
Cocaine abuse	Pearson Correlation	.060	.029	.052	.135	-.022	1
	Sig. (2-tailed)	.458	.720	.521	.093	.785	
	N	157	157	157	157	157	157

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 4.16 Correlation between different types of substances

Chapter Five

5. Discussion

5.1. Discussion

The prevalence of poly substance use in this study is 64.3%. When we see it individually alcohol is the most prevalent (88.5%) followed by nicotine 70.7% followed by chat (64.3%) followed by cannabis (26.3%). This prevalence when compared with other similar risk group studies is found to show a consistent pattern (Kebede et al., 2005), (Fekadu et al., 2017). In another study done few years back at Amanuel Hospital on patients admitted with substance related disorders 20.7% used chat, 13 % used alcohol and 1.6 abused heroin. This studies clearly demonstrated that the prevalence rate of each substance is growing at alarming rate calling for public health concern.

The study also demonstrated that the odds for using psychoactive substance were the highest for alcohol, nicotine and chat. Hence making them the most likely drugs to be abused by patients. When compared to another study done in South Africa the most prevalent substance of abuse was cannabis 67% followed by methamphetamine 17% and alcohol 10% (Lachman et al., 2012). The different figures can be attributed to difference in research methodology used by various researches as well as variations in culture of the study group. These substances have very high prevalence rates and eventually usher the user to experiment and abuse other more dangerous drugs such as cocaine and heroin (Susman s. et al., 2008)

In this study participants are only recruited from one gender because the facility only gives service to male patients. So, association between substance abuse and gender was not analyzed.

This study has shown that age is significantly associated with chat use, alcohol use and cannabis use. The most vulnerable age group being 21-35 ($\chi^2=15.782$ $df=7$ $p=0.027$) this data seems to be in consonance with a study done in Saudi Arabia reporting that people between 20-40 yrs. (37.7% $p=0.02$) tend to use more than 2 substances (Ibrahim et al., 2018).

In the present study education was significantly associated with opioid use. Implying that most of the patients were high school dropouts (51%). This finding is also consistent with the study done in Saudi Arabia with 41.9 % of the study population being high school dropout. Education helps people to learn skills and develop perceptions of risk. A study conducted in Copenhagen found

that those with the lowest level of schooling were most frequently smokers, heavy drinkers and most physically inactive (Dennis M, Scott CK. , 2018)

The other characteristics of the present study were unemployment and single marital status which constituted 57.3% and 70.7% of the abusers respectively. These results were in agreement with other studies (Gyawali B et al., 2016). The tremendous stress rejection, fear and frequent bouts of depression that often result from being unemployed and single are high risk factors for the development of drug use problem. Many people who are struggling with unemployment and stay single turn to alcohol or drugs to mitigate their discomfort and sense of helplessness (Hamid E et al., 2016). This is also supported by the fact that most of the patients (32%) of those having comorbid mental illness have reported major depressive disorder.

Another important observation in this study is the absence of any significant association with positive family history of substance abuse ($p=0.69$). In the study sample only 15.9% ($n=25$) patients had family history of substance abuse. The study has also demonstrated no statistically significant association between type of comorbid mental illness and substance related disorder ($\chi^2= 1.852$ $df=1$ $p=0.174$). This finding contrasts with other studies where drug abuse runs strongly in families and studies have demonstrated that genetic factors contribute substantially to the familial aggregation (Iqbal, 2001)

Regarding correlation between substances, chat is found to have strong correlation with alcohol, nicotine, cannabis and opioid. (Pearson correlation 0.191, $p= 0.016$). This implies that patients who consume chat are at increased risk to use other substances.

Another salient finding in this study is that discharge against medical advice was significantly associated with opioid abuse ($\chi^2=23.3$ $df=3$ $p < 0.05$ $\phi= 0.383$). This is probably owing to the disturbing withdrawal symptoms patients may experience among other things.

In this study 77% ($n=121$) patients were admitted with poly substance use disorder but discharge diagnosis was not clearly documented. So, this will make it difficult to follow patients in the long run.

With regard to criminal history many literatures have shown that substance related disorders has bilateral relationship with being unemployed and having diagnosis of anti-social personality disorder. Both of which are risk factors for criminality (Hamid E et al., 2016). In the present

study criminal history was found to have statistically significant association with cocaine abuse (Pearson correlation= 0.325 p=0.000).

5.2.Limitation

As this was a retrospective chart review the quality of the clinical notes could not be standardized as they were recorded by different health professionals at different level of training. The data was however extracted by the Principal investigator and one assistant data collector to ensure uniformity. The other limitation is that the research does not include female participant. So, one has to use the findings of this research with precaution

5.3.Recommendation

We recommend that chart keeping should be automated to make retrieval easy and accessible. We also recommend that discharge diagnosis should be clearly documented along with the discharge summary. This study has clearly demonstrated that there is an ever increasing demand for rehabilitation facilities so, the responsible stake holders should pay enough attention to the condition and establish newer facilities and expand the existing facility.

5.4.Conclusion

This study has clearly shown that the trends of using substances has grown at an alarming rate making Substance use disorder a public health concern. So much effort is needed from all stakeholders to make the future generation substance free. We also need a more specialized units to treat patients suffering from this chronic mental illness.

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Annex-01**St. Paul Millennium Medical Collage****Data Collection sheet for admission pattern chart review research by****Dr. Adia Kebede**Note:

- **1st degree** relative include
 - ✓ Father, Mother, Sister, Brother
- **2nd degree** relative include
 - ✓ Ant, Uncle, Cousin, Grand parents

1. Sociodemographic Data**1.1. Age...Q1**

- ☐ 15-20...1 ☐ 21-25..2 ☐ 26-30...3 ☐ 31-35..4 ☐ 36-40..5
☐ 41-45...6 ☐ 46-50..7 ☐ Greater than 51...8

1.2. Education...Q2

- ☐ Uneducated...1 ☐ First Cycle (up to grade 1-4) ...2 ☐ Second Cycle (grad5-8) ...3
☐ High school (Grade 9-10) ...4 ☐ Preparatory (Grade 11-12) ...5
☐ 10+1...6 ☐ 10+2...7 ☐ Diploma...8 ☐ First Degree...9
☐ Second Degree...10 ☒ PHD...11

1.3. Religion...Q3

- ☐ Orthodox Christian...1 ☐ Protestant...2 ☐ Muslim...3 ☐ Catholic...4
☐ Others...5

1.4. Marital Status...Q4

- ☐ Single...1 ☐ Married...2 ☐ Divorced...3 ☐ Widowed...4

1.5. Address (Town) ...Q5

- ☐ AA...1 ☐ Amhara...2 ☐ Oromia...3 ☐ South...4

1.6. Occupation...Q6

- ☐ Government Employee...1 ☐ Private Employee...2 ☐ Self-employed
 ...3 ☐ NGO...4 ☐ unemployed...5 ☐ Student...6 ☐ others...7

1.7. Specify the profession of the patient: _____...Q7

2. Patient's Family History

2.1. Is there family substance abuse history? ...Q8

- ☐ Yes...1 ☐ No...2

2.2. If the above answer is yes, please specify? ...Q9

- ☐ 1st degree relative...1 ☐ 2nd degree relative...2 ☐ others...3

2.3. Is there partner's substance abuse history? ...Q10

- ☐ Yes...1 ☐ No...2

2.4. Is there family history for mental illness? ...Q11

- ☐ Yes...1 ☐ No...2

2.5. If the answer is yes for the above question, please specify: _____...Q12

- ☐ Major depression ...1 ☐ Bipolar disorder...2 ☐ Psychotic spectrum
 disorder ...3 ☐ anxiety disorder...4 ☒ obsessive compulsive disorder ...5
☐ Personality disorder...6 ☐ Others...7

3. Substance History

3.1. Clinical diagnose at admission: _____...Q13

3.2. Types of substance abuse ...Q14

- 3.2.1. Chat...Q14A ☐ Yes...1 ☐ No...2
 3.2.2. Alcohol...Q14B ☐ Yes...1 ☐ No...2
 3.2.3. Cigarette...Q14C ☐ Yes...1 ☐ No...2
 3.2.4. Cannabis...Q14D ☐ Yes...1 ☐ No...2
 3.2.5. Opioid...Q14E ☐ Yes...1 ☐ No...2
 3.2.6. Cocaine...Q14F ☐ Yes...1 ☐ No...2

3.3. Please specify other substance abuse other than above, if any? _____...Q15

3.4. Duration of substance abuse: _____...Q16

3.5. Age of start of substance abuse: _____...Q17

- ☐ less than 14...1 ☐ 15-20...2 ☐ 21-25...3 ☐ 26-30...4
☐ 31-35...5 ☐ 36-40...6 ☐ 41-45...7 ☐ 46-50...8 ☐
 Greater than 51...9

3.6. Source of referral ...**Q18**

- ☐ Self...1 ☐ Family...2 ☐ Hospital...3 ☐ Friends...4 ☐ Others...5

3.7. If the above answer is others, please specify? _____...**Q19**

3.8. Number of admission at this hospital: _____...**Q20**

- ☐ Once...1 ☐ Twice...2 ☐ Three times...3 ☐ More than three...4

3.9. Number of admission at other rehabilitation centre: _____...**Q21**

- ☐ None...1 ☐ One...2 ☐ Twice...3 ☐ More than twice...4

3.10. History of comorbid mental illness...**Q22**

- ☐ Yes...1 ☐ No...2

3.11. If the answer is yes for the above question, please specify: _____...**Q23**

- ☐ Major depression ...1 ☐ Bipolar disorder...2 ☐ Psychotic spectrum
 disorder ...3 ☐ anxiety disorder...4 ☐ obsessive compulsive disorder ...5
☐ Personality disorder...6 ☐ Others...7

3.12. Is there history of comorbid general medical condition? ...**Q24**

- ☐ Yes ...1 ☐ No...2

3.13. If the above answer is yes, please specify? _____...**Q24A**

3.14. Is there Criminal history? ...**Q25**

- ☐ Yes ...1 ☐ No...2

4. **Treatment**

4.1. Type of medication received: _____...**Q26**

- 4.1.1. Pharmacotherapy.....**Q26A** ☐ Yes...1 ☐ No...2

- 4.1.2. Psychotherapy.....**Q26B** ☐ Yes...1 ☐ No...2

4.2. Clinical status at discharge...**Q27**

- ☐ Improved...1 ☐ Abscond...2 ☐ Discharged against medical ☐
 advice...3 ☐ transferred ...4 ☐ Discharged on disciplinary ground...5

4.3. Duration of stay in the Ward ...**Q28**

- ☐ 24Hr...1 ☐ 1 week...2 ☐ 2 weeks...3 ☐ 3 Weeks ...4
- ☐ 4 Weeks ...5 ☐ 5 Weeks ...6 ☐ 6 Weeks ...7 ☐ 7 Weeks ...8
- ☐ 8 Weeks ...9 ☐ More than 8 weeks ...10