

**SUBSTANCE USE AND QUALITY OF LIFE OF YOUNG PEOPLE WITH MENTAL  
DISORDERS ATTENDING PSYCHIATRIC CLINICS IN KUMASI, GHANA**

**BY**

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DEGREE IN CHILD AND ADOLESCENT MENTAL HEALTH  
UNIVERSITY OF IBADAN, NIGERIA**

**DECLARATION**

I hereby declare that this research project is my original work and that it has not been submitted in part or whole to any other institution for the attainment of a degree or diploma.

Ruth Charlotte Sackey (MD)

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Signature

.....

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## **DEDICATION**

This work is dedicated to my beloved late brother, Randal Obed Sackey, whose untimely death during the course of this program broke my heart, and yet made me stronger. He has been and remains a strong pillar in all my advancements and achievements in life.

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To all my loved ones who have helped me in this journey I am most grateful.

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## PROJECT CERTIFICATION

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## KEY TO ABBREVIATIONS

APA	American Psychiatric Association
CHPRE	Committee on Human Research, Publication and Ethics
DSM	Diagnostic and Statistical Manual of Mental Disorders
GDHS	Ghana Demographic and Health Survey
GHS	Ghana Health Service
GSS	Ghana Statistical Services
ICD	International Classification of Diseases
KATH	Komfo Anokye Teaching Hospital
KSADS	Kiddie Schedule of Affective Disorders and Schizophrenia
LMICs	Low and Middle Income Countries
NIDA	National Institutes of Drug Abuse
QOL	Quality of life
SUD	Substance Use Disorders
WHO	World Health Organization
WHOQOL	World Health Organization Quality of Life

## ABSTRACT

**BACKGROUND:** Substance use is a public health issue of immense concern and most often occurs co-morbidly with other mental disorders. The onset of substance use is usually in adolescence which is considered a vulnerable period. Many young people with mental illness or problems may resort to the use of substances for solutions to their mental health problems. Likewise, substance use can lead to serious mental health problems and predispose to mental illness. Mental illness and early substance use can adversely affect the quality of life, however, better diagnosis of youth mental illness and early identification of substance use disorders may help reduce co-morbidity and improve quality of life.

**Aim:** The aim of this study was to identify the patterns of substance use and the association between substance use and quality of life of young persons with mental disorders attending Psychiatric clinics in Kumasi, Ghana.

### **METHODOLOGY:**

This was a cross-sectional study design using structured and standardized questionnaires. The study population included all young people aged 10-25 years with mental disorders accessing mental health care services in three government facilities in Kumasi, Ghana. A sample size of 170 participants was calculated for this study based on a previous similar study in South Africa. All participants who met the criteria were recruited until the sample size was attained. Data was collected through one-on-one interviews with participants (with or without their guardian) who consented to the study. The modified socio-demographic questionnaire was first administered to all participants after which they were diagnosed using the Kiddie Schedule of Affective Disorders and Schizophrenia (KSADS DSM 5) supplements based on their primary or



main symptoms or their working diagnosis (for those diagnosed by psychiatrists). Those who screened positive for substance use on the socio-demographic questionnaire were administered the substance use supplements of the KSADS DSM 5 version and diagnosed according to severity (mild, moderate, severe). Each participant also gave their subjective quality of life on the WHOQOL-BREF which was administered and gave ratings of 1-5 across four main domains, and a score for overall quality of life and overall perception of health. The data collected was managed and analyzed using the Statistical Package for Social Sciences (SPSS) version 25. Data collected was cleaned and summarized in tables, charts and percentages. The Chi-squared test was used to test association between categorical variables. Logistic regression analysis was used to determine independent factors predicting substance use. The student t-test was used to find the association between substance use and quality of life.

**RESULTS:** Comorbid substance use rate of 25.3% was recorded among young people with mental disorders; 23.5% had mild to severe forms of Substance Use Disorders (SUDs) of which 67% of users had a severe form of SUD. Onset of substance use was predominantly between 15-19 years. Cannabis, alcohol and opioids were the most frequently used substances. Topmost reasons users gave for their use was to fit in with peers, for pleasure and to provide relief from stress and mental problems. Substance use was most common in those with Schizophrenia and other psychotic disorders, bipolar disorders, depression and anxiety disorders. Being male and aged 15-19 years were significantly associated with substance use ( $p < 0.05$ ). Other factors such as having no religious affiliation ( $p = 0.036$ ), dislike for family/family dissatisfaction ( $p = 0.001$ ), being in a large class of more than 100 ( $p = 0.011$ ) and perceived poor academic performance ( $p = 0.012$ ) had significant associations with substance use, whilst difficulty with teachers maintained a borderline significance ( $p = 0.046$ ) with substance use. Participants with comorbid substance use had lower

scores on the WHOQOL-BREF in all domains except the physical domain; however significantly lower scores among users compared to non-users were observed in the environmental domain ( $p=0.005$ ), overall quality of life (0.001) and overall perception of health (0.024).

**CONCLUSION:** This study found that substance use is common amongst the young people of Ghana and poses a challenge on the mental health as well as the quality of life of users. Substance use disorders were found to have high comorbid rates with other mental disorders, though often the former is not detected and managed. Further findings from this study revealed that the family, school and community environment play a major role in substance use amongst the youth and preventive interventions need to focus on these areas and not just the individual. Preventive interventions and early identification and management of substance use disorders in young people could help reduce possible mental health problems and rate of mental disorders due to the high risk associated with the use. Education in schools, community centres, media and religious bodies to alert the youth on the implications of substance use on their quality of life and their mental health need to be aggressive and unabated.

**KEY WORDS:** substance use, adolescence, young people, comorbidity, quality of life.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 BACKGROUND

*“She had just caught me with cocaine again after I had managed to convince her that I hadn’t used in over a month. Of course I had been tooting (snorting) almost every day, but I had managed to cover my tracks a little better than usual. So she said to me that I was going to have to make a choice- either cocaine or her. Before she finished the sentence, I knew what was coming, so I told her to think carefully about what she was going to say. It was clear to me that there wasn’t a choice. I love my wife, but I was not going to choose anything over cocaine. It’s sick, but that’s what things have come to. Nothing and nobody comes before my coke”.*

— (Weiss and Mirin, 1987, p.55).

The extract above is one of a million stories that introduce the old problem of problematic substance use. Though this quote was from 3 decades ago, we still hear of this and similar stories over and over again in clinical encounters, in different forms, in different places, cultures and races. History has it that substance use and its accompanying problems have been a part of human societies for millennia and humans have been producing and drinking alcohol for at least 10,000 years (C. S. Martin, Chung, & Langenbucher, 2016). The term “substance use” describes the use of a psychoactive substance or drug which could be natural or synthetic, licit or illicit and can modify or alter mental functions and/or behaviour. Common interchangeable descriptions are drug abuse and substance abuse, addiction and dependence and substance use constitutes both lifetime use and 12-month use of a drug (NIDA, 2018).

Studies have shown that there is a closely knitted association between mental illness and substance use, either as an effect or a cause of each other or just co-occurring due to shared risk factors (NIDA, 2018). The onset of substance use is usually in adolescence, a period described as vulnerable due to the peculiarity of changes and challenges involved; they are considered to be very impulsive in their decisions in whatever is suggested to them without considering the risks involved. In view of this many young people risk using substances which potentially predispose them to having mental health problems, whilst those with mental illnesses may resort to substances of abuse for solutions to their mental health problems (NIDA, 2018).

The World Health Organization (WHO) defines adolescence as individuals between 10 to 19 age group, and youth as 15-24 age group, whilst the term young people refers to those aged 10-24 years and covers both adolescence and youth (WHO, UNICEF, 1995). Most mental and substance use disorders actually begin by age 14 and before 24 years (Kessler et al., 2009), though their detection may be later in life and may lead to a dearth in their physical and social functioning (Patel et al., 2007). It was reported by the Australian National Survey of Mental Health and Well Being that “at least 14% of adolescents younger than 18 years were diagnosable with a mental or substance use disorder in 12 months and this figure rose to 27% in the 18-24 age group”. They concluded from these studies that in the general population we have at least one out of four to five young people suffering from at least one mental disorder in every given year. (Patel et al., 2007). Worldwide studies have reported different prevalence rates of substance use in the general population. Kessler et al reported lifetime prevalence of substance use of 14.6% amongst people aged 18 and above in a nationwide survey in the United States (Kessler et al., 2009). In general, several studies under review reported rates of current SUDs of 12% - 65% and lifetime substance

use or dependence between 48% - 68% among patients in psychiatric care in both young and adult group samples. (Weich & Pienaar, 2009). Most of these studies however, focused on the adult group. A study among medical students in Nigeria found a lifetime prevalence of substance use of 65% (Eo, Akinhanmi, & Ogunwale, 2014), whereas Adu-Mireku reported a lifetime prevalence of alcohol use of 25.1% in a study of 894 senior secondary students in Accra, Ghana (Adu-Mireku, 2003). These figures show high prevalence rates of substance use in the general population and even higher rates amongst individuals with mental disorders.

In studies that looked at comorbid substance use and mental disorders, rates of substance use ranged from a low of about 11% to a high of 80%. Saban et al reported a substance use lifetime prevalence of 21.3% and a 12-month prevalence of 11.5% among young people with DSM IV disorders in South Africa (Saban et al., 2014). Generally, higher rates of substance use have been reported amongst mentally ill groups than in the general population (Saban et al., 2014).

Quality of life is a relatively recent developed concept that has come to stay as a better predictor of health and well-being than just the presence or absence of an illness (WHO, 1998). The WHO has defined health as a state of physical, mental and social well-being and not just the absence of a disease. The assessment of Quality of Life allows individuals to make their own subjective judgment of their satisfaction with life along areas such as their physical health, psychological health, social wellbeing and interaction with the environment (Adewuya & Makanjuola, 2009).

## **1.2 PROBLEM STATEMENT**

There are high rates of co-occurring mental illness and substance use disorders among young people (NIDA, 2018). Comorbidity has serious consequences, and is associated with such negatives outcomes as higher service utilization rates, more severe symptoms, greater functional disability and longer illness course (de Graaf, Bijl, Smit, Vollebergh, & Spijker, 2002). Substance abuse affects nearly all areas of functioning including vocational, social/familial, physical and mental health. Drug and alcohol problems are thought to cause considerable disability and changes to the quality of life of an individual (Armiya'u, Abdulmalik, & Makanjuola, 2016). The abuse of drugs goes beyond just the health of the user to exert a wider societal impact, especially where crime and violence is involved (Claro et al., 2015). Armiya'u et al stated that “these drug problems cause considerable disability and changes in the quality of life of our youth” (Armiya'u et al., 2016). This is a dire problem we face in society today, and evidence based interventions can be effectively implemented only if we explore the factors and reasons behind substance use; preventive measures can be implemented if we can find the root of the problem.

## **1.3 JUSTIFICATION**

Substance use and its related problems continue to pose serious public health challenges especially among young people. Substance use disorders usually carry alongside a high risk of comorbidity with other mental disorders (Bakare & Isah, 2016). Unfortunately, adolescence is a high risk period for the onset of substance use (Forti et al., 2014); it is a very critical period in the life of every child as it serves as a bridge between childhood and adulthood and most essential habits, morals and values are formed during this period (Saban et al., 2014).

Despite the numerous studies available on the topic of substance use, there is still a dearth in information available in developing countries regarding mental and substance use disorders, especially among the children and young people group (Patel et al., 2007). The mental health aspects and other implications of substance use have not been explored much in LMICs (Read, 2012). Most of the studies in Sub Saharan Africa identified the prevalence of substance use in the general population. Though studies have looked at comorbidity of substance use in mental illness and the possible association between the two, most of these studies, however, are conducted in adult populations and in developed countries. The topic seems inexhaustible and there remains more to be explored. More research is needed to look at the factors associated with the use of substance amongst the youth (particularly in Africa) so that interventions can be channeled appropriately within the sub-region. The implications of substance use on the quality of life and health needs to be explored in order to help evidence-based campaigns and educational programs.

In Ghana, there is limited research on the mental health implications of substance use and a study that looked at substance users in a private clinic in Accra excluded those with comorbid mental illness (Read, 2012). There was no identified study in Ghana that looked at the quality of life of young people assessing CAMH services in those presenting with substance use and mental disorders. There has been increasing presentation of young people with new onset of mental disorders in recent times in our society, especially among secondary and tertiary students. This is a cause of concern and therefore needful to look for the possible risk factors leading to this occurrence. Substance use is a possible risk factor to developing mental illness and this study attempts to explore this further.

Due to the scarcity of trained human resources and specialized services in many developing countries such as Ghana, many young people reporting to the hospital for mental health problems

may not have a thorough assessment and most substance use disorders aside their primary diagnosis are missed. Though in most developing countries the greater proportion of the population is under 25 years, there are highly inadequate CAMH services developed in these areas, and Ghana is not an exception, with very few trained CAMH professionals to handle mental health issues among children and adolescents.

Generally mental illness affects the quality of life of sufferers, and co-occurring substance use may further affect the quality of life negatively. The extent of this needs to be studied especially among the young population so that early interventions can be instituted to improve their outcome in life and their prognosis. There is a need to identify the reasons and factors associated with the use of substances among young people, particularly in Ghana now due to the increasing reports of substance use among the specified group. The study also seeks to determine the quality of life of young people with mental illness whereby no such study has been carried out in this region. The study further seeks to bridge knowledge gap by determining if comorbid substance use is associated with a better or worse quality of life. The study will give a baseline picture of the burden of substance use and mental illness among adolescents and young people in Ghana.

By examining their subjective quality of life, the study will provide knowledge on the quality of life of Ghanaian adolescents and youth with mental illness and substance use problems, as well as serve as a baseline for subsequent policy making and interventions to improve upon their quality of life. These interventions will also help to tackle the societal rise of crime and violence of which substance use and behavioral problems are contributory factors. Reduction in the use of substance during the course of treatment of a mental illness will most likely improve treatment outcomes and prevent unwanted drug-drug interactions and other adverse effects. Health professionals and school counsellors can make a difference in the quality of life of adolescents by finding the cause



of their early use of substance (Nkyi, 2015). This will be the first study in Ghana of this sort and comparisons with studies carried out elsewhere in Africa and world will be made to see if the pattern is the same in Ghana.

#### **1.4 RESEARCH QUESTIONS**

- 1) What are the patterns of substance use among young people (10-25years) presenting with mental disorders in Ghana?
- 2) What are the factors associated with substance use in young people who present with mental disorders in Ghana?
- 3) Is there a relationship between onset of mental illness and substance use among young people presenting to psychiatric clinics in Ghana?
- 4) What is the quality of life of young people with mental illness in Ghana?
- 5) Is comorbid substance use associated with better or poorer quality of life?

#### **1.5 AIM**

To identify the patterns of substance use and the association between substance use and quality of life of young persons with mental illness attending Psychiatric clinics in Kumasi, Ghana.

#### **1.6 SPECIFIC OBJECTIVES**

- 1) To determine the patterns of substance use among young people with mental illness in psychiatric clinics in Kumasi, Ghana.
- 2) To determine the factors associated with substance use among young people with mental illness.

- 3) To assess the quality of life of young people with mental illness in psychiatric clinics in Kumasi, Ghana.
- 4) To determine the association between substance use and quality of life of young people with mental illness.

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## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Substance Use – Definitions, History, Patterns and Cultural Variations

##### 2.1.1 Definitions

The term ‘substance’ has been used interchangeably with the term ‘drug’ and denotes the use of psychoactive substance. A psychoactive substance is one that exerts its main influence on the central nervous system and directly activates the reward pathway of the brain, thereby resulting in such effects as sedation, changes in the mood, thinking or behavior of the individual (DSM 5, APA, 2013). Drug abuse, addiction and dependence are common descriptions that have been used over time to describe what we currently have as substance use disorders.

##### 2.1.2 Historical Perspectives

It has been said that humans have been using psychoactive substances for millennia and have been producing and drinking alcohol for at least 10,000 years (C. S. Martin et al., 2016). The use of marijuana has been dated as far back as 2800 BC whilst the opium poppy plant has been in existence from at least the Bronze Age (1600-1200 BC). Old historical literature such as the Bible, Iliad and Odyssey and Greek myths have records of substance use way back in time, and knowledge and use of a substance spread by means of war, trade and migration (C. S. Martin et al., 2016).

Different substances have evolved and been used in diverse cultures, races and tribes of people. Native Americans and North America smoked dried tobacco which quickly spread to Europe and from there, other parts of the world. Malcolm X described addiction to alcohol and substances as

a consequence of the slavery of black people and in his speech in 1964 said, “the social philosophy of black nationalism only means that we have to get together and remove...alcoholism, drug addiction and other evils that are destroying the moral fiber of our community” (Malcolm X, 1965). From Malcolm’s point of view alcohol and addiction to drugs was a part of the continued machinery of the African American Oppression and a way to forget their hustle and what they had to do to survive; he encouraged the black community to free themselves of this ‘self-hatred’ (which was how he preferred to term addiction to drugs) and live clean lives showing respect to self, family and community (White et al, 2006).

Many years down the lane substance use still remains a problem in many societies especially the African society. Substance use in Africa evolved from migration of Africans back to Africa among those who had previously been enslaved by Americans as well as the European colonial masters who introduced tobacco into the coasts of Africa. Cannabis use started mostly from Northern Africa and is now said to be the most available illicit drug of abuse and a contributing factor to the occurrence of schizophrenia-like psychosis (Asuni & Pela, n.d.). In Nigeria, cannabis was first introduced after the return of native soldiers and sailors from the Second World War. From the late 1980s to date drug trafficking of cocaine and heroin into Africa has become a problem to deal with in countries like Nigeria and Ghana, though alcohol and cannabis are still the most frequently abused drugs in many parts of Africa (Obot, 1990). Alcohol use in Africa, particularly in Ghana, has changed in some respects. Importantly, large-scale commercial production has led to increased availability of brewed alcohol. Traditional beverages have also been produced on a larger scale; and since the colonialism, local distillers have learnt to produce spirits. The last decade has also seen the increasing diversion of non-beverage industrial spirits into beverage use.

### **2.1.3 Patterns of Substance Use**

People have engaged in different patterns in the use of substance, which varies according to the type of substance, frequency of use, route of administration, number of substances used onset and quantity of use, amongst others. Common routes of administration of drugs include drinking, chewing, eating, smoking, snorting and ingestion into the bloodstream. Substances such as alcohol, cannabis leaves and opium are ingested (by drinking eating or chewing). Whilst some substances have only one route of administration, example alcohol, many others have multiple routes of administration. Cannabis leaves are chewed and even some use in making drinks, cakes and toffees, whilst others also smoke it. Different chemical preparation of a drug also determines its route of administration, such as snorting cocaine and chewing crack. The lungs provide the fastest absorption into brain tissues, for which reason many drug users prefer to smoke, whilst ingestion from the stomach and intestines have a relatively slow absorption rate (C. S. Martin et al., 2016).

The pattern of substance use also looks at whether an individual uses a single substance or multiple substances. Collins et al recognized two decades ago that simultaneous polydrug use was found in adolescents and young adults than other age groups and the most common combinations are alcohol and tobacco, and alcohol and cannabis (Collins, Ellickson, & Bell, 1998; Martin et al., 2016). Simultaneous use of multiple substances has been found to have dangerous consequences such as addictive effects, and increased societal problems (C. Martin, 2008). Deaths that were associated with heroin use were also found to occur in combination with under substances such as alcohol and benzodiazepines (C. S. Martin et al., 2016).

### **2.1.4 Cultural Variations**

Culture refers a system of beliefs, traditions, practices and norms that guide the behavior of a specific group of people. The meaning and use attributed to a substance by a particular group of

people vary from one cultural setting to another. The Babylonian culture embraced alcohol drinking as part of worship rites, and paid obeisance to a wine goddess (Willis, 2006). China, in the nineteenth century regarded opium eating as an acceptable practice among the high social class, whereas opium smoking among the lower class was a public health and criminal justice problem (C. S. Martin et al., 2016). Some cultural and religious groups such as the Rastafarians incorporate cannabis smoking into their values and are of the view that cannabis is the tree of life that God forbade Adam and Eve to eat after they sinned according to the Bible. Some sects also vary in the preference of substances they use. In Ghana smoking of tobacco is more predominant in Islam dominated communities, whilst alcohol use is more common among Christians than is tobacco use. Lasebikan and Ola also found an association between alcohol use and Christianity in a study in Nigeria. (Lasebikan & Ola, 2016).

Society allows medical use of opioids for palliative care to pain is acceptable whilst the illegal use of opiates for recreational purposes goes against societal norms, thus cultural norms regarding acceptable contexts of use act as a protective factor to help regulate the use of substances in a given place or group of people (C. S. Martin et al., 2016). Prevalence of substance use varies across cultures yet certain predictors of use such as high socio-economic status and male gender seem to be consistent across most cultures.

Drug availability in a given geographical region also contribute to the variation of use from one place to the other. An example is the coca plant which can only grow effectively in specific regions and the use of cola in those regions are almost close to a 100% of adults there (Heath, 2001).

### **2.1.5 Historical descriptions of substance use problems**

Alcohol intoxication had been long known and some have noted its first appearance in old manuscripts such as the Bible when the priest Eli asked Hannah whilst she was intoxicated with wine after she visited his temple. Again, the story of Sodom and Gomorrah is said to contain description of alcohol-related problems. The discovery of the concept of addiction was in the late eighteenth century by Dr. Benjamin Rush in 1787, whereas Swedish scientist Magnus Huss in 1849 described the important term – Alcoholism. Between 1943 and 1960 Jellinek described numerous signs and symptoms of alcoholism in domains of pathological patterns of use, negative consequences of use and physiological features such as tolerance and withdrawal.

The American Psychiatric Association (APA) introduced the Diagnostic and Statistical Manual of Diseases (DSM) first and second editions in 1952 and 1968 respectively. The DSM I described alcoholism as having to be severe enough to cause physical, social and psychological consequences, whilst the DSM II categorized alcohol and other drug problems among a larger class of personality disorders. However, signs and symptoms in these earlier editions of DSM were not empirically validated and not clearly defined.

## **2.2 SUBSTANCE USE AND ITS DISORDERS**

### **2.2.1 Types and properties of substances**

Different types of substances have effect on the central nervous system. The DSM 5 has classified the different substances according to their physical properties and chemical effects on the brain. Ten separate classes of drugs are described and implicated in SUDs which include alcohol; caffeine; cannabis; hallucinogens; inhalants; opioids; sedatives, hypnotics, and anxiolytics;

stimulants (amphetamine-type substances, cocaine, and other stimulants); tobacco; and other (or unknown) substances. The “other” (unknown) group comprise a wide variety of substances known or unknown yet and was meant to accommodate the introduction of new substances which also exert a psychoactive influence as new ones evolve or are produced every now and then.

Different studies have also attempted to classify different types of substances. For example, Odejide and Morakinyo classified substances into three groups, namely psychotherapeutic drugs like benzodiazepines and opiates; illicit drugs like cannabis and cocaine and lastly, socially acceptable drugs like alcohol, tobacco and kolanuts (Odajide & Morakinyo, 2004). Abdumalik et al in their study grouped substances as natural or synthetic, licit or illicit (Abdulmalik, Omigbodun, & Beida, 2009).

Substances taken in excess and abused have a mechanism of activating the brain reward system, which is involved in the reinforcement of behaviors and production of memories. This activation is intense, direct and lead to neglect of normal activities. The drugs typically activate the system and produce feelings of pleasure, often referred to as a “high” (DSM 5, APA, 2013). Compulsive drug use reflects changes in the brain’s natural inhibition and reward centers that keeps a person from exerting control over the impulse to use drugs even when there are negative consequences, which defines addiction (NIDA, 2014).

### **2.2.2 Substance Use Disorder**

Substance use disorders are classified by the World Health Organization under a broad umbrella known as the MNS classification system which groups Mental, Neurological and Substance use (MNS) Disorders. This classification is useful because many overlap in presentation



of symptoms and overlap in shared risk factors exist among these three group of disorders and are typically presented to mental health facilities for treatment especially in LMICs where there is shortage of specialists. There is however, not just one correct one classification system for substance use disorders as many classification systems have been proposed.

### **2.2.3 Substance use disorders – Presentation and Diagnosis**

Substance use is common amongst many young people from all walks of life. However, the use in itself is not considered a disorder, though it carries a high risk to develop into a disorder. According to the DSM 5, “the essential feature of a substance use disorder is a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues using the substance despite significant substance-related problems” (APA, 2013).

Overall, the diagnosis of a substance use disorder is based on a pathological pattern of behaviors related to the use of substance. Substance use disorder occurs when the recurrent use of alcohol and/or drugs is associated with clinically and functionally significant impairment such as health problems, disability, and failure to meet major responsibilities at home, school or work (APA, 2013). There must be evidence of impaired control, social impairment, risky use and pharmacological criteria (APA, 2013). Thorley proposed a model of substance use disorders that constitutes: intoxication, regular or excessive use and dependence; each of the three components of this model represents a level of substance use that is problematic to the user and society.

**Table 2.2.3 Diagnostic symptoms of Substance use disorder – comparing DSM-1V and DSM 5 criteria (adapted from C. S. Martin et al., 2016)**

<b>Symptom</b>	<b>Definition</b>	<b>DSM-IV vs DSM 5 status</b>
<b>Role Impairment</b>	Frequent intoxication leading to a failure to fulfill major role obligations	DSM-IV abuse; DSM-5 SUD
<b>Hazardous Use</b>	Recurrent use when it is physically hazardous (e.g., drunk driving)	DSM-IV abuse; DSM-5 SUD
<b>Legal Problems</b>	Recurrent substance-related legal problems	DSM-IV abuse; not in DSM-5
<b>Social problems</b>	Continued use despite social or interpersonal problems caused or exacerbated by use	DSM-IV abuse; DSM-5 SUD
<b>Tolerance</b>	Need to consume more to achieve same effect; decreased effect with same amount	DSM-IV dependence; DSM-5 SUD
<b>Withdrawal</b>	Signs of withdrawal syndrome; use to avoid withdrawal	DSM-IV dependence; DSM-5 SUD
<b>Longer use than intended</b>	Using much more or for a much longer period than intended	DSM-IV dependence; DSM-5 SUD
<b>More time spent</b>	Lots of time spent using, obtaining or being affected by a substance	DSM-IV dependence; DSM-5 SUD
<b>Quit/ cut down</b>	Repeated unsuccessful attempts to quit or cut down substance use	DSM-IV dependence; DSM-5 SUD
<b>Reduced activities</b>	Important social activities given up or reduced due to substance use	DSM-IV dependence; DSM-5 SUD
<b>Psychological/ physical problems</b>	Continued use despite psychological/ physical problems caused or exacerbated by use	DSM-IV dependence; DSM-5 SUD
<b>Craving</b>	A strong desire to use a substance	Not in DSM-IV; DSM-5 SUD

DSM- IV Substance abuse is diagnosed when at least one out of four substance abuse symptoms are present, whilst DSM-IV Substance Dependence is diagnosed when three or more out of seven dependence criteria are present. Substance use disorder in the DSM 5 is diagnosed in the presence of two or more symptoms out of eleven SUD symptoms. The DSM 5 uses a single SUD for each class of drug.

#### **2.2.4 Prevalence of substance use disorders**

Worldwide studies have reported different prevalence rates of substance use in the general population. Kessler et al reported lifetime prevalence of substance use of 14.6% amongst people aged 18 and above in a nationwide survey in the United States (Kessler et al., 2009). In general, several studies under review reported rates of current SUDs of 12% - 65% and lifetime substance use or dependence between 48% - 68% among patients in psychiatric care in both young and adult group samples. (Weich & Pienaar, 2009). Most of these studies however, focused on the adult group.

Focusing on young people, studies in the sub-region include a study on substance use among school-going adolescents in six African countries (Kenya, Namibia, Swaziland, Uganda, Zambia, Zimbabwe) which found a prevalence of 12.6% of tobacco use (past month) (Peltzer, 2009). A study among medical students in Nigeria found a lifetime prevalence of substance use of 65% and found alcohol, mild stimulants to be common substances of abuse amongst them (Eo et al., 2014). Adu-Mireku reported a lifetime prevalence of alcohol use of 25.1% in a study of 894 senior secondary students in Accra, Ghana (Adu-Mireku, 2003). In studies that looked at comorbid substance use with mental disorders, and lifetime prevalence found ranged from a low of about 11% to as high as 80%. Saban et al reported a lifetime prevalence of substance use of 21.3% and

a 12-month prevalence of 11.5% among young people with DSM IV disorders in South Africa (Saban et al., 2014) .

#### **2.2.4 Reasons for substance use in the young**

There must be peculiar reasons substance use is common among young people especially and why the continued use despite the problems associated with the use. A Biography of two black Americans, Malcolm X and Frederick Douglas back in the days of slavery where they played a key role in the emancipation of black slaves, recounts how the two men spoke openly of their drug addiction to help other slaves overcome theirs. In his own words Frederick Douglas in his speech in 1846 expressed the reason for his alcohol use disorder;

*“I have had some experience with intemperance. I knew once what it was like to drink with all the ardour of an old soaker (drunkard). Some of the slaves were not able to drink their share (portions of alcohol provided by the slave master), but I was able to drink my own and theirs too. I took it because it made me feel I was a great man”* - March 40, 1846 speech in Paisley, Scotland. (White et al., 2006). The feeling of greatness he had on alcohol is synonymous to the feeling or desire for pleasure most people have when they take a substance.

Many adolescents and young people today experiment with drugs and continue to use substances for several reasons. The National Institute of Drug Abuse (NIDA, 2014) enumerated common reasons why adolescents abuse substances from review of various studies. The common reasons found for adolescent use of substance include:

- 1) A desire to fit in: many adolescents want to be accepted by their peers and social circles and fear to be rejected if they are not doing what all others “seem to be doing”.

- 2) A desire for pleasure: there is an intricately wired sense of pleasure in humans which is same for young people. The desire to feel good is experienced in taking psychoactive substances, which interfere with the neurochemistry of the brain to produce feelings of pleasure, the intensity of this euphoria being determined by the type of drug and the pattern of use.
- 3) A means to feel better: some adolescents take substances to relieve distress especially if they are suffering from mental disorders such as depression, social anxiety and also could be used to relieve distress due to physical pain.
- 4) To perform better: in a very competitive world as this many young people resort to illegal prescription drugs and substances such as stimulants, which they believe will enhance their academic abilities and enhance their performance in other areas.
- 5) To experiment: adolescents are instinctively curious and like to satisfy their curiosity by experimenting new things. (NIDA, 2014).

### **2.2.5 Onset of substance use**

Adolescence is a delicate period in the stages of life, a time when important biological, neurological, physiological and social changes occur in the individual as transition towards adulthood takes place. This period is characterized by higher impulsivity, increased awareness of self, desire for autonomy, higher importance of social relationships which involve partners and peers rather than parents and older siblings and increased risk taking behaviours such as substance use and sexual experimentation (Karim, 2016). Studies have showed that most people who abuse substances had started use by middle to late adolescence (NIDA, 2018).

Mental and substance use disorders, although they are often detected later in life, usually have an earlier onset (12-24 years) (Patel et al., 2007). It is estimated that 20% children and adolescents

have a mental health disorder and approximately half of all mental and substance use disorders would have begun by age of 14 years (Kessler et al., 2009; Paruk et al., 2016).

The early onset of drug use and mental disorders has been attributed to the vulnerability associated with adolescence. Adolescence is seen as a critical period, a time during which the brain is still developing, establishing circuits that control executive functions such as decision making and impulse control; this ultimately leads to higher risk-taking behaviours relating to substance use and sexual experimentation during this period. (Karim, 2016; NIDA, 2018). The increased physiological and psychological stressors of going through adolescence result in enormous stress levels that contribute to development of mental and substance use disorders, due to inadequate coping mechanisms (Karim, 2016).

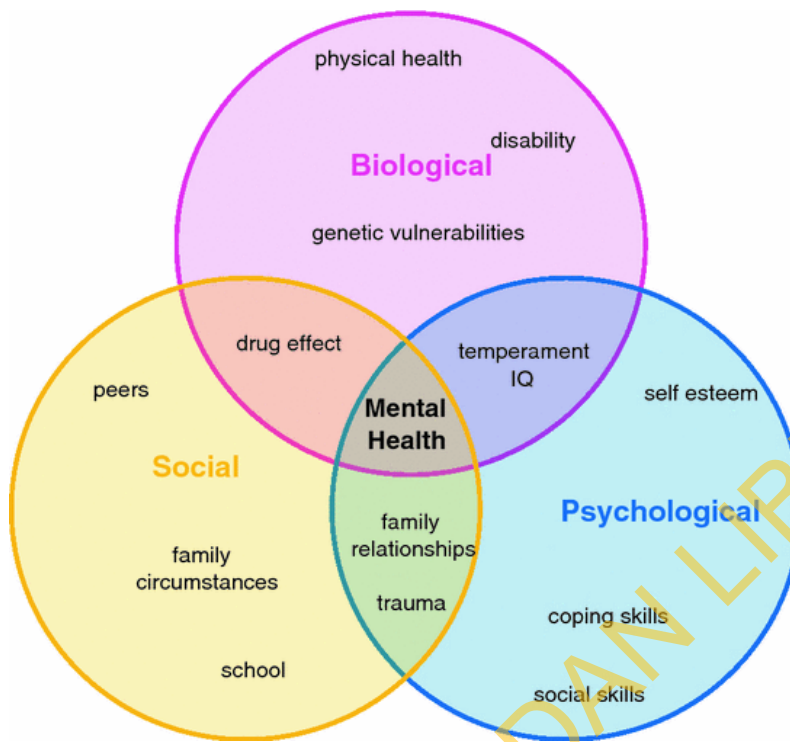
#### **2.2.6 Factors associated with substance use**

Many mental disorders and substance related disorders are often linked to a combination of genetic, behavioural and psychosocial factors (Karim, 2016; Paruk et al., 2016). Early drug use increases the risk of later development of substance use disorders and also serve as a risk factor for development of other mental disorders (Winters et al). This does not necessarily imply a causative association, but other risk factors may play a shared role in developing a substance use disorder or mental disorder. These shared risk factors include genetic vulnerability, psychosocial experiences, and/or general environmental influences (Winters et al). A typical example is that an individual with a genetic predisposition who frequently uses marijuana in adolescence can develop psychosis in adulthood (Parakh et al).

The Biopsychosocial model of healthcare was introduced about four decades ago by Engel and this model and has been very resourceful especially in the area of mental health in the identification of factors that contribute to developing a mental or substance use disorder. Unlike the biomedical model, this model takes into account the biological, psychological and social factors as responsible for the causation or perpetuation of an illness, and is very useful in the holistic management of illness and provision of health care (Babalola & White, 2017).

Factors responsible for the onset of substance use disorders are often multiple and are usually explained by the biopsychosocial model, which domains oftentimes interact. While the biological domain refers to genetic, physical disabilities or innate constitution of the individual that makes them prone to a disorder, the psychological domain takes into account the temperament and emotional experiences of the individual within the context he or she is found and the social domain considers the external environment such as the family, school and society where the individual is found.

The Biopsychosocial approach to substance use problems helps to explain whether an individual develops a substance use disorder. A description of this concept can be seen in a speech by Frederick Douglas (black slave emancipator) where informed his audience, *“I used to love drink – that’s a fact, I found in me all those characteristics leading to drunkenness”* (February 18, 1846 speech in Glasgow, Scotland). Today, technically speaking it would be said that Douglas was sharing his innate predisposition or risk factors contributing to his alcoholism.



**Figure 2.2.6 The Biopsychosocial model of health proposed by Engen**

Source: (“Biopsychosocial model of health,” n.d.)

Each domain (biological, psychological and social) interplay to influence the development of an illness.

There is evidence indicating that certain socio-demographic factors can play a significant role in causing comorbidity and its effects. For example, males have been found to be more at risk of substance use than females (Tahiraj, Cubela, Ostojic, Rodek, & Zenic, 2016), (Saban et al., 2014), although recent evidence also suggests that as traditional roles of males and females begin to equalize, female substance use may approach that of men (Saban et al., 2014). In the study by Saban et al, association was found between conduct disorder and substance use within specific developmental stages. Living in urban areas has also been associated with increased use of substance; while alcohol and smoking was found to be more associated with being employed and



living in urban areas (Saban et al., 2014). There has been increased smoking of cigarettes in non-black populations as compared to black population, which could also denote a high black population, (Saban et al., 2014) and marital status, job satisfaction and level of education has also been found in some studies to be associated with substance use and have an effect on overall mental well-being.

Early stressful life events such as being abused or being subjected to trauma has been found to be an important risk factor; so adolescents with a history of physical or sexual abuse are more likely to abuse substances, while other factors such as genetic vulnerability, in-utero exposure to alcohol or other drugs, lack of parental supervision or monitoring and peer pressure play an important role in substance use (NIDA, 2014). However, we must also bear in mind that there are a wide range of genetic and environmental influences that promote resilience and may help to counteract the risk factors, thereby we cannot always predict who will develop substance use disorders and who will not (NIDA, 2014).

Though the factors associated with substance use has been largely studied it has proven to be gender-specific as well as culture-specific, making it necessary to study the factors using culture-specific approaches in different countries; the factors associated with substance use among adolescents are rarely general and what a significant association in one socio-cultural setting may be insignificant in another setting (Tahiraj et al., 2016).

## **2.3 MENTAL ILLNESS AND SUBSTANCE USE**

### **2.3.1 The Dual relationship**

Mental illness denotes a broad range of problems, with different symptoms, generally characterized by some combination of abnormal thoughts, emotions, behaviour and relationships with others (WHO 2013). The DSM 5 and the WHO International Classification of Diseases (ICD 10) describe a wide range of mental disorders and their diagnostic criteria. Both mental illness and substance use disorders belong to the MNS classification of disorders by WHO.

There is a close relationship that exists between substance use and mental disorders. The aetiology of developing any of the disorders have been found to be very similar and interplaying on each other. Having a mental disorder in childhood or adolescence can increase the risk of later drug use and development of substance use disorder, whilst early substance use could also pose a risk of developing a mental disorder in future; however, better diagnosis of youth mental problems may help reduce comorbidity (NIDA, 2018).

### **2.3.2 Burden of Mental and Substance Use disorders**

Disease burden refers to the impact of a health problem as measured by financial cost, mortality, morbidity, or other indicators. It is often quantified in terms of quality-adjusted life years (QALYs) or disability-adjusted life years (DALYs), both of which quantify the number of years lost due to disease (YLDs)(WHO, 2013). About 20% of the world's children and adolescents have mental disorders or problems and neuropsychiatric disorders are among the leading causes of worldwide disability in young people; WHO estimates that 23% of all years lost are as a result of mental and substance use disorders (WHO, 2013).

According to the findings of the Global Burden of disease Study 2010, the burden of diseases attributable to mental and substance use disorders was found to be 7.4%, making them notable contributors to the global burden of disease. The greatest burden of disease was found among adolescents and young adults between ages 10-29 years (Whiteford et al., 2013). This age group experienced the highest proportion of DALYs according to the report. The burden of many common mental disorders rose in childhood and peaked in adolescence and early adulthood. Boys and men had a greater burden for substance use disorders than girls or women (Whiteford et al., 2013). The report further showed an increase of 37.6% in the burden of mental and substance use disorders between 1990 and 2010. This increase was not as a result of a rise in prevalence of mental disorders over time but rather an increase in alcohol, opioid and cocaine dependence which contributed to increase in substance use disorders (Whiteford et al., 2013). This increase in burden of 37.6% is relatively high and portrays the effect of mental and substance use disorders on the quality of life of young people. Though mortality may be low compared to other physical conditions the morbidity associated with mental and substance use disorders is significantly high leading to poorer quality of life.

Mental and substance use disorders pose a great challenge to the health systems of the world both in developed and developing countries, but most especially in developing countries such as Ghana with treatment gaps of more than 90% in developing countries. This is due to the scarce human and financial resources, inequitable distribution of available resources and stigma associated with mental and substance use disorders that constrain the use of available resources (Whiteford et al., 2013). Many developing countries have less than 2% of their health budget dedicated to mental health (Whiteford et al., 2013).

### 2.3.3 The Concept of Comorbidity

When two disorders or illnesses occur in the same person, simultaneously or sequentially, they are described as comorbid. Comorbidity also implies that the illnesses interact, affecting the course and prognosis of both. Many a time, substance use disorders (SUD) and mental disorders are diagnosed concurrently in an individual, with either of them being precedent of the other and multiple national population surveys have found that about half of those who experience a mental illness during their lives will also experience a substance use disorder and vice versa (NIDA, 2018). “Poor mental health is strongly related to other health and development concerns in young people, notably lower educational achievements, substance abuse, violence, and poor reproductive and sexual health” (Patel et al., 2007).

Shared risk factors have been demonstrated between mental illness and substance use disorders. An example is seen in depression and SUDs evidenced by some twin studies; there were attempts to self-medicate depression by substances, whilst interpersonal, social and family problems can also lead to substance use disorders (Davis, Uezato, Newell, & Frazier, 2008). In that study MDD was found to increase the risk of alcohol dependence (suggesting the self-medication theory), and alcohol dependence increases the risk of MDD (Davis et al., 2008).

People who abuse substances are at a greater risk of developing or suffering from a mental illness than those who do not abuse substances. Conversely it is argued that those who suffer from mental illnesses are more likely to abuse substances and become dependent than those who do not have mental disorders (Saban et al., 2014). When mental illness and substance abuse co-occur, it results in more complex and compounded problems and impose greater challenge in management and treatment (Saban et al., 2014). The burden of comorbidity, other than just a single disorder most strongly predicts functional impairment and pathology (Davis et al., 2008).

#### **2.3.4 Common mental disorders with substance use comorbidity**

Very few studies on comorbidity among young people has been carried out, but available data shows that more than 60 percent of young people with substance use disorders also met the criteria for some mental disorders. (NIDA, 2018). High rates of mental disorders comorbid to substance use disorders include anxiety disorders, depression and bipolar disorder, attention-deficit hyperactivity disorder (ADHD), psychotic illness, borderline personality disorder and antisocial personality disorder (NIDA, 2018).

The severity of a pre-existing mental illness has been shown to have an increase in the risk of developing a substance use disorder as well. Serious mental illness refers to a diagnosable mental, behavior, or emotional disorder that causes serious functional impairment and substantially interferes with one or more major life activities (NIDA, 2018). Examples of serious mental illnesses include major depression, schizophrenia, and bipolar disorder, and other mental disorders that cause serious impairment. For instance, patients with schizophrenia have a higher rate of alcohol and drug use than the general population and one out of every four individuals with serious mental illness also has a substance use disorder (NIDA, 2018). Research indicates that 43 percent of people in SUD treatment for abuse of prescription painkillers have a diagnosis or symptoms of mental health disorders, particularly depression and anxiety (NIDA, 2018).

Saban et al reported a six to sevenfold increased likelihood of a 12-month panic or generalized anxiety disorder and a fivefold increased likelihood of a 12-month major depression among tobacco users (Saban et al., 2014). They found an increased likelihood of 12-month major depression in cannabis and other drug users, as there was also increased lifetime and 12-month

PTSD among alcohol, cannabis and other drug users. There was also increased likelihood of panic disorder in individuals who reported nonmedical use of prescription drugs (Saban et al., 2014).

## **2.4 Concept of Quality of life**

The World Health Organization (WHO) defines the Quality of life as the individual's perception of his or her position in life, within the cultural context and value system he or she lives in, and in relation to his or her goals, expectations, parameters and social relations. It is a recent concept that was introduced to measure well-being of individuals along other domains aside their physical health or and take into account their holistic position in life. The WHO developed the Quality of life instrument that assesses the physical health, psychological well-being, social domain and the environmental domains of an individual to ascertain the progress in the presence of an illness or a disorder.

Several factors affect a person's quality of life such as the physical health, psychological state, social relationships, level of dependence and relationship with salient features of the environment. Thus, QOL is a broad ranging concept (Adewuya & Makanjuola, 2009). Quality of life is preferably measured subjectively rather than the objective way of measurement which does not reflect the individual's actual experience and satisfaction of life. It is better that patients make their own judgment about their quality of life (Adewuya & Makanjuola, 2009).

### **2.4.1 Quality of life in mental and substance use disorders**

Mental illness can substantially influence the quality of life of affected individuals as well as their families due to the debilitating nature of the illness; it usually leads to reduced economic productivity and reduced social functioning. Similarly substance use is known to affect the psychosocial functioning of the individual as well as the physical health (Saban et al., 2014).

Suffering from a mental health disorder during childhood and adolescence has a significant impact on the child's subjective satisfaction with daily functioning and social well-being (Weitkamp, Daniels, Romer, & Wiegand-grefe, 2013). There is conflicting evidence as to whether different mental disorders have a specific impact on the quality of life, example Schubert et al did not find any differences between diagnostic groups of children with either emotional, somatoform or eternalizing disorders. Weitkamp et al concluded from their study that a psychiatric pathology was associated with an impairment in the child's Quality of life with a greater association in internalizing pathology than externalizing pathology (Weitkamp et al., 2013).

Mental disorders often serve as major determinants of work role disability and quality of life and its impact is usually more than most chronic physical disorders (Alonso et al., 2004). An epidemiologic study in the Europe found out that people with mental disorders had lost three to four times more work days compared to those without a 12-month mental disorder (Alonso et al., 2004). Functional disability is associated with most mental and substance use disorders and this further has impact on personal wellbeing, social relationships and work productivity (Alonso et al., 2004).

## **2.5 Relevance of this study to Child and Adolescent Mental Health in Ghana**

Child and Adolescent mental health in Ghana is very much in its young unexplored stages, with very few trained experts in that area and many cases managed by the few general psychiatrists or medical officers with limited knowledge in Child and Adolescent Mental Health. In Kumasi the only child psychiatrist is retired and there is only one formerly trained CAMH professional in service.

Ghana is lacking in research in the area of Child and Adolescent mental health. There is a need to ascertain the common mental health problems that young people present with to our health facilities, which includes the problem of substance use and is a very major issue among young people in Ghana now. Those who present to the hospital for different mental health conditions may in the process of the illness or treatment resort to self-medication or abuse of other substances which interferes with their actual treatment and could affect the outcome of treatment or even how well they get or how they function in their daily lives.

It is imperative to conduct this survey which aims to provide first-hand data on the quality of life of young people who have mental illness and substance use problems in Ghana. This is in the right direction and will be helpful in channeling interventions and implement measures towards improving quality of life. Data regarding the extent of the problem of substance use will be helpful in enacting policies that will help reduce access and availability of substances to young people, as well as providing aggressive interventions and expert care to those who are victims to the distressing problem of substance use. Knowledge on association of comorbid substance use with quality of life in mental illness will help to provide a basis for education and counselling of young



people when it comes to their health and risky behaviours and the impact it can have on their quality of life; this can help to discourage more youth from engaging in problematic substance use.

The facilities managing these cases will also benefit from empirical data needed for policy making and care planning and interventions.

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## CHAPTER THREE

### METHODOLOGY

#### 3.1 Study area

Kumasi is the capital city of the Ashanti Region, in the southern part of Ghana, and is among the largest metropolitan areas in Ghana. Kumasi is near Lake Bosomtwe, in a rain forest region, and is the commercial, industrial and cultural capital of Asanteman (Ghana Demographic & Health Survey- GSS, GDS, & ICF International, 2015). Kumasi is approximately 500 kilometres north of the Equator and 200 kilometres north of the Gulf of Guinea. Others refer to the city as "The Garden City" because of its many beautiful species of flowers and plants. It is also called Oseikrom (Ghana Home Page).

There are three main government facilities offering government owned specialized mental health services for both the young and old within the Kumasi metropolis (Roberts, Asare, Caroline, Adjase, & Akwasi, 2013). These are the Komfo Anokye Teaching Hospital (KATH), the Tafo Government Hospital and the University Health Services. These facilities run in-patient and out-patient services for mental health service users and constituted the sites for this study.

KATH remains the main and highest referral centre that serves the middle and southern belt of Ghana and sometimes the three Northern Regions of Ghana (Roberts et al., 2013). The psychiatric unit at the Komfo Anokye Teaching Hospital is the largest in Kumasi and the main referral unit serving the middle southern belt of Ghana as well as the Northern regions (Roberts et al., 2013). The facility consists of an 11-bed in-patient unit (5 beds at the male section, 6 beds at female section) and an outpatient unit with 5 consulting rooms serving about 200 patients per week (Laugharne & Burns, 1999). The in-patient capacity has not expanded over the past 20 years and

remains the same presently. Emergency services and consultation liaison services are also provided. A child and adolescent mental health clinic is run once a week to manage CAMH cases. However, there is only one trained CAMH professional on ground. The facility currently has 5 trained psychiatrists and 5 residents in training, 2 medical officers and 2 house-officers who provide services to patients (source: author's situational analysis on ground).

The Tafo Government hospital has a psychiatric unit that attends to a large number of people and offer in-patient and out-patient mental health services to adults and children in the Tafo district and its surrounding communities (Roberts et al., 2013). The facility is run by community psychiatric officers and psychiatric nurses. Periodically, a resident doctor is dispatched from KATH to supervise the work there (source: author's situational analysis on ground). The facility also runs community services and follow-up of patients to the community.

The University Health Services is another important facility which has been rendering mental health services over the last decade. It is the major facility serving students and staff of the Kwame Nkrumah University of Science and Technology in Kumasi as well as the community. A mental health clinic is run twice in a week which attends to many students and other people with mental health issues. A psychiatrist runs the clinic (source: author's situational analysis on ground).

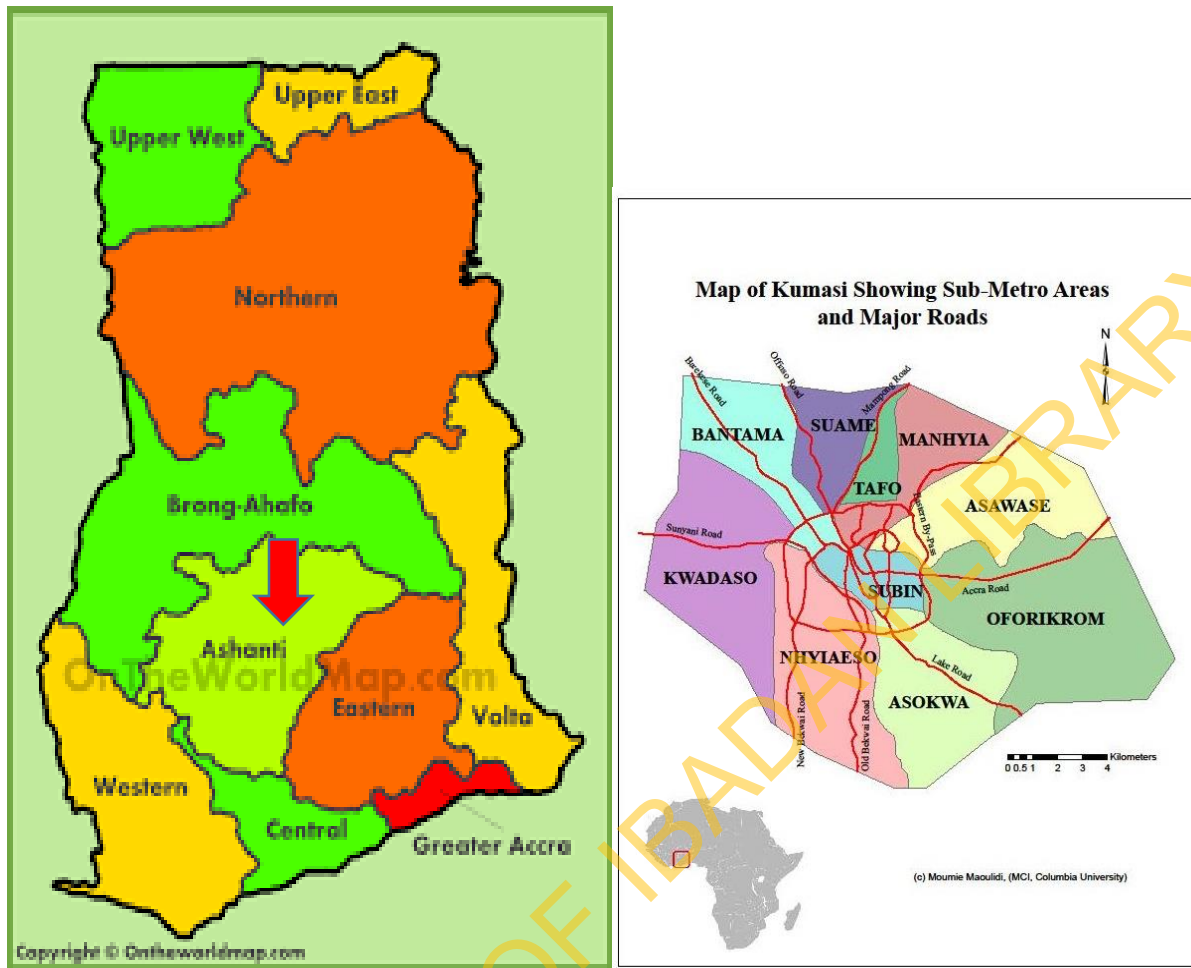


Figure 3.1a – A map of Ghana showing the ten regions with Ashanti region (area of study) highlighted by red arrow

Figure 3.1b – A map of Kumasi showing sub-metro areas

source: (Ghana Demographic & Health Survey- GSS et al., 2015)

## 3.2 Study design

This study was a cross-sectional study aimed at determining patterns of substance use and the quality of life of mentally ill young people in Kumasi using structured and standardized questionnaires.

## 3.3 Study population

### 3.3.1 Inclusion Criteria

All young people aged 10-24 years with mental disorders accessing mental health care services in Kumasi, Ghana.

### 3.3.2 Exclusion criteria

This included:

- 1) Those who cannot speak or do not understand either English or Twi.
- 2) Young people who are too ill or having an acute exacerbation of symptoms.
- 3) Participants below 18 years whose parents/caregiver refuse to give consent or who refuse to give assent.

## 3.4 Sample size calculation

The minimum sample size was calculated using this formula:

$$N = \frac{Z\alpha^2 P(1-P)}{D^2}$$

Where N= the minimum sample size required

Z $\alpha$ = standard normal deviation corresponding to two-sided level of significance ( $\alpha$ ) of 5% (1.96)

P= proportion of outcome (substance use)

D= degree of precision at 5%.

There was no published study in Ghana regarding the specified topic, however, a study by Saban et al in South Africa found a prevalence of 11.5% for a 12-month substance use among a population of young people aged 15-30 years diagnosed with any DSM IV disorder (Saban et al., 2014). This proportion was used for this study.

Using the proportion found in the study to calculate my sample size gives:  $P= 11.5\%$

Substituting in the formula above,

$$N = (1.96)^2 \times 11.5 \times 88.5/5^2 = 156.3$$

Approximately 156 participants are required for this study. Adjusting to a non- respondent rate of 10%, gave a calculated sample size of 170 for the study.

### **3.5 Recruitment of study participants**

All subjects who met the inclusion criteria of the study were recruited until the sample size was achieved (consecutive recruitment).

### **3.6 Study instruments**

1) The Socio-demographic questionnaire - adapted (Omigbodun *et al*, 2008).

2) The Kiddie Schedule of Affective Disorders and Schizophrenia (KSADS DSM5) (Kaufman et al., 2016).

3) World Health Organization Quality of Life – BREF (WHOQOL-BREF) (WHO, 2004)

### **3.6.1 The Socio-demographic questionnaire – adapted (Omigbodun *et al*, 2008).**

This was originally a 40-item questionnaire designed to collect sociodemographic information from participants such as age, sex, school and other information regarding their personal, family and school life; developed by Omigbodun et al in a Nigerian study on CAMH (Omigbodun, Dogra, Esan, & Adedokun, 2008). The instrument was adapted for this study making use of some of the needed variables required for this study and was also translated to Twi (the local dialect of the people of Kumasi and a widely spoken Ghanaian dialect) using the back-translation method.

The adapted version contained 29 sociodemographic questions regarding their personal, family and school-related characteristics. A second section on the questionnaire screened for substance use and the main presenting mental disorders.

### **3.6.2 The Kiddie Schedule of Affective Disorders and Schizophrenia (K-SADS-PL DSM-5 2016)**

This is a semi-structured interviewer administered diagnostic instrument. It is designed for children and adolescents aged 6-18 years to assess current and past episodes of psychiatric morbidity according to the Diagnostic and Statistical Manual for Mental Disorders, fifth edition (DSM-5). Almost all childhood disorders are covered in the schedule except for intellectual disability and somatoform disorders, which were diagnosed clinically using the DSM 5. The K-SADS allows for interviews with both child and the parents or caregivers. It was adapted from the Schedule of Affective Disorders and Schizophrenia (SADS) mainly for the adult group, thus its use in this study for the ages of 10-24 years is still relevant. The K-SADS-PL DSM 5 2016 is an updated

version of the K-SADS-PL 2009 Working Draft and combines categorical and dimensional approaches to diagnose current and past episodes of psychopathology in children and adolescents according to DSM 5 criteria (Kaufman et al., 2016).

Due to its semi-structured nature it allows flexibility of the interviewer to probe and phrase certain items and requires administration by health care providers or highly trained clinical researchers. Both parent and child responses are rated on the K-SADS-PL DSM-5 and summary ratings are achieved which includes all the sources of information. For this study the substance use supplement section of the KSADS was used to assess patterns of substance use and diagnose substance use disorders in all respondents who screened positive on the adapted socio-demographic questionnaire. The other diagnostic supplements of the KSADS were used to diagnose mental disorders in all respondents based on their main presenting symptoms. The disorders covered in the K-SADS-PL include depression, mania, hypomania, bipolar disorders, schizoaffective disorders, schizophrenia, schizophreniform disorder, brief psychotic disorder, generalized anxiety disorder, panic disorder, autism spectrum disorder amongst others.

The KSADS has been adapted and used in many CAMH related studies in the African context including Nigeria and Ghana.

### **3.6.3 World Health Organization Quality of Life – BREF (WHOQOL-BREF)**

This instrument was used to collect data on the subjective quality of life of all consenting respondents. It is a short version of the self-report questionnaire (WHOQOL – 100) designed by the WHO to measure individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns (WHO, 1998). It is a 26-item generic questionnaire that consists of four main domains – Physical, Psychological, Social and Environmental. The mean scores of items within each domain



were used to calculate the domain score. Domain scores are usually scaled in a positive direction, that is, higher scores denote higher quality of life (WHO, 1998).

The mean scores obtained in each domain were then transformed onto the 0-100 scale of the WHOQOL-100 (see Table 3.6.3). The transformed scores on the 0-100 scale for each domain was used for this study. The instrument has been adapted and used in some studies in the sub-region, such as in Nigeria to assess quality of life of patients in a drug addiction centre (Armiya’u et al., 2016).

**Table 3.6.3 Computation and transformation of mean scores on the WHOQOL-BREF (WHO, 1998)**

<i>Equations for computing domain scores</i>	<i>Raw score</i>	<i>Transformed scores</i>
		4-20      0-100
<i>Domain 1</i> (6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18 =		
<i>Domain 2</i> Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26) =		
<i>Domain 3</i> Q20 + Q21 + Q22 =		
<i>Domain 4</i> Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25 =		

## **3.7 Study procedure**

### **3.7.1 Adaptation of survey instruments**

All interview instruments were translated into Twi, which is the local dialect of the Ashanti Region of Ghana and also the most widely spoken local dialect in Ghana. In order to preserve the original meaning of each item during translation, the back-translation method was used. The Twi translation was done by a bachelor degree holder in Twi fluent in both Twi and English; and back translated by a medical doctor also fluent in English and Twi.

### **3.7.2 Training of research assistants**

Three research assistants, two with first degrees in psychology and one with first degree in rehabilitation studies, were trained to use the socio-demographic and WHOQOL-BREF questionnaires and administer these instruments to the participants. They were also serving in the psychiatric units of the study areas. A day was selected for this training before commencement of the study and since these instruments are structured they were easier to administer after training.

### **3.7.3 Pretesting the instruments**

A pre-test of the instruments was carried before commencement of the study using a small sample of patients attending the KATH psychiatric clinic, and were made up of ten respondents. This was to help identify any possible challenges that could arise during the study and to ensure understanding of the instruments by participants, as well as interviewer's skill in administering the instruments.

On the average it took 20 minutes to administer the socio-demographic questionnaire and the WHOQOL-BREF and each research assistant could complete 3 questionnaires in a day. The main investigator used 15 minutes to administer the KSADS diagnostic supplements based on most prominent symptoms or working diagnosis from their hospital records. For those who screened

positive for substance use, an extra 10 minutes was used to administer the substance use supplement of the KSADS. Two respondents screened positive for substance use during the pretest. In total, it took 35 minutes to interview each participant and 45 minutes to interview those who used substances.

The pre-test was successful and only few modifications were made on the socio-demographic questionnaire to meet the cultural and social context of the Ghanaian society. The level of proficiency and skill of the interviewers was satisfactory.

#### **3.7.4 Data collection process**

The registries of the different psychiatric clinics were checked to identify young people within the age-range specified who meet the inclusion criteria to have an idea of the number of young people seeking treatment at the facility. Those who consented and/or assented to the study were recruited. Data was collected from participants on each clinic day during weekdays while they waited to be reviewed by the attending clinician and some were interviewed after they have been seen on by their clinician. Few new clients reporting to the clinic who also met the inclusion criteria were recruited. On the average between three to five respondents were interviewed from each of the three study sites on clinic days, mostly three days of the week. The data collection lasted three months, between January and March, 2019.

The participants were administered the socio-demographic and WHOQOL questionnaires, most of were interviewer-administered, whilst a few completed themselves. The K-SADS-PL DSM-5 was administered by the principal investigator, for diagnostic purposes of mental disorder or substance use disorder. The duration of interview for each respondent was approximately 35 minutes and 45 minutes for those with substance use (described in pre-test). The research assistants

called on the main researcher to administer the diagnostic supplements of the KSADS after completion of the other questionnaires.

### **3.8 Data Management and Analysis**

The data were managed and analyzed using the Statistical Package for Social Sciences (SPSS) version 25. Data collected were cleaned and summarized in tables, charts and percentages. Socio-demographic characteristics and patterns of substance use were described using descriptive methods which include frequencies and proportions. Quality of life was expressed in means and standard deviation. The overall quality of life and overall perception of health were mean scores rated subjectively by participant.

The Chi-squared test was used to test the association between socio-demographic characteristics and substance use, as well as onset of mental disorder and substance use, whilst the logistic regression analysis was used to determine independent factors predicting substance use. The student t-test was used to compare the mean QOL scores between substance users and non-users. Level of significance used was 5%.

**Table 3.8 Data Management and Analysis**

<b>Study objective</b>	<b>Dependent variable</b>	<b>Independent variable</b>	<b>Analytic method</b>
Patterns of substance use	Substance use		Descriptive statistics Frequency tables, percentages, means, standard deviation
Reasons for substance use	Substance use		Descriptive statistics
Factors associated with substance use	Substance use	Socio-demographic and other factors	Chi-square test Logistic regression analysis for significant associations
Determine quality of life	Quality of life		Descriptive statistics Means, standard deviation
Association between substance use and quality of life	Quality of life	Substance use	Student t-test

### **3.9 Ethical Considerations and approval**

Ethical approval was obtained from the Research and Development Unit (R&D) of the Komfo Anokye Teaching Hospital, Kumasi and the Committee on Human Research, Publication and Ethics (CHPRE) of the School of Medical Sciences of the Kwame Nkrumah University of Science and Technology, Kumasi before carrying out the study.

Informed or verbal consent was obtained from participants before enrolment into the study and participants were free to withdraw from the study at any time without any consequences. The researcher ensured that autonomy, beneficence, non-maleficence and justice were maintained for all participants.

#### **3.9.1 Informed consent**

In order to maintain autonomy of participants the researcher ensured that the participants were well informed of the risks and benefits of enrolling into the study. An informed consent (Appendix 1) provided the necessary information regarding the aim and procedure involved in the study and participants who were 18 years and above were required to give their informed consent, while younger participants (below 18years) had consent taken from their parents or caregivers and assent given by the children. Anyone who refused to give informed consent or assent was excluded from the study.

#### **3.9.2 Confidentiality of data**

The researcher ensured anonymity of participants by coding their identity with numbers. The data collected was only accessible to the investigators for the purpose of the research and will be kept in a protected hard-drive by the researcher for scientific knowledge. The hard copies of data

collected will be secured under lock in researcher's library. Results from this study will be published without disclosing the identity of any participant.

### **3.9.3 Beneficence**

There was no direct benefit of the study to participants. However, those who had SUDs were referred to their clinicians for management. Researcher provided psycho-education and advice to the participants on the consequences of substance use and knowledge of their mental health. Findings from the study will be disseminated to the health workers to utilize during patient education and psycho-education to improve healthy behaviours and reduce risky behaviours. Findings will also be shared with policy makers and stakeholders to provide long-term interventions that will reduce substance use problems among young people and also improve the quality of life of the participants.

### **3.9.4 Non-maleficence**

It was ensured that the study posed no or very minimal harm to participants. The study procedure mainly consisted of participants responding to standard questions and no invasive procedure was performed.

### **3.9.5 Voluntary participation**

Recruitment into the study was voluntary without any coercion and participants were free to withdraw from the study at any time without any penalty or any consequences from their usual treatment.

### **3.9.6 Inducement and Reimbursement**

Participants will receive some stationery (pen, pencil or exercise book) and a drink for participation. Participants who visit the clinic for the purposes of the research other than their usual clinic appointment date will receive a token of 5 cedis for their transportation.

## CHAPTER FOUR

### RESULTS

The results obtained from the study are presented under five sections as follows: 1) Socio-demographic characteristics of participants 2) Pattern of DSM 5 disorders among participants 3) Pattern of substance use 4) Factors associated with substance use and 5) Quality of life and relationship with substance use.

#### 4.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

The socio-demographic characteristics of participants is presented here, under three broad headings; personal, family and school-related characteristics of the participants.

##### 4.1.1 Personal characteristics of the participants

A total of 170 participants were interviewed, which comprised of 95 (55.9%) males and 75(44.1%) females. Participants ages ranged from 10 to 25 years, with mean age of 20.0 years (SD=4.1). Majority of participants (77.1%) were Christians; 7(4.1%) of the participants were married and 3(1.8%) respondents had no formal education, whilst more than half of participants (56.5%) had secondary education. Most of the participants 121(72%) were unemployed or did not do any work after school. See Table 4.1.1.



**Table 4.1.1 Personal characteristics of participants (N=170)**

<b>Demographic variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b><i>Sex</i></b>		
Male	95	55.9
Female	75	44.1
<b><i>Age in years</i></b>		
10-14	21	12.4
15-19	56	32.9
20-25	93	54.7
<b><i>Religion</i></b>		
Christian	131	77.1
Islam	17	10.0
Other	16	9.4
None	6	3.5
<b><i>Marital status</i></b>		
Married	7	4.1
Not married	163	95.9
<b><i>Educational level</i></b>		
No formal education	3	1.8
Primary	15	8.8
Secondary	96	56.5
Tertiary	56	32.9
<b><i>Employment status</i></b>		
Employed	49	28.8
Unemployed	121	71.2

#### **4.1.2 Family characteristics of participants**

Most respondents in this study (86.5%) belonged to a monogamous family setting and majority 119(70%) reported that their parents were married or together in their relationship. Most families (63%) had number of mother's children being four or less. More than half (70%) of the respondents reported being raised by both parents while 8.2% were raised by other family members apart from their own parents. Majority of respondents (89%) expressed they liked their families while 11% did not like their families. See Table 4.1.2.

#### **4.1.3 School characteristics of participants**

Out of the 170 participants 97(57.1%) were in school at the time of study. Among the school-going group 90(92.8%) reported they liked their school and 8(8.2%) reported having difficulties with their teachers. Academic performance was assessed by self or parent reports based on exam reports from school and showed that 53.6% had good performance while 22.7% performed poorly in school. See Table 4.1.3.

**Table 4.1.2 Family characteristics of participants (N=170)**

<b>Family characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b><i>Family type</i></b>		
Monogamous	147	86.5
Polygamous	23	13.5
<b><i>Parents' marital status</i></b>		
Divorced/Separated	25	14.7
Married/Together	119	70.0
Widowed	26	15.3
<b><i>Father's educational level</i></b>		
no formal education	13	7.6
primary education	33	19.4
secondary education	71	41.8
tertiary education	53	31.2
<b><i>Mother's educational level</i></b>		
no formal education	19	11.2
primary education	47	27.6
secondary education	70	41.2
tertiary education	34	20.0
<b><i>Number of father's children</i></b>		
four or less	94	55.3
more than four	76	44.7
<b><i>Number of mother's children</i></b>		
four or less	107	62.9
more than four	63	37.1
<b><i>Who was responsible for upbringing</i></b>		
Both parents	119	70.0
Single parent	37	21.8
Others	14	8.2
<b><i>Family satisfaction/like for family</i></b>		
Yes	152	89.4
No	18	10.6

**Table 4.1.3 School characteristics of participants (N=97)**

<b>Schooling variables</b>	<b>Frequency</b>	<b>Percentage</b>
<i>Like for school</i>		
Yes	90	92.8
No	7	7.2
<i>Number of students in class</i>		
less than 50	42	24.7
50 to 100	31	18.2
more than 100	24	14.1
<i>Difficulty with teachers</i>		
Yes	8	8.2
No	89	91.8
<i>Academic performance (self/parent reported)</i>		
Good	52	53.6
Poor	22	22.7
Average	23	23.7

## **4.2 PATTERN OF DSM 5 DISORDERS AMONG PARTICIPANTS**

### **4.2.1 Distribution of DSM 5 Disorders among participants**

Participants were diagnosed of mental disorders using the KSADS DSM 5 version. The different disorders encountered were grouped into broad heading of disorders. Schizophrenia spectrum and other psychotic disorders had the highest frequency of 64(37.6%) followed by Depressive and Bipolar related disorders (57,33.5%). Twelve (7.2%) had Neurodevelopmental, Disruptive and Conduct disorders.

Taking specific disorders, Schizophrenia was the most frequently encountered disorder accounting for 20.6% of participants, followed by Bipolar disorder (15.9%) and Depression (12.9%). See Table 4.2.1.

**Table 4.2.1 Frequency distribution of DSM 5 Disorders among participants**

<b>Diagnosis</b>	<b>Frequency</b>	<b>Percentage</b>
<b><i>Schizophrenia spectrum and other psychotic disorders</i></b>		
Schizophrenia	35	20.6
Schizophreniform disorder	12	7.1
Schizoaffective Disorder	4	2.4
Brief Psychotic disorder	7	4.1
Substance induced psychotic disorder	6	3.5
<b>Total</b>	<b>64</b>	<b>37.6</b>
<b><i>Depressive and Bipolar related disorders</i></b>		
Depression	22	12.9
Bipolar Disorder	27	15.9
Mania/Hypomania	8	4.7
<b>Total</b>	<b>57</b>	<b>33.5</b>
<b><i>Anxiety, Obsessive-compulsive and trauma related disorders</i></b>		
Anxiety disorders	12	7.1
Obsessive Compulsive Disorder	2	1.2
<b>Total</b>	<b>14</b>	<b>8.3</b>
<b><i>Neurodevelopmental, Disruptive and Conduct disorders</i></b>		
ADHD	4	2.4
Autism Spectrum Disorder	2	1.2
Intellectual Disability Disorder	4	2.4
Conduct Disorder	1	0.6
Tic Disorder	1	0.6
<b>Total</b>	<b>12</b>	<b>7.2</b>
<b><i>Other disorders with behavioural and DSM 5 comorbidities</i></b>		
Seizure disorders	23	13.5

#### 4.2.2 Gender Distribution of DSM 5 Disorders among Participants

Some gender differences were observed among some specific disorders. Depression was more frequently observed among females than males (16 females vs 6 males), whilst Schizophrenia and other psychotic disorders were more frequent among males rather than females (21 males vs 14 females and 19 males vs 6 females respectively). Bipolar and Schizoaffective disorders were more common in females than males, whilst anxiety disorders were more in males than females. Conduct disorder was higher in males than females. ASD and ADHD occurred in equal frequency in both males and females. See Figure 4.2.2.

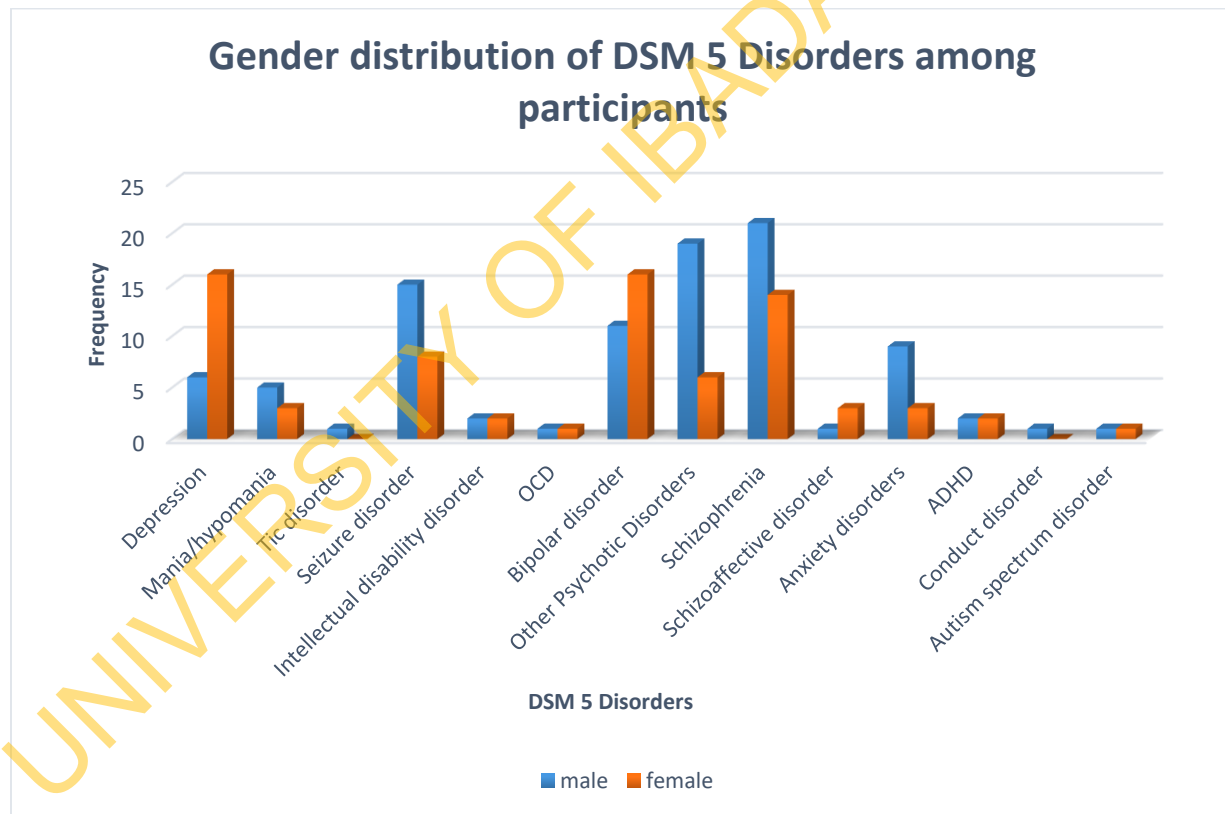


Figure 4.2.2 Gender distribution of disorders among participants

### 4.2.3 Age distribution of disorders among participants

Age-range 10-14 years recorded more neurodevelopmental conditions such as Intellectual disability disorders, ADHD, ASD and fewer rates of depression and psychotic disorders. Schizophrenia, psychotic disorders and bipolar disorders and depression were more common among ages 15-19 years and 20-25 years. See Table 4.2.3.

DSM 5 Diagnosis	Age ranges (years) n(%)			Total
	10-14	15-19	20-25	
<b>Depression</b>	2 (9.1)	7 (31.8)	13 (59.1)	22
<b>Mania/hypomania</b>	3 (37.5)	3 (37.5)	2 (25.0)	8
<b>Tic disorder</b>	1 (100.0)	0 (0.0)	0 (0.0)	1
<b>Seizure disorder</b>	5 (21.7)	8 (34.8)	10 (43.5)	23
<b>Intellectual disability disorder</b>	2 (50.0)	1 (25.0)	1 (25.0)	4
<b>OCD</b>	0 (0.0)	1 (50.0)	1 (50.0)	2
<b>Bipolar disorder</b>	1 (3.7)	6 (22.2)	20 (74.0)	27
<b>Other Psychotic disorders</b>	0 (0.0)	12 (48.0)	13 (52.0)	25
<b>Schizophrenia</b>	3 (8.6)	10 (28.6)	22 (62.8)	35
<b>Schizoaffective disorder</b>	0 (0.0)	1 (25.0)	3 (75.0)	4
<b>Anxiety disorders</b>	0 (0.0)	4 (33.3)	8 (66.7)	12
<b>ADHD</b>	3 (75.0)	1 (25.0)	0 (0.0)	4
<b>Conduct disorder</b>	0 (0.0)	1 (100.0)	0 (0.0)	1
<b>Autism spectrum disorder</b>	1 (50.0)	1 (50.0)	0 (0.0)	2
<b>Total</b>	<b>21</b>	<b>56</b>	<b>93</b>	<b>170</b>

Table 4.2.3 Age distribution of DSM 5 disorders among participants



## **4.3 PATTERN OF SUBSTANCE USE**

### **4.3.1 Frequency of substance use among participants**

Out of 170 respondents, 43(25.3%) reported that they had ever used a psychoactive substance at some point in their lifetime.

### **4.3.2 Pattern of Substance Use among users**

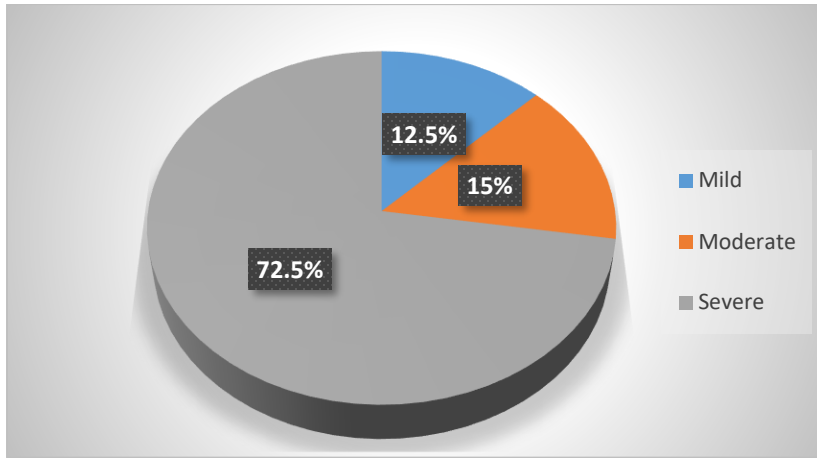
Males (35) accounted for 81.4% of substance users while 8 users were female (18.6%). A higher proportion of substance users were within the age group 20-25years (69.8%). However, age of first use was predominantly between 15-19years (58.1%), a quarter of users had their first use between 10-14years while 7(16.3%) of participants had their first use at 20 years of age or more.

Regarding the frequency of substance(s) used, 10(23.3%) respondents reported daily use of substance, 14(32.6%) reported weekly use and only 3(7.0%) reported one-time use. In addition, 25(58.1%) used a single substance whilst 18(41.9%) used multiple substances (more than one substance). See Table 4.3.2

After screening and diagnosis, 40(93.0%) of users were found to have a Substance Use Disorder, among which 29(72.5%) had a severe substance use disorder whilst 5(12.5%) had a mild substance use disorder (see Figure 4.3.2).

**Table 4.3.2 Pattern of substance use (N=43)**

<b>Pattern of substance use</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>		
Male	35	81.4
Female	8	18.6
<b>Age of first use (years)</b>		
10-14	11	25.6
15-19	25	58.1
20-25	7	16.3
<b>Frequency of use</b>		
Daily	10	23.2
Weekly	14	32.5
Monthly	6	14.0
Occasionally	10	23.3
One-time use	3	7.0
<b>Number of substances used</b>		
Single substance	25	58.1
Multiple substances	18	41.9
<b>Substance Use Disorder (diagnosis)</b>		
Present	40	93.0
Absent	3	7.0

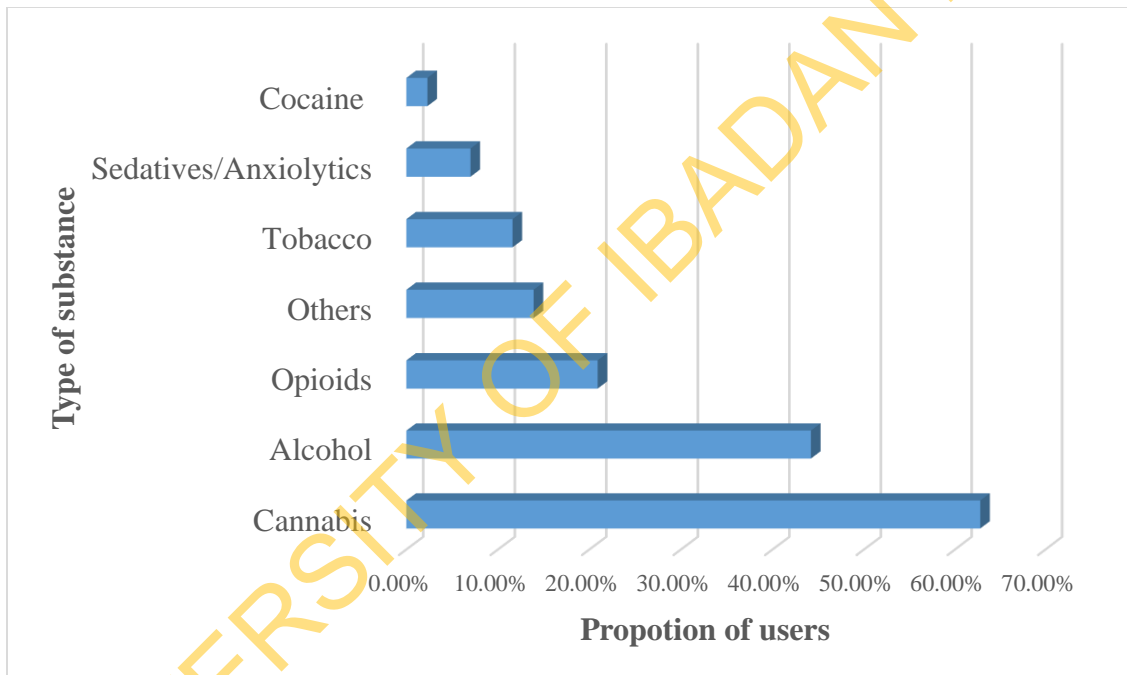


**Figure 4.3.2 – Severity of Substance Use Disorders among users (N=40)**

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### 4.3.3 Substances used by participants

Participants used a range of substances which included alcohol, cannabis, tobacco, sedatives and others. Cannabis was the most used substance by 27 (62.8%) respondents, followed by alcohol use by 19 respondents (44.2%) and cocaine was the least used substance (2.3%). Tramadol was the opioid that was reported in all cases and had 9 users (20.9%). Six respondents (13.9%) reported use of other substances which includes caffeine, analgesics and overdosing on prescription drug (Olanzapine). Those who used multiple substances had varied combinations mostly comprising of cannabis and alcohol, tobacco or tramadol.



**Fig 4.3.3 Bar chart showing the distribution of different substances used (multiple responses given)**

#### 4.3.4 Reasons for substance use

Participants gave diverse reasons for their use of substances with some participants giving more than one reason for their use. The three topmost reasons given were; to fit in with their peers (20 responses, 46.5%), as a form of pleasure (14 responses, 32.5%) and to provide relief from mental problems and stressful situations (11 responses, 25.5%). Other personal reasons given were; as a response to hallucinatory voices (1 response, 2.3%) and as an eye-opener into spiritual issues (1 response, 2.3%). See Table 4.3.4.

**Table 4.3.4 Reasons given for substance use by users (N=43; multiple/overlapping responses given)**

Reasons for substance use	Frequency	Percentage
To fit in with peers	20	46.5
For pleasure	14	32.5
Provide relief/calmness from mental problems/stress	11	25.5
Better performance at school/work	10	23.3
Experimentation/curiosity	5	11.6
<b>Other reasons given</b>		
To become active because friends say he is dull	1	2.3
Instruction by voices	1	2.3
To deal with physical /menstrual pain	2	4.6
To sleep better	1	2.3
As eye-opener into spiritual issues	1	2.3

#### 4.3.5 DSM 5 Disorders comorbid with substance use among users

Participants with substance use presented for different mental and mentally related disorders. A higher proportion of users (46.5%) had Schizophrenia and other psychotic disorders. Bipolar disorder occurred in 16.3% of users, 11.3% had depression and 9.3% had anxiety disorders. Five (11.6%) users presented with seizure disorder.

**Table 4.3.5 DSM 5 disorders among substance users (N=43)**

Diagnosis	Frequency	Percentage (%)
Schizophrenia & other psychotic disorders	20	46.5
Bipolar disorder	7	16.3
Depression	5	11.6
Seizure disorder	5	11.6
Anxiety disorders	4	9.3
ADHD	1	2.3
Conduct disorder	1	2.3

#### 4.3.6 Onset of mental disorder in relation to substance use

Twenty-nine (68.0%) participants recalled that the mental disorder started after the onset of substance use, 10 (23.0%) says the mental disorder started before the onset of substance use and 4 (9.0%) could not tell which one preceded the other. See Figure 4.2.6.

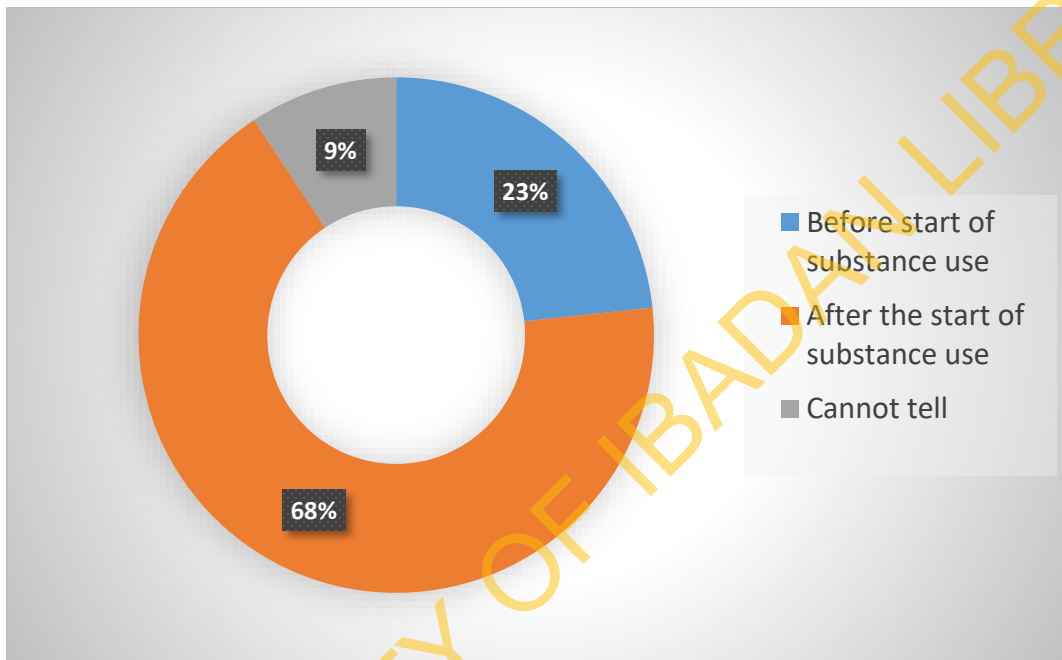


Fig 4.3.6 Pie chart showing onset of mental illness in relation to substance use

## **4.4 FACTORS ASSOCIATED WITH SUBSTANCE USE**

### **4.4.1 Personal Characteristics of participants associated with substance use**

There was a significant association between age and substance use whereby percentage of substance users increased from age 10-14 years (4.3%) to age 20-25 years (32.3%);  $p=0.023$ . Substance use was significantly more common among males (36.8%) than females (10.7%);  $p=0.000$ . Absence of religion (66.7%) was significantly associated with substance use compared to those who practiced a religion (23.8%);  $p=0.036$ .

Substance use was not significantly associated with being in-school (20.4%) or out of school (31.5%),  $p=0.106$ . Percentage of substance users did not significantly differ across the various educational levels (Primary: 13.3%, Secondary: 24.0%, Tertiary: 32.1%,  $p=0.398$ ). Employment status had no significant association with substance use (Employed=32.7% vs Unemployed=22.3%,  $p>0.05$ ). See Table 4.4.1.

### **4.4.2 Family Characteristics of participants and substance use**

The proportion of substance users from a monogamous family setting was 25.9% compared to 21.7% of users from polygamous family setting and this difference was not significant ( $p>0.05$ ). Marital status of parents did not significantly influence substance use (Divorced/separated: 40.0%, Married: 21.0%, Widowed: 30.8%,  $p>0.05$ ). The primary caregiver responsible for upbringing of the child, the number of children of parents (family size) and the educational level of parents did not have a significant association with substance use ( $p>0.05$ ).

However, 61.1% of those who did not like their families were substance users compared to 21.1% users who liked their families and this difference was significant ( $p=0.001$ ). See Table 4.4.2.



**Table 4.4.1 Personal characteristics of participants associated with substance use (N=170)**

	Substance use		$\chi^2$	p
	No (N=127)	Yes (N=43)		
	n(%)	n(%)		
<b>Age range (years)</b>				
10-14	20 (95.2)	1 (4.8)	7.515	0.023*
15-19	44 (78.6)	12 (21.4)		
20-25	63 (67.7)	30 (32.3)		
<b>Sex</b>				
Male	60 (63.2)	35 (36.8)	15.197	0.000*
Female	67 (89.3)	8 (10.7)		
<b>Practice of religion</b>				
No	2 (33.3)	4 (66.7)	5.634	0.036* <sup>f</sup>
Yes	125 (76.2)	39 (23.8)		
<b>Marital status</b>				
Yes	5 (71.4)	2 (28.6)	0.041	1.000 <sup>f</sup>
No	122 (74.8)	41 (25.2)		
<b>School status</b>				
In-school	77 (79.4)	20 (20.4)	2.613	0.106
Not in school	50 (68.5)	23 (31.5)		
<b>Work after school</b>				
Employed	33 (67.3)	16 (32.7)	1.973	0.160
Unemployed	94 (77.7)	27 (22.3)		
<b>Educational level</b>				
No formal education	3 (100)	0 (0)	2.904	0.398 <sup>f</sup>
Primary	13 (86.7)	2 (13.3)		
Secondary	73 (76.0)	23 (24.0)		
Tertiary	38 (67.9)	18 (32.1)		

p value significant at 5%, \*p<0.05

p<sup>f</sup>= fishers exact test correction for cells with expected cell counts less than 5 in >20% of cells

**Table 4.4.2 Family characteristics associated with substance use (N=170)**

	Substance use		Total N=170	$\chi^2$	p value
	No N=127 n(%)	Yes N=43 n(%)			
<b><i>Family type</i></b>					
Monogamous	109 (74.1)	38 (25.9)	147	0.179	0.673
Polygamous	18 (78.3)	5 (21.7)	23		
<b><i>Marital status of parents</i></b>					
Divorced/separated	15 (60.0)	10 (40.0)	25	4.430	0.109
Married	94 (79.0)	25 (21.0)	119		
Widowed	18 (69.2)	8 (30.8)	26		
<b><i>Educational status of mother</i></b>					
No formal education	13 (68.4)	6 (31.6)	19	0.447	0.576 <sup>f</sup>
Educated	114 (75.5)	37 (24.5)	151		
<b><i>Number of children</i></b>					
Four or less	79 (73.8)	28 (26.2)	107	0.117	0.733
More than 4	48 (76.2)	15 (23.8)	63		
<b><i>Family satisfaction</i></b>					
Yes	120 (78.9)	32 (21.1)	152	13.667	0.001* <sup>f</sup>
No	7 (38.9)	11 (61.1)	18		
<b><i>Upbringing</i></b>					
Both parents	90 (75.6)	29 (24.4)	119	0.192	0.908
Single parent	27 (73.0)	10 (27.0)	37		
Others	10 (71.4)	4 (28.6)	14		

p value significant at 5%, \*p<0.05

p<sup>f</sup>= fishers exact test correction for cells with expected cell counts less than 5 in >20% of cells

#### **4.4.3 School characteristics and association with substance use**

Substance use was significantly associated with poor academic performance in that 40.9% of in-school substance users had poor academic performance compared to 13.5% of users who had good academic performance ( $p=0.028$ ).

A higher number of users 8(33.3%) belonged to a large class of more than 100 students compared to 3(7.1%) users who belonged to a class of less than 50 students and this difference was significant ( $p=0.015$ ). Substance use had only a borderline association with having difficulty with teachers at school (difficulty=50% vs no difficulty=18%,  $p=0.054$ ). See Table 4.4.3.

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**Table 4.4.3 School characteristics and association with substance use (N=97)**

	Use of substance		Total N=97	$\chi^2$	p-value
	No N=77	Yes N=20			
	n(%)	n(%)			
<b><i>Like for school</i></b>					
Yes	71 (78.9)	19 (21.1)	90	0.185	1.000
No	6 (85.7)	1 (14.3)	7		
<b><i>Academic performance</i></b>					
Good	45 (86.5)	7 (13.5)	52	7.308	0.028*
Poor	13 (59.1)	9 (40.9)	22		
Average	19 (82.6)	4 (17.4)	23		
<b><i>Number of students in class</i></b>					
Less than 50	39 (92.9)	3 (7.1)	42	8.371	0.015*
50 to100	22 (71.0)	9 (29.0)	31		
More than 100	16 (66.7)	8 (33.3)	24		
<b><i>Difficulty with teachers</i></b>					
Yes	4 (50.0)	4 (50.0)	8	4.599	0.054
No	73 (82.0)	16 (18.0)	89		

p value significant at 5%, \*p<0.05

#### **4.4.4 Logistic Regression Analysis of factors associated with substance use –Bivariate and multivariate analysis**

The significant personal, family and school factors were further subjected to logistic regression analysis to find the strength of association. The bivariate analysis (unadjusted odds -OR) was first carried out followed by a multivariate analysis (adjusted odds- AOR).

##### **Bivariate analysis**

In the bivariate analysis, it was found that for every unit increase in age, the risk of substance use increased by 15% (OR=1.15, 95% CI 1.04-1.27). Being male was associated with a 5 times increased likelihood of using substance (OR=4.89, 95% CI 2.10-11.36). Participants who practiced no religion were 6 times more likely to use substances compared to those who were religious (OR=6.41, 95% CI 1.13-36.34). The odds of substance use were 6 times higher in those who disliked or were dissatisfied with their family compared to those who liked their family (OR =5.89, 95% CI 2.12-16.42).

For the school-going group, poor academic performance was found to be associated with 4 times more likelihood of substance use (OR=4.45, 95% CI 1.39-14.26). Students who had difficulty with their teachers were 6 times more likely to be substance users (OR=5.56, 95% CI 1.03-20.20).

##### **Multivariate analysis**

When potential confounders (age and sex) were adjusted for, the association remained significant on all variables except class size. The odds of substance use in those who were dissatisfied with their families was doubled after adjusting for age and sex (AOR=12.66, 95% CI 3.66-43.77). Poor academic performance was associated with a 9 times increased likelihood of substance use (AOR=9.41, 95% CI 2.26-39.20) and students who had difficulty with teachers were 6 times more likely to use substance (AOR=6.16, 95% CI 1.20-31.77). See Table 4.4.4.

**Table 4.4.4 Logistic Regression Analysis of factors associated with substance use (Bivariate and Multivariate)**

Factors	Odds ratio at 95% CI		P value	
	Unadjusted	Adjusted	Unadjusted	Adjusted
<b>Age in years</b>				
10-25years	1.15(1.04-1.27)	1.15 (1.04-1.28)	0.007*	0.009*
<b>Gender</b>				
Male	4.89 (2.10-11.36)	4.90 (2.07-11.58)	0.000*	0.000*
Female	1.00	1.00		
<b>Practice of religion</b>				
No	6.41(1.13-36.34)	6.36 (1.04-39.97)	0.036*	0.045*
Yes	1.00	1.00		
<b>Family satisfaction</b>				
No	5.89 (2.12-16.42)	12.66 (3.66-43.77)	0.001*	0.000*
Yes	1.00	1.00		
<b>Academic performance</b>				
Good	1.00	1.00		
Poor	4.45 (1.39-14.26)	9.41 (2.26-39.20)	0.012*	0.002*
<b>Class size</b>				
Less than 50	1.00	1.00		
More than 100	6.50 (1.53-27.68)	4.40(0.92-21.12)	0.011*	0.064
<b>Difficulty with teachers</b>				
Yes	5.56 (1.03-20.20)	6.16(1.20-31.77)	0.046*	0.003*
No	1.00	1.00		

p value significant at 5%, \*p<0.05

#### 4.4.5 Onset of mental illness and relationship with substance use among users

Mental disorders were grouped into psychotic and non-psychotic disorders. Among those who had a psychotic illness, 18(62.1%) reported that the illness started after the onset of substance use compared to 1(10%) who reported that the illness started before the onset of substance use and this difference was significant;  $p=0.007$ .

Those who had psychotic disorders were more likely to use cannabis (18, 66.7%) compared to other substance users (2, 12.5%) and this difference was significant;  $p=0.001$ .

**Table 4.4.5 Onset of mental illness and relationship with substance use N = 43**

	Mental Illness		Total	$\chi^2$	p value
	Psychotic N=20 n(%)	Non-psychotic N=23 n(%)			
<b><i>Onset of disorder respect to substance</i></b>					
Before start of substance use	1 (10%)	9 (90%)	10	8.90	0.007* <sup>f</sup>
After start of substance use	18 (62.1%)	11 (37.9%)	29		
Cannot tell	1 (25%)	3 (75%)	4		
<b><i>Type of substance</i></b>					
Cannabis	18 (66.7%)	9 (33.3%)	27	11.85	0.001*
Other substances	2 (12.5%)	14 (87.5%)	16		

## 4.5 Quality of life of participants

### 4.5.1 Mean scores of participants on the WHOQOL BREF

The Quality of Life of participants was measured using the WHOQOL BREF along four main domains namely; Physical, Psychological, Social and Environmental domains. Scores on the WHOQOL BREF were transformed to the WHO-QOL100 scored from 0-100 for uniformity.

The mean score obtained for all participants on the physical domain was 58.48 ( $\pm 12.38$ ) and this was the lowest recorded among the four domains. The lowest score recorded in the physical domain was 19 and the highest score was 94. The Environmental domain had the highest mean score of 70.08 ( $\pm 15.75$ ). The Social domain recorded a lowest score of 0 and a highest of 100.

Participants gave a subjective overall rating of their quality of life with a mean score of 3.90 ( $\pm 0.92$ ) and an overall perception of their health yielded a mean score of 3.54 ( $\pm 0.96$ ).

**Table 4.5.1 Quality of life mean scores of all participants**

<b>Domains</b>	<b>Mean score</b>	<b>Standard deviation</b>	<b>Range</b>	<b>Minimum score</b>	<b>Maximum score</b>
<i>Physical</i>	58.48	12.38	75	19	94
<i>Psychological</i>	64.71	15.11	75	19	94
<i>Social</i>	66.24	19.13	100	0	100
<i>Environmental</i>	70.08	15.75	81	19	100
<i>Overall QOL</i>	3.90	0.92	4	1	5
<i>Overall perception of health</i>	3.54	0.96	4	1	5



#### 4.5.2 Relationship between Substance use and Quality of life

There were not much differences between the QOL mean scores among substance users and non-users, though there are lower scores recorded in all domains among those who use substances (see Figure 4.5.2), except for the physical domain in which users have a slightly higher mean score of  $59.86 \pm 11.67$ , as compared to  $58.01 \pm 12.62$  in non-users. This difference, however was not significant ( $p > 0.05$ ). In the environmental domain users scored a mean of  $64.33 \pm 15.37$  as against  $72.02 \pm 15.45$  in non-users, and this difference was significant ( $p = 0.005$ ).

There was significant relationship found between substance use and overall quality of life (users:  $3.51 \pm 0.99$ , non-users:  $4.03 \pm 0.86$ ;  $p = 0.001$ ) as well as overall perception of health (users:  $3.26 \pm 1.02$ , non-users:  $3.64 \pm 0.92$ ,  $p = 0.024$ ). See Table 4.5.2.

**Table 4.5.2 QOL mean scores of all participants, comparing substance users and non-users**

Domains	QOL Mean scores		t-test	p value
	No substance use	Substance use		
<b>Physical</b>	$58.01 \pm 12.62$	$59.86 \pm 11.67$	0.848	0.398
<b>Psychological</b>	$64.87 \pm 14.14$	$64.21 \pm 17.85$	0.249	0.804
<b>Social</b>	$67.45 \pm 18.51$	$62.67 \pm 18.51$	1.419	0.158
<b>Environmental</b>	$72.02 \pm 15.45$	$64.33 \pm 15.37$	2.827	0.005*
<b>Overall quality of life</b>	$4.03 \pm 0.86$	$3.51 \pm 0.99$	3.292	0.001*
<b>Overall perception of health</b>	$3.64 \pm 0.92$	$3.26 \pm 1.02$	2.280	0.024*

p value significant at 5%, \* $p < 0.05$

## CHAPTER FIVE

### DISCUSSION, CONCLUSION AND RECOMMENDATIONS

#### 5.1 DISCUSSION

This study was motivated by the prevailing problem of substance use among the young people of Ghana today, and the accompanying consequences on the mental health and quality of life of users, which have been poorly explored in Ghana. Many young people who present to the mental health facilities for treatment of some mental disorders also have some substance use problems or disorders which are usually not picked up and this poses further challenges for the successful management of the patient and makes recovery cumbersome to achieve. Thus this study attempted to explore the magnitude of the problem and the possible consequences on the quality of life.

The main findings of this study indicate that substance use: occurred more significantly in males; was more common among ages 15 years and above, though onset of use was as early as 10 years; had a significant relationship with lack of religious affiliation; was significantly associated with poor academic performance, difficulty with teachers and large class sizes; had a significant relationship with family dissatisfaction, was more common among young people with psychotic disorders than other disorders and cannabis was the most frequently abused drug in this study and was significantly associated with psychotic disorders.

The study also found that substance use had a negative effect on the overall quality of life and health of young people with co-morbid substance use problems and this was statistically significant. The details are hereby discussed.

The findings of this study are discussed under five main headings namely: 1) Socio-demographic characteristics of participants, 2) Pattern of DSM 5 disorders among participants, 3) Pattern of substance use, 4) Factors associated with substance use and 5) Quality of life of participants and association with substance use.

## **5.1.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS**

### **5.1.1a Personal characteristics of participants**

The proportion of males in this study was higher than females. This could be because males are generally more likely to develop more externalizing and disruptive mental disorders (Karim, 2016), and so are more likely to be seen in hospital for treatment. It has been suggested that males are more difficult to manage at home when they are acutely mentally unwell and thus are more likely to present for treatment at the hospitals (Read, 2012). Females, however are more likely to be seen in churches and traditional healers for their internalizing problems such as depression (Read, 2012).

Majority of participants in this study were Christians (77.1%) which could be explained by the predominance of Christianity in Ghana, whilst 3.5% of respondents did not have any religious affiliation. This trend follows official statistics from Ghana which indicates that 71% percent of the population are Christians, 18% are Muslim, 5% adhere to traditional beliefs, and 6% belong to other religious groups or have no religious beliefs ('GHANA International Religious Freedom Report', 2015).

Most participants in this study were single and not married and this could be due to the sample age range, which was from 10-25 years. The majority of young people in Ghana now pursue education or vocational training up to tertiary level before marriage. Due to the free basic and secondary

education system in Ghana most respondents (56.5%) had had formal education up to secondary level and 33% had attained education up to the tertiary level. Those who had had no formal education were less than 2%. These figures are higher than what is documented in the last published Ghana Demographic Survey in 2014, and could mean school enrolment rates are higher now with the free basic education, and the free secondary education that was implemented some 3 years ago. However, some explained having to drop out of school at a point, commonly the secondary level and unable to further their education due to the effect of mental illness on them, the school or the family. A study found a drop-out rate of 3 in 10 users at the secondary level among substance users (Armiya'u et al., 2016).

A smaller proportion of respondents had completed school and were fully employed among the employed group while the rest of the employed group were school-going youth who had to do some work after school to support the family or themselves. This is common in the Ghanaian setting where children and dependent groups of people have to assist the family by engaging in some form of work or trade to reduce the financial burden on the family. Most of the work were semi-skilled or unskilled in nature, which predominantly includes trading, craftwork, farming and small-scale businesses. Majority were unemployed (71%) and this is explained by the fact that the sample comprised of a young group who are mostly dependent and are also further burdened by their state of health.

#### **5.1.1b Family characteristics of participants**

Majority of respondents belonged to a monogamous family system which could be explained by the predominance of Christianity in Ghana (Ghana Statistical Service, 2014) which encourages more monogamous marriage settings.

More families are now exercising birth control due to more education on family planning, so more parents give birth to between one and four children as also found in this study. The fertility rate in Ghana has decreased from 6.4 per woman to 4.2 since 1988 (Ghana Statistical Service, 2014). Most respondents had been raised by both or one parent, rather than another family member. This is a depiction of the increasing breakdown of the extended family system in recent times, unlike some 20 years ago when children tend to be raised by other family member who are older or well-to-do.

Many still view the family system as the source of their means of living, care and support which could explain why most respondents (89%) liked their families, main reasons given being that the family is caring and supportive, or the family is all they have, especially with the extra burden the family has to bear in taking care of those with chronic mental health conditions. Some 11% of respondents however expressed dislike or dissatisfaction with their families, which might be due to the failing role of the family towards such individuals.

### **5.1.1c School characteristics of participants**

Though majority of the sample population in this study were of school-going age the proportion of those who were not in school was still high (43%) with reasons being that many drop out of school due to their mental illness. Many reported having to drop out of school due to recurrent relapses, side effects of medications, reduced cognitive ability and increased financial burden on the family. Most of those who dropped out did so at the secondary level of education or did not proceed to the tertiary level. Some reported having completed their desired educational level for which reason they were currently out of school. These reasons tally with what was found in the national survey (Ghana Statistical Service, 2014).

### 5.1.2 PATTERN OF DSM 5 DISORDERS AMONG PARTICIPANTS

Most of the participants in this study had presented with Schizophrenia and other psychotic disorders (37.6%), and this is similar to records of some studies conducted at the Accra Psychiatric Hospital, which found schizophrenia and other psychotic disorders as the most frequently recorded disorders among patients, especially in-patients (Read, 2012). A Delphi consensus study conducted in developing countries, including Ghana, suggested acute psychosis, manic episodes and severe depression as the most common disorders treated within psychiatric care (Read, 2012). This trend was replicated in this study as the three most diagnosed specific disorders were Schizophrenia accounting for 20.6% of participants, Bipolar disorder, mostly mania (15.9%) and Depression (12.9%). While depression is globally acknowledged as the most prevalent mental health condition (WHO, 2017; Whiteford *et al.*, 2013), it usually ranges from mild, moderate to severe; and it is often poorly recognized in its mild to moderate forms. This may account for the relatively low representation in this study. However, psychotic disorders and manic states would be so disruptive that relatives and caregivers would immediately present to hospital for treatment interventions and relief as these disorders may present grave difficulties to the family to manage at home (Read, 2012). Thus, it is not altogether surprising, that psychotic disorders and mania were the most prevalent conditions in this study.

More of those diagnosed with schizophrenia and other psychotic disorders in this study were aged 15 and above, with very few (<2%) below 14 years. This is consistent with studies that show that most psychotic disorders begin by age 14 and usually before age 25 (15-25years for males, and 25-35 for females) (Kaplan and Sadock, 2015). Furthermore, nearly 50% of all adult mental health disorders have their onset by the age of 14 years and three fourths by age 24 years (Kessler *et al.*, 2009) and might be the reason for the high frequency of these group of disorders in this study.

More of the neurodevelopmental conditions recorded in this study, such as ADHD, ASD, Tic disorder and Intellectual disability was found among the age group 10-14 years (which was the youngest age group category in this study) and Conduct disorder was recorded in the 15-19 age group, which is expected as adolescents seek freedom from parental control, and in their bid to find identity may end up rebellious. Erikson defined the identity vs role confusion stage of adolescence (Erikson's psychosexual stages of development) as a period when adolescents explore their independence and develop a sense of self. They tend to go against set standards and norms of society as seen in conduct disorder.

Gender differences regarding certain mental health disorders have been documented. Common amongst them is Depression which has been found to occur twice as much in females as in males (Kaplan and Sadock, 2015; Steel *et al.*, 2014), and this study had a male: female ratio of 1:2.7, which supports several studies that have found that depression more commonly affects females than males (Steel *et al.*, 2014). This gender bias has been explained by innate biological differences between males and females. However, environmental influences such as societal expectations, could also play a role in the low presentation of depression among males. Generally, in the African context the male is not encouraged to express weakness so males who are depressed may try and mask it and may not seek the needed help, they may however have worse outcomes, for example, depressed males are known to complete suicides compared to their female counterparts (Tsirigotis, Gruszczynski, & Tsirigotis, 2011). Studies show that more males tend to self-medicate or abuse substances when depressed (Compton *et al.*, 2007)

Anxiety disorders however were more common amongst males than females in this study although anxiety disorders have been found to be more common amongst females (Kaplan and Sadock, 2015; Steel *et al.*, 2014). This finding could be possibly due to the higher proportion of males than

females in this study. Males have been found to have higher rates of substance use disorders and psychotic disorders (Steel et al., 2014) which was also supported by results of this study in which males had higher rates than females.

### **5.1.3 PATTERN OF SUBSTANCE USE**

This study found 25.3% lifetime use of substance and 23.5% substance use disorders comorbid to other DSM 5 disorders in young people seeking treatment at psychiatric facilities. This comorbidity rate is slightly higher than a community study conducted among young adults in South Africa which found a lifetime substance use comorbidity rate of 21.3% and any DSM IV disorder. (Saban et al., 2014). This is expected as studies have showed higher rates of substance use in hospital studies than in the community (Saban et al., 2014). Furthermore higher rates of alcohol and other substance use have been reported among people with mental illness, especially in schizophrenia, than in the general population (NIDA, 2018). Several studies have found rates of comorbid SUD ranging between 12% to 65% and 48% to 64% of lifetime substance abuse or dependence among mentally ill patients (Weich & Pienaar, 2009).

There was a wide gender difference found in this study whereby substance use was commoner in males than in females (males 81% vs females 19%) and this difference was very significant ( $p=0.000$ ). Several studies have found strong association between the male gender and substance use. This finding in this study was similar to the study carried out by Saban et al which found male use of substance ( $p<0.001$ ). Another study in South Africa found more male than female users (72% vs 27%,  $p<0.01$ ) with comorbid SUD among acute psychiatric inpatients (Weich & Pienaar, 2009). Males have been described as more likely to be aggressive, adventurous and engaging in



riskier behaviours biologically as a result of androgenic activity, which could explain their predisposition to substance use more than their female counterparts. Many studies have found association between being male and substance use (Armiya'u et al., 2016), although this does not suppose females are free and should not be targeted for interventions especially as recent studies have showed increasing use of substance among females. Female use of substance in fact could be associated with more severity and even worse mental health implications (Saban et al., 2014).

The age group associated with substance use mostly was the 20-25 age group. However, the onset of substance use was found much earlier, and predominant during the adolescence period, with most users having their first use between 15-19 years (58.1%), and a considerable number also starting by 10-14 years (25.6%). In adult populations it was found that most substance users had started use during adolescence. This is very expected as the adolescence is a period where most try to find identity and belonging and very keen to experiment with new stuff. The early onset of substance use has been explained by the vulnerability associated with adolescence during which period higher risk taking behaviours are taken, due to incomplete maturation of their executive functions leading to poor decision making and poor impulse control (Karim, 2016; NIDA, 2018; Barkus and Murray, 2010).

Most users in this study (70%) were found to use substance rather more frequently users ranging from one or more times daily to at least twice weekly or if not at all, once in a month. A smaller proportion (23%), were just occasional users and only 3% were one time users. This leads us to the problematic use of substance and how these psychoactive substances lead to possible dependence. Though most users used single substance (58%), many also used multiple substances (42%). This could be explained by a proposed phenomenon known as the gateway theory described by Kandel and Faust in 1975, which identifies the use of legal substances such as alcohol and

tobacco in the initial stages of drug use, then progress to illicit but softer drugs like cannabis then later to more addictive drugs like heroin and cocaine (Makanjuola, 2010; Nkyi, 2015). Hence an individual tends to try out other substances after getting exposed to one and ends up using multiple substances. Due to the reward pathway involved with substance use, use of one substance may predispose to use of other substances (NIDA, 2018; DSM 5 APA, 2013).

Majority of the substance users (93%) met the diagnosis of a Substance Use Disorder (SUD) on the DSM 5 criteria and 29 out of 43 had a severe SUD (67.4%), making a total of **23.5%** comorbid SUD among all the participants. This suggests that many users have a full blown substance use disorder comorbid to their other mental disorders, but most patients were not yet diagnosed for their substance use disorder, nor were they receiving any treatment for the SUD. This is very disturbing, as comorbidity has a variety of negative outcomes, compared with non-substance abusing patients, such as higher rates of relapse, re-hospitalization and medication non-compliance (Compton et al., 2007). Those with comorbid diagnosis are also at higher risk of more aggressive behavior, violent offences and increased rates of homicide (Weich & Pienaar, 2009).

### **5.1.3a Substances used by participants**

Cannabis was the most commonly used substance in this study (27 respondents). Cannabis use has been on the rise in Ghana among the youth. Higher rates are recorded among mentally ill population possibly due to the high risk of cannabis in causing psychosis (Forti et al., 2014). This study found cannabis and alcohol as the most commonly abused substances, which was in keeping with the data obtained from psychiatric hospitals in a mental health research literature review in Ghana (Read, 2012). Previous prevalence rates obtained among senior secondary schools in Ghana found a high prevalence of alcohol and tobacco use among the youth, strengthening the “gateway theory”, which states that people tend to use licit substances such as alcohol and tobacco and mild

stimulants as cannabis, before they start using illicit and harder drugs such as cocaine (Nkyi, 2015). However, this study found that more youth embrace cannabis use even more than alcohol or tobacco use, which could be due to the legalization of cannabis in other places, with some debates in Ghana now trying to consider the legalization and regulation of cannabis use. The substance has become readily available, though not legalized. Cannabis use could also be higher in this study group due to increased psychopathology, commonly psychosis, associated with its use, which leads to seeking medical treatment. However, a study in Nigeria recorded alcohol as the most common substance used (41%), followed by cannabis (36.2%), and tobacco (10.4%) among substance users in an addiction centre (Armiya'u et al., 2016). Other hospital-based studies in Nigeria also found alcohol, cannabis and tobacco as the most frequently used substances. Tobacco use was not as popular in this study as other studies have found.

Cannabis use was found to be significantly associated with a diagnosis of psychotic disorders than other substances (cannabis use 66.7% vs other substances 12.5%,  $p=0.001$ ). Those who used other substances aside cannabis were found to have higher rates of other non-psychotic DSM 5 disorders rather than psychotic disorders. This further strengthens studies that have found association of psychosis with high potency cannabis use (Barkus and Murray, 2010; Forti *et al.*, 2014) and might be the reason cannabis use was highest among this group and why psychotic disorders were the most frequent disorders among cannabis users.

Alcohol was the next abused substance second to cannabis. This is not surprising as alcohol is legalized in Ghana, though legal drinking is perched at 18 years and above, many adolescents still engage in drinking. Alcoholic beverages are rampant on the Ghanaian market and easily available and accessible. One can find alcoholic beverages in every shop and in different packaging. Locally run bars called spots are present in several areas in the cities, town and villages, and have different

variety of drinks the youth enjoy. Some are packaged in sachets and very affordable so most of these bars and spots are found packed with adolescents and young people who engage in drinking alongside other gambling games the bars provide. This practice is worse in semi-urban areas where the youth are found to boycott school activities to rather spend more time drinking, playing games or gambling. Users also report drinking at friends' parties or student-led events and kept on with the habit of drinking at social gatherings, which evolved to personal drinking habits. All those who used alcohol had an alcohol use disorder in this study.

Another interesting finding to note is the increased rate of opioid use (9 respondents) even more than tobacco use with tramadol as the notorious drug involved. Many Ghanaian youths now resort to very high doses of Tramadol, popularly known as "tramol". This formulation comes in capsules of 225mg and above dosage strength, and users take at least 6 capsules daily, which far exceeds the therapeutic doses. This is of great concern, as many present to the hospital with seizure onsets, and report of sudden deaths have also been reported in some cases of tramadol users. Tramadol users claim it gives them more physical strength to carry out heavy duties and tasks especially in those that do heavy lifting jobs, whilst students claim it gives them more mental alertness as recorded also in this study. The high occurrence of opioid use is a reflection of the increasing trend of tramadol abuse among many youths in Ghana today, especially in the secondary schools.

Tobacco use though present and a problem is not as popular among Ghanaian youths as the other substances described above. This might really be the case or could be that cigarette smokers did not have as much psychopathology to present to seek treatment. The sedatives/ anxiolytics involved in this study was diazepam (3 users) and 2 out of the 3 were using in conjunction with tramadol to reduce some side effects they get on the tramadol such as tremors and shakiness, while the other used stand-alone unprescribed sedative to improve sleep. Cocaine was used by only one

participant and could be explained that it is not easily available and accessible and also a very illegal drug.

### **5.1.3b Reasons for substance use**

Previous studies have outlined why young people abuse substances (NIDA, 2014) and the commonest ones known were explored in this study whilst others gave subjective reasons for their use. This study found peer influence or a desire to fit in with peers as a major and most popular reason for substance use. According to Erikson's psychosocial theory of development the adolescent stage (11-19 years) is a stage of identity vs role confusion during which the adolescent tries to find their identity and role in society and when not managed well can end in crisis. Many adolescents get satisfaction by the approval they get from their peers. Thus they will do whatever it takes to feel accepted by their peers despite the risks involved, such as engaging in risky behaviours, some of which include substance use, and one of the reasons ascribed to this is the incomplete maturation of the executive functions of the brain of young people (NIDA, 2018).

Another popular reason given by the respondents for their use was that it gives them pleasure. This is expected taking into consideration the reward pathway of addiction. A pleasure pathway is strongly activated which makes them want to repeat the experience over again (Kaplan and Sadock, 2015). Taking high doses of substances usually produces a high which is very rewarding and pleasurable, creating a want for more after the effect wears off, and continual activation of this pathway gradually leads to dependence.

Another common and interesting reason users gave to their substance use was to relieve them of some mental and emotional stresses, and to help deal with some of the symptoms of their mental illness, such as anxiety and depression as they help to feel better. A review of literature shows that

depressed persons more likely abuse substances such as alcohol to help relieve them and improve their mood. Anxious patients easily abuse substances in order to feel calm.

For those who used substances to improve performance at school or work, they reported they gain physical strength to do heavy duty jobs especially those who used cannabis or/and tramadol. Students also reported the use of substances such as cannabis and tramadol gives them more alertness to study. This however, seems not to be the case, as later analysis in this study showed increased self-perceived poor academic performance amongst substance users. The reasons given are in keeping with what was found in literature.

Other personal reasons were given that were interesting to note. One participant had been using substances in obedience to hallucinatory voices to use the substance, due to ongoing psychotic illness. This could explain why substance use could be increased among those with co-existing psychopathology and demands that adequate treatment be given to young people with mental disorders. Another used to open eyes into spiritual issues, which is quite interesting and may be part of a co-existing psychopathology.

### **5.1.3c DSM 5 Diagnosis for those who used substances**

Among substance users, Schizophrenia and other psychotic disorders were the most frequently diagnosed disorders in this study. The National Institute of Drug Abuse had indicated that substance use was more common amongst the mentally ill, especially in those with schizophrenia than in the general population (NIDA, 2018), which supports the finding from this study. Other disorders found among substance users in this study include Bipolar disorders, Depression, Anxiety disorders, ADHD and conduct disorder, all these disorders have been strongly linked with substance use in previous studies. Recent studies have showed that nearly one-third of people with major depressive disorders also have substance use disorders and this comorbidity leads to higher

risk of personal and social impairment (Davis et al., 2008). Another study found that adolescent onset bipolar disorder confers a greater risk for substance use than adult onset bipolar disorder (Goldstein et al).

#### **5.1.4 FACTORS ASSOCIATED WITH SUBSTANCE USE**

This study found that substance users were more likely than non-substance users to be middle to late adolescents, male and less likely to be religious. The use of substance kept increasing as the age group increased, thus more use was observed among middle adolescents than early adolescents and use was more increased in the late adolescence period. Use of substance has been found to be very common among young people of this age range.

Male gender has been found to have a strong association with substance use in many studies and literature reviewed has showed males as predominant users of substance. Saban et al found a larger proportion of males ( $p < 0.001$ ) using substance which was similar to the finding in this study (Saban et al., 2014). The results could be a reflection of the stereotypical norms of male socialization with alcohol and substances. Recent findings suggest an increasing trend of female substance use, with female users having more severe psychopathology than males (Saban et al., 2014). Thus, it is needful to pay more attention to female substance use.

This study also found that young people who had no care religious affiliation were more likely to use substance than the religious group. This finding was not described in other studies under review. Belonging to a religious group could act as a protective factor from certain habits and

practices which are addressed by religious teachings and norms. Most people in the Ghanaian and African context are religious and hold the teachings in high esteem.

Though some studies found an association between substance use and employment status, this study did not find any association between the two. This might be explained by the fact that most of the respondents were dependent or in school and even most of those who were working did so as part time and were not fully or gainfully employed.

Another important finding was that substance users were more likely than non-users to be dissatisfied with their families and did not as much like their families. Family dynamics, structure and function play a very important role in the socialization of the child and young person, especially in the African setting. When children are unable to receive the necessary love and support at home, they become prone to peer pressure and external influences outside the home, and this could be a factor contributing to abuse of drugs. Children and young persons who do not receive the needed love and attention at home are more likely to be wayward and resort to bad habits (Babalola & White, 2017). Some of the evidence based preventive interventions for substance use disorders involve providing a supportive family, school and community environment (NIDA, 2018), since the lack of family and social support increases risk of substance use. It is therefore not surprising that users were more likely to be dissatisfied with their families. This finding further strengthens the Urie Bronfenbrenner's biopsychosocial model of mental and behavioural disorders which does not only take into account the biological cause of disorders, but identifies the psychological and social factors as major contributors to substance use and other mental and behavioural disorders.



The possible implications of substance use on schooling and self-reported academic achievement were also explored in this study. Interestingly, users were more likely than non-users to perform poorly in their academics, belong to a larger class, and to have difficulty with their teachers. Although some users reported the use of drug to help them perform better in school, it appears from this study the reverse is the case. Part of the symptomatology of substance use disorders is spending more time on activities and in places related to the drug use to the detriment of more important activities such as school and work, which could explain the poor academic performance. Secondly the mental health implications of substance use shown in this study and others could also explain why users are more likely to have difficulties in their studies, especially among those who developed a disorder with substance as a risk factor. Schizophrenia and other psychotic disorders tend to reduce the cognitive ability of sufferers with time (Kaplan & Sadock, 2015) .

A larger class size was also significantly associated with substance use. Most of those who belonged to a large class (more than 100 students) in this study were in the tertiary level of education (university). This finding may mean a larger class predisposes to increased peer pressure and exposure to more unpleasant habits and drugs. There could be a reduced exertion of control on large classes by the needed authorities and so ill practices may thrive in large classes. This finding may also be attributed to the high number of university students in this study who usually have large class sizes. A poor school environment support system fuels the habit of substance abuse and thereby preventive interventions tailor providing a conducive and supportive school environment (NIDA, 2018).

Young people who use substances were also found to have more difficulty with their teachers. This is expected as problematic substance users tend to be more violent, leaders of rebel groups in schools, more likely to defy school authority, absent themselves from classes and other effects of

the drug in question may lead to exhibition of some unacceptable behaviours in school, which may require punishment and lead to strenuous relationship between the student and teacher.

### **5.1.5 QUALITY OF LIFE OF PARTICIPANTS**

Respondents gave their subjective quality of life using the WHOQOL BREF. After accessing participants on four domains of life, substance users were found to have lower scores on all four domains except for the physical domain, though the differences did not achieve statistical significance except on the environmental domain, which showed a significant difference between users and non-users. The subjective higher feeling of physical wellness could be explained by the transient feeling of pleasure and well-being most drugs (substances) exert, as well as the use of drugs in managing physical pain, which is the reason some users resort to drug use. Although substance use disorders have shared risk factors with other mental disorders, users had lower scores on their environmental domain, as well as the overall quality of life and quality of health than non-users and this attained statistical significance.

Environmental influence plays a major role in substance use and studies have showed that slum areas, overcrowded urban neighbourhoods and unsupportive communities contribute to substance use among young people (Armiya'u et al., 2016), and thus an evidence –bases prevention for substance use disorders is environmental modification (NIDA, 2018).

Users also had significantly lower overall quality of life and quality of health scores than non-users in this study. This could be explained by the fact that comorbidity of SUDs and mental disorders poses a variety of negative outcomes which affects the individual's overall quality of life such as

underachievement, decreased work productivity, social dysfunction, lower recovery rates and poor treatment outcomes, just to name a few (Compton et al., 2007). Mental illnesses are known to disrupt a person's life in many ways if not well managed such as the mental and physical health due to the effects of mental illness on the well-being of the sufferer, work and productivity as many working days and times are missed and social relationships are compromised. These unpleasant outcomes are worsened in the presence of a comorbid substance use disorder. Young persons who have both a drug use disorder and another mental illness usually exhibit symptoms that are more severe, persistent and resistant to treatment compared to those who have either disorders alone (NIDA, 2018).

#### **5.1.6 LIMITATIONS AND STRENGTHS OF STUDY**

A strength of this study is that it is the first study as far as the author is concerned, that provides detailed information on substance use and co-morbid mental disorders in Ghana, targeted towards adolescents and young people, and further examines the quality of life. The sample size was adequate enough to draw association and conclusions from the variables measured. The associations found will help inform evidence-based education and interventions.

This study was limited in that it was cross-sectional in nature, objective screening of substances by laboratory studies to confirm substance use could not be done and the time period for collection of data was relatively short. Larger sample studies are still encouraged in this area.

## **5.2 CONCLUSION**

Substance use was found to be common among young people with mental disorders and many users have moderate to severe substance use disorders (SUDs) as co-morbidity to other mental disorders. Substance use remains an important risk factor for developing a mental illness, particularly, Schizophrenia and other psychotic disorders, especially where cannabis is involved. Comorbid substance use is associated with a poorer quality of life in the environmental domain, overall quality of life and overall quality of health. The family, school and the environment were found to be important factors in substance use disorders.

## **5.3 RECOMMENDATION**

Aggressive and unabated efforts should be put into campaigns targeted at education of young people on the consequences of substance use on their mental and physical health, school achievement and their quality of life. The school should have a counselling and educational team that regularly address the issue of substance use and provide help to those who have problems with substance use. Appropriate referrals should be made to mental health care professionals when needed.

Noteworthy is the fact that substance abuse is not just a problem of the individual alone, but the family and the society at large. Effective intervention methods need to address family issues such as providing help and support for dysfunctional families and strengthen the family system to provide adequate support and good role-modelling for children, adolescents and young people. The school environment should be made conducive to promote good nurturing and responsible youths and reduce unhealthy practices such as substance abuse. Our leaders should ensure peace

and sanity in our environment and good structuring of communities to avoid overcrowding and slums, which have been found to promote substance use problems.

Preventive interventions and early identification and management of substance use disorders in young people could help reduce possible mental health problems and rate of mental disorders due to the high risk associated with the use. Healthcare providers should be better trained to identify substance use disorders among young people and especially those who present with mental disorders. Early intervention is key.

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## APPENDIX I

### INFORMED CONSENT FORM

#### **STUDY TOPIC: SUBSTANCE USE AND QUALITY OF LIFE OF YOUNG PEOPLE WITH MENTAL DISORDERS ATTENDING PSYCHIATRIC CLINICS IN KUMASI, GHANA.**

This study is being conducted by Dr. Ruth Charlotte Sackey, a Master of Science student at the Centre for Child and Adolescent Mental Health, University of Ibadan, Nigeria. The study aims to study the pattern of substance use amongst young people who have mental health problems and to find the reasons for their use of substance. The study will also examine the quality of life of young people with mental disorders and find out if having a comorbid substance use problem is associated with a better or poorer quality of life.

The study will take place in the hospital or facility where you seek treatment for the mental health problem. It will involve interview of the child or young person and interview of caregiver or parent as may be necessitated. The interview will mainly consist of answering to some standard questions asked and the duration of interview will be about 45 minutes and will be a one-off session. However, any participant who may need further interventions or support will be commended to their clinician for the necessary interventions.

Participation in this study is very voluntary and you are free to participate or refuse to participate. You can withdraw from the study at any time without any consequences. Your participation is however encouraged as it will help to improve knowledge that will help provide better care for young people with mental health challenges. Your identity is kept anonymous as codes of numbers

instead of names are used. The information given in this study will be handled very confidentially by the researcher and the Centre for Child and Adolescent Mental Health and important findings will be published for future plans and policy making.

You are encouraged to give honest answers to the questions asked.

Kindly sign or thumbprint below if you agree to participate in the study.

.....

Signature/thumb print of caregiver

.....

signature of the investigator

## APPENDIX II

### CONSENT/ASSENT STATEMENT

If you have fully understood the information provided about the study and you are willing to participate in the study please kindly sign or thumb print in the space provided.

.....

Signature/thumb print of child/youth

.....

signature of the investigator

## APPENDIX III

### ADAPTED SOCIO-DEMOGRAPHIC QUESTIONNAIRE (OMIGBODUN ET AL 2008)

Please write the answers to the questions or draw a circle where it applies to you. This is not an examination it is only to find out about you and your health.

Serial Number: \_\_\_\_\_

Today's Date: \_\_\_/\_\_\_/\_\_\_

#### SECTION I

##### Personal Information

1. Where do you live? (Address of Present Abode):
  2. What is your date of birth? Date of Birth: \_\_\_\_\_
  3. How old are you? \_\_\_\_\_
  4. Are you a boy or a girl?                      (a) boy                                      (b) girl
  5. Do you practise any religion? No    Yes
  6. Please write down the exact place you attend for worship
-



(a) Islam (b) Orthodox Christian (c) Pentecostal Christian (d) Traditional religion (e) Other

7. Are you married? Yes No

### Family Information

8. Family Type:

(a) Monogamous (b) Polygamous

9a. Number of Mother's Children:

9b. Number of Father's Children

10. What is your position among your father's children?

11. What is your position among your mother's children?

12. Marital Status of Parents:

(a) Married (b) Separated/Divorced (c) Father is dead (d) Mother is dead  
(e) Mother & Father are dead

13. Who do you live with presently?

(a) Parents (b) Mother (c) Father (d) Grandparents (e) Grandmother  
(f) Grandfather (g) Other [please specify] \_\_\_\_\_

14. Who brought you up from your childhood?

(a) Parents (b) Mother (c) Father (d) Grandparents (e) Grandmother

(f) Grandfather (g) Other [please specify] \_\_\_\_\_

15. How many different people have you left your parents to live with from your childhood? \_\_\_\_

16. Do you do any kind of work to earn money before or after school? Yes No

17. If yes, please describe what you do \_\_\_\_\_

18. Level of Father's Education

(a) No Formal Education (b) Koranic School (c) Primary School (d) Secondary School

(e) Post-Secondary (Non-University) (f) University Degree and above (e) I do not know

19. Occupation of Father: [Write the exact occupation] \_\_\_\_\_ / I do not know

20. Level of Mother's Education

(a) No Formal Education (b) Koranic School (c) Primary School (d) Secondary School

(e) Post-Secondary (Non-University) (f) University Degree and above (e) I do not know

21. Occupation of Mother: [Write in the exact occupation] \_\_\_\_\_ / I do not know

22. Do you like your family? Yes No

23a. If Yes, Why? \_\_\_\_\_

23b. If No, Why? \_\_\_\_\_

**School-Related Questions**

24a) What is your level of education and what class are you in? .....

24b). Do you like your school? Yes/ No

25. How many children are there in your class? \_\_\_\_

26. Do you do well academically? Yes No

27a. If Yes, explain\_\_\_\_\_

27b. If No, explain\_\_\_\_\_

28. Are you having difficulties with your teachers? Yes No

29. If yes, what sort of difficulties?

\_\_\_\_\_

**SECTION 2**

**Use of substances or drugs**

30. Have you used any used any substance or drug of abuse before? Yes No

31. If yes, what substance(s) or drug(s)?

\_\_\_\_\_

32. At what age were you when you first ever used a substance? \_\_\_\_\_

33. In relation to the substance you use, when did you realize this mental health problem started?

a) Before I first started using a substance or drug of abuse

b) After I started using a substance or drug of abuse

c) I cannot tell

34) Why do/did you take a substance or drug of abuse? (you can choose more than one answer)

a) In order to fit in with my peers

b) It gives me pleasure

c) It helps me feel better from this mental health condition

d) It helps me to perform better at school

e) I just like to experiment with them

f) Other reasons? Specify \_\_\_\_\_

35) Do you know what condition you are being managed for? Yes      No

36) If yes what is the condition? \_\_\_\_\_

## APPENDIX IV

### THE WORLD HEALTH ORGANIZATION QUALITY OF LIFE QUESTIONNAIRE (WHOQOL-BREF)

The following questions ask how you feel about your quality of life, health, or other areas of your life. I will read out each question to you, along with the response options. Please choose the answer that appears most appropriate. If you are unsure about which response to give to a question, the first response you think of is often the best one. Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last four weeks.

		Very poor	Poor	Neither poor nor good	Good	Very good
1.	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2.	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last four weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3.	To what extent do you feel that physical pain prevents you from doing what you need to do?	5	4	3	2	1
4.	How much do you need any medical treatment to function in your daily life?	5	4	3	2	1
5.	How much do you enjoy life?	1	2	3	4	5
6.	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely

7.	How well are you able to concentrate?	1	2	3	4	5
8.	How safe do you feel in your daily life?	1	2	3	4	5
9.	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about how completely you experience or were able to do certain things in the last four weeks.

		Not at all	A little	Moderately	Mostly	Completely
10.	Do you have enough energy for everyday life?	1	2	3	4	5
11.	Are you able to accept your bodily appearance?	1	2	3	4	5
12.	Have you enough money to meet your needs?	1	2	3	4	5
13.	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14.	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither poor nor good	Good	Very good
15.	How well are you able to get around?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16.	How satisfied are you with your sleep?	1	2	3	4	5
17.	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18.	How satisfied are you with your capacity for work?	1	2	3	4	5
19.	How satisfied are you with yourself?	1	2	3	4	5
20.	How satisfied are you with your personal relationships?	1	2	3	4	5

21.	How satisfied are you with your sex life?	1	2	3	4	5
22.	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23.	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24.	How satisfied are you with your access to health services?	1	2	3	4	5
25.	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to how often you have felt or experienced certain things in the last four weeks.

		Never	Seldom	Quite often	Very often	Always
26.	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	5	4	3	2	1

**Do you have any comments about the assessment?**

---



---

	<i>Equations for computing domain scores</i>	<i>Raw score</i>	<i>Transformed scores</i>
			4-20      0-100
<i>Domain 1</i>	$(6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18 =$		
<i>Domain 2</i>	$Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26) =$		
<i>Domain 3</i>	$Q20 + Q21 + Q22 =$		
<i>Domain 4</i>	$Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25 =$		

## APPENDIX 1VB –Transforming of scores on the WHOQOL- BREF Questionnaire

### Method for converting raw scores to transformed scores

DOMAIN 1		
Raw Score	Trasformed scores	
	4-20	0-100
7	4	0
8	5	6
9	5	6
10	6	13
11	6	13
12	7	19
13	7	19
14	8	25
15	9	31
16	9	31
17	10	38
18	10	38
19	11	44
20	11	44
21	12	50
22	13	56
23	13	56
24	14	63
25	14	63
26	15	69
27	15	69
28	16	75
29	17	81
30	17	81
31	18	88
32	18	88
33	19	94
34	19	94
35	20	100

DOMAIN 2		
Raw score	Trasformed scores	
	4-20	0-100
6	4	0
7	5	6
8	5	6
9	6	13
10	7	19
11	7	19
12	8	25
13	9	31
14	9	31
15	10	38
16	11	44
17	11	44
18	12	50
19	13	56
20	13	56
21	14	63
22	15	69
23	15	69
24	16	75
25	17	81
26	17	81
27	18	88
28	19	94
29	19	94
30	20	100

DOMAIN 3		
Raw score	Trasformed scores	
	4-20	0-100
3	4	0
4	5	6
5	7	19
6	8	25
7	9	31
8	11	44
9	12	50
10	13	56
11	15	69
12	16	75
13	17	81
14	19	94
15	20	100

DOMAIN 4		
Raw score	Trasformed scores	
	4-20	0-100
8	4	0
9	5	6
10	5	6
11	6	13
12	6	13
13	7	19
14	7	19
15	8	25
16	8	25
17	9	31
18	9	31
19	10	38
20	10	38
21	11	44
22	11	44
23	12	50
24	12	50
25	13	56
26	13	56
27	14	63
28	14	63
29	15	69
30	15	69
31	16	75
32	16	75
33	17	81
34	17	81
35	18	88
36	18	88
37	19	94
38	19	94
39	20	100
40	20	100

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**APPENDIX V**

**The Kiddie Schedule of Affective Disorders and Schizophrenia (K-SADS-PL DSM-5 2016)**

**Substance Use Supplement**

**SUBSTANCE USE SUPPLEMENT KSADS (ADAPTED)**

Alcohol ( )

Cannabis ( )

Stimulants ( )

Sedatives/ Hypnotics/Anxiolytics ( )

Cocaine ( )

Opioids ( )

PCP ( )

Hallucinogens ( )

Solvents/ Inhalants ( )

Other (specify) \_\_\_\_\_

Polysubstance (combination of substances) ( )

**Criteria:**

**0 –no information**

**1 –not present**

**2 – one or more symptoms endorsed**

**1) Uses more than planned** **0      1      2**

Do you find yourself using much more than planned or getting high anyway?

How often does this happen?

What about using all day or going on multiple binges?

**2) Failure to fulfil major responsibilities** **0      1      2**

Are there times you got high at school or went to school high?

Gone to work high or used at work? How often?

**3) Use in physically hazardous situations** **0      1      2**

Have you done anything dangerous while high such as driven recklessly or sped on the highway?

Taken other risks?

**4) Negative consequences (legal)** **0      1      2**

Ever got arrested for doing something illegal when you were high? Example stealing, selling drugs, vandalism?

**5) Use despite social problems** 0 1 2

Has your use of drugs caused problems with your friends, siblings, teachers, romantic partner?

**6) Tolerance** 0 1 2

How old were you when you started to use? How much were you using then? How much do you use now? Do you find that you have to use more than you used to use in order to get high?

**7) Withdrawal symptoms** 0 1 2

Have you ever had any bad reactions when you tried to quit or cut down?

Eg) Shakes, hallucinations, paranoia, insomnia, anxiety etc

**8) Tried to quit or reduce use** 0 1 2

Have you ever tried to quit or cut back? How many times have you tried? What happened?

**9) A lot of time spent in associated activities** 0 1 2

How much of your time do you spend being high or having a hang over?

Do you spend a lot of your time with friends drinking or smoking or getting high?

How much time do you spend in recovering from the effects of the drug?

**10) Important occupational, social or recreational activities given up or reduced due to abuse** 0 1 2

Have you had a period of time that you started using drugs instead of spending time at work or with family, friends, hobbies or other activities? Did you miss any important activity due to a hungover?

**11) Negative consequences –Physical** 0 1 2

Do you have any medical problems that may be made worse by your using the substance?

Did your family doctor request you do not use and you did anyway?

Have you woken up the next day not remembering what you did the night before?

**12) Negative consequences – Psychological** 0 1 2

Do your moods change dramatically when you use the substance?

Do you find yourself getting angered easily when you use the substance?

Do you feel depressed, anxious, worried or fearful when using the substance?

**13) Craving**

**0 1 2**

Do you find yourself having an intense desire for the substance?

Do you think about using when you are busy doing other things?

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## APPENDIX IA

### INFORMED CONSENT FORM- TWI TRANSLATION

Nhwehwe mu yi, de3 Oda ano ye Dokita Ruth Charlotte Sackey, a oye osuani wo beaa ehwe mbarima ne mbabaa adwen mu apowmu den wo alata man mu, sukuu pon aa ewo Ibadan (CCAMH, UI, Nigeria)

Adwene po aa ewo saa nhwehwe mu yi mu ne se ebesua ndubone aa mmabaa ne mbrantie a won adwene mu apomuden ato kyima na ebiom ahwe sentiaa wofa saa nnubone no. Saa nhwehwemu yi so be kyere se nea hon a won adwen mu apomuden ato kyima abrabosem si tie na afei so asan ahwe se nnubone fa ema abrabo pa anaa abrabo nsunsuanso.

Ber biara a wo pe no wo be tumi efi nhwehweyimu ako. Ennye nhye. Se wo pen so se wo be ka nhwehwe yi mu aa, mepawokyew tintim krataa yi so.

Medaase.

.....

Ohwefo ntintim

.....

ohwehwemu fo ntintim

## APPENDIX IIB

### CONSENT/ASSENT STATEMENT

Se nteasee aye edwuma na wo pe se wo ka nhwehwe mu yi wo, tintim ha.

.....

Ababaawa/abrantee ntintim

.....

ohwehwemu fo ntintim

## APPENDIX IIIB

### ADAPTED SOCIO-DEMOGRAPHIC QUESTIONNAIRE (OMIGBODUN ET AL 2008) – TWI TRANSLATION

Sj w'ate nsjm yi a jde ama wo yi ase na w'ayj krado sj wobjyj nhwehwemu yi bi dej a, mjsere sj wo be tintim anaase wobj sinsane baabi a yjgya no.

Meserj sj wobjbua nsjm a merebisa wo ano. Sj jsjsj wo twa ho a, na w'atwa. Wei nsj nschwj na jmom sj nea ybjj hunu wo ne w'apcmuden.

Personal Information (nsjmmisa a jfa wo ho).

1. Jhefa na wo te? (w'awofoc tenabea).
2. W'awoda? Jda yj de wo woc ...../...../.....
3. W'adi sjn? .....
4. Wo yj cbarima anaa cbaa?
  - a. Cbarima
  - b. Cbaa
5. Wo yj csomfo?
  - a. Aane
  - b. Daabi
6. Meserj wo twerj baabi pctee a wosom. ....
7. Wa ware?
  - a. Aane
  - b. Daabi
8. Abusua sjm. (W'abusua mu awaresjm).
  - a. Baakofoc awarej.
  - b. Mmaa dodoc awarej.
- 9a. Wo maame mma yj sjn?
- 9b. Wo papa mma yj sjn?
10. Wo tc so sjn wc wo papa mma mu?
11. Wo maame mma mu no, wo tc so sjn?
12. W'awofoc awaresjm mu:
  - a. Wcn da so yj awarefoc.

- b. Wcn agyae awarej.
- c. Agya no aka nkyene agu / w'awu.
- d. Jna no aka nkyene agu / w'awu.
- e. Jna ne agya no aka nkyene agu.

13. Hwan na wo ne no te seisiara?

- a. W'awofoc
- b. Maame (jna).
- c. Agya.
- d. Nana baa ne Nana barima.
- e. Nanabaa pj.
- f. Nana barima pj
- g. Obi foforc.

14. Hwan na jtete wo?

- a. Awofoc.
- b. Jna
- c. Agya.
- d. Wo nana barima ne cbaa.
- e. Nana barima pj.
- f. Nana baa pj.
- g. Obi foforc.

15. Sj yjyi w'awofoc a, nnipa ahodoc sjn na wo ne wcn tenaej wc nkwadaa berj mu?

16. Wo yj adwuma a jde sika berj woc ansaana worekc sukuu anaa sj wo wiej no?

- a. Aane
- b. Daabi

17. Sj aane a, ka adwuma korc.

18. Wo papa akc sukuu aduru sjn?

- a. W'ankc sukuu
- b. Nkramo sukuu
- c. Mmcfra sukuu ntetej
- d. Ntoasoc sukuu ntetej .
- e. Post-secondary school
- f. University degree (Mpaninfoc sukuu)
- g. Mennim

19. Adwuma a wo papa yj .....  
Twerj adwuma pctee a cyj / Mennim.

20. Wo maame kcc sukuu duru sjn?

21. Wo maame yj adwuma bjn?

22. W'anigye w'abusua ho?

- a. Aane
- b. Daabi

23a. Sj aane dej a, adjn nti ara?

23b. Sj daabi nso a, adjn nti ara?

Sukuu kc mu nsjm

24a. Wogyina sen wo sukuu?.....

24b. W'anigye wo sukuu ho?

- a. Aane
- b. Daabi

25. Nkwadaa sjn a cwc wo gyinapjn no mu bi? .....

26. Wo yj adej wc adesua mu?

- a. Aane.
- b. Daabi

27a. Sj aane a, kyerj asej.

27b. Sj daabi a, kyerj asej

28. Wo ne wo tikya foc wc as3m?

- a. Aane
- b. Daabi

29. Sj aane aa, dejn haw saa?.....

## APPENDIX IVB

### THE WORLD HEALTH ORGANIZATION QUALITY OF LIFE QUESTIONNAIRE (WHOQOL-BREF) – TWI TRANSLATION

1. Sen na wobe susu w'abrabo mu kankɔ?  
1 - Nye  
2 - Nye koraa  
3 - Mentumi nka se eye anaa enye  
4 - Eye  
5 - Eye paa
2. Honam mu yaw tumi ma wo twe san wo nee esesewo ye ho?  
5 - Daabi koraa  
4 - Kakra  
3 - Kakra bi saa  
2 - Ewo mu saa  
1 - Paa yie
3. Sen na w'ani gye abrabo anaa w'asetena ho?  
5 - Daabi koraa  
4 - Kakra  
3 - Kakra bi saa  
2 - Ewo mu saa  
1 - Paa yie
4. Se wo susu a, w'abrabo wo nteasee ma wo?  
1 - Nye  
2 - Nye koraa  
3 - Mentumi nka se eye anaa enye  
4 - Eye  
5 - Eye paa
5. Wotumi ma w'ani gyina biribi potse so kye? 1 2 3 4 5
6. Sen na wo ho woana wo mpa mu agodie? 1 2 3 4 5
7. Mmoa a wo nya firi wonamfo nom ho no, w'ani so)? 1 2 3 4 5
8. Biaee a wotee mu nsem, w'ani so? 1 2 3 4 5
9. Se nea wo nya apomuden ho nsem no, w'ani so? 1 2 3 4 5
10. Akoneaba ne akwantuo nsee no, w'ani so? 1 2 3 4 5



Nsem a edidisoo yi behwe senea wo hunu nnooma bi wo nnawotwe nnan aa etwa mu yi.

11. Nneyee bi te se abufuo, awereho, mprepreho ne nee ekekaho no, mmere sen na etumi ba wo so?

- 5 – Entumi ba koraa
- 4 – Entaa mma
- 3 – Etaa ba
- 4) – Eba paa
- 5) – Daa

12. Nsem aa wo hia se wode betu anamon dabiara no, eba wanowano anaa? 1 2 3 4 5

13. Wowo sika etumi hwe wo w'ahia sem mu?

14. Sen na w'ahomgyee mu nsem tee?

15. Wo tumi ko nee ese wokoo yie?

16. Wo nna te sen?

- 1) Enye koraa
- 2) Enye
- 3) Mentumi nkyere
- 4) Eye
- 5) Eye paa

17. Se nee wotumi ye daadaa nnwuma no, w'ani gye ho?

- 1) Aane paa
- 2) Daabi koraa
- 3) Mentumi nkyere
- 4) M'ani gye ho
- 5) M'ani gye ho yieo

18. Ahoden aa wo de ye adwuma no w'ani gye ho? 1 2 3 4 5

19. W'ani gye woara wo ho?

20. W'ani gye wo ne aforoo nkitahodie ho?

21. Wowo abraboo mu banbo?

22. Nnooma a atwa wo ho ahyia wo apomuden? Wo hu no sen?

23. Daadaa abraboo mu no, wo wo ahoden?

24. Se nea wohu wo nipa dua no, wogyee to mu?

25. Wo kaar mu nsem ete sen?

26. Wo were taa how?

5 – Entumi ba koraa

4 – Entaa mma

3– Etaa ba

2 – Eba paa

1 – Daa

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