THE USE AND ABUSE OF PSYCHOACTIVE SUBSTANCES AMONG COMMERCIAL MOTORCYCLE OPERATORS IN A SELECTED LOCAL COUNCIL AREA IN KANO, NIGERIA.

Being a dissertation submitted in partial fulfillment of requirements for the award of the fellowship of the national post-graduate medical college of Nigeria, faculty of Psychiatry.

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I hereby certify that the study in this dissertation: The use and abuse of psychoactive substances among commercial motorcycle operators in a selected Local Council Area in Kano, Nigeria: was carried out in the Department of psychiatry, Aminu Kano Teaching Hospital, Kano under my supervision.

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I hereby declare that this dissertation is an original work done by me, and that, to the best of my knowledge it has no material previously published, unless otherwise acknowledged, nor has it been presented to any college or institution of higher learning for the award of followership or any other degree or diploma.

____________________________

Dr. M.I. Gudaji.
Dedication.

This piece of work is dedicated to my parents, to whom credit belongs for who I am today, my tutors, for guiding me through the residency training programme and to my wife and children for enduring all the years of training.
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The study evaluated the use and abuse of psychoactive substances among commercial motorcycle operators from Tarauni Local Government Area of Kano State, North-Western Nigeria. It specifically assessed the prevalence of psychoactive substance use, although it also looked at the pattern of psychoactive substance use and the variables associated with its use among the commercial motorcycle operators.

Three hundred and ninety four (394) subjects participated in the study, and were recruited using multistage sampling method. Assessment was carried out with the use of sociodemographic questionnaire, the student drug use questionnaire, the clinical interview using the alcohol and psychoactive substance use section of the schedule for clinical assessment in neuropsychiatry (SCAN) and toxicology screening using urine drug screening kit. The results showed that the prevalence of overall psychoactive substance use was 19.3%. The prevalence of tobacco, stimulant (gadagi), and cannabis use were 19.3%, 11.9% and 3.8% respectively, while the prevalence of inhalants and opiates use were 2.0% and 1.3% respectively. There were no reported use of alcohol, benzodiazepines and cocaine. All the subjects were males, Moslems, within the age range of 22-60 years mean of 32.7 ± 6.6 years. They were mostly married (88.6%), and more than two third of them (70.1%) were from Kano.

Positive correlation were found between psychoactive substance use and age, as well as with marital status, such that the younger the age of the motorcyclists (22-35 years), the more chances of using psychoactive substances, and the singles respondents were more likely to use psychoactive substances. In conclusion, the study has highlighted the prevalence and pattern of substance use and abuse among commercial motorcyclists. It has important implication for
policy makers to initiate primary preventive measures that could be focused towards the reduction of substance use and abuse among commercial motorcyclists in the community.
Chapter One

1.0: Introduction

Substance use is common among young people (Mason et al, 2004; CDC, 2008; SAMHSA, 2010). Working youths are special group that should be handled carefully because of the burden of early employment and engagement in adult roles (Kouvonen and Lintonen, 2002). Previous works suggest that some occupations may be risks for psychoactive substance use (Hall, 2005).

Commercial motorcycle operation is widely adopted in Kano, perhaps for both logistic and social reasons. It is possible that commercial motorcyclists are at higher risk of substance use compared to the general population. However, this is not a well researched area.

Available records indicate that the majority of Kano residents are Moslems whose religion forbids the use of psychoactive substances such as alcohol and others. Studies in southern Nigeria, which seem to have large Christian population, among commercial motorcyclists have consistently reported that psychoactive substance use is high (Owoaje et al, 2005; Iribhogbe and Odai, 2009; Adogu et al; 2009).

Identification and description of the extent of psychoactive substance use will be useful in planning any mental health promotion or mental disorders prevention among any population. This study was designed to determine the sociodemographic risk factors, types and prevalence of psychoactive substance use among motorcyclists in Kano.
Chapter Two

2.0: Literature Review

2.1: Historical perspectives.

2.1.1: Alcohol.

Alcohol use is universal, and most people and cultures have fermented several substances for its production. A major milestone in the production of alcohol was in Europe when in 1250BC, using the technique of distillation, which made it possible to produce more potent and convenient alcoholic beverages, known as “aqua vitae”, that is “water of life”, alcohol became more widely available (Gregory, 1979).

From 1675BC to 1700BC in America, there was growing irreligiosity, which was blamed on excess tippling, while in England new laws encouraged distillation and sale of alcohol for revenue. Therefore both alcohol use and tobacco smoking increased dramatically particularly among the poor, and this reached epidemic proportions. Some laws prohibited the sale of alcohol with heavy taxation. Later drunkenness began to decline, with coffee and tea taking the place of alcoholic beverages (Barry, 1968; Henry, 1969).

The popularity of alcohol continued to increase in America up to 1800BC. Later, religious revivalism encouraged general abstinence and restraints. At first, consumption declined, but by 1925BC, a widespread illicit alcohol trade was well established, increased enforcement and penalties had little effect, and this finally led to the abolishment of the law on sale and consumption of alcohol in 1933BC (Andrew, 1972; Drug use in America, 1973).
It has also been noted that alcohol was used for commerce for centuries between Europe and Africa (Pan L, 1975). Alcohol and kola nut have been traditionally used in Nigeria for religious and cultural purposes.

2.1.2: Opiates.

Opiate was from the Arabs in 700BC to 800BC for use in medical conditions and ailments, it was consumed in beverages made from the seeds. In China, it was used as Chinese capsules of opium in 1100BC. In India opium was cultivated, eaten, and drunk by all classes as a home hold remedy, and by rulers for indulgence, and to the soldiers to increase their courage (Gregory, 1979).

In classical Greece and Rome, opium was widely employed only as a medicine, and the phenomena of abuse and dependence were not recorded then. In China, the medical use of opium poppy seed was widespread by 1930BC (Gregory, 1979).

In 1935 opium eating and drinking was widespread, but was consumed in small quantities, it became a major source of revenue for the government. In England as the 19th century progressed, there was growing interest in the problems encountered with sustained use of opium as well as its therapies (Andrew, 1972).

2.1.3: Stimulants.

In South America, the chewing of coca leaves was central to their religious and cultural activities between 1200BC and 1555BC, though controlled by ritual sanctions. The leaves were used for their euphoriant and energizing effects. Stimulants (such as coffee and tea) were indigenous to Ethiopia and coffee roasting started in that country, which made it cheaper, available and pleasant to consume, compared to when it was extracted from the leaves and chewed or made
into infusion for medicinal purposes. Later its use spread to Yemen and other Arabian peninsula between 1300BC and 1500BC (Drug use in America, 1973).

Generally, psychoactive substance use became more wide spread and diverse in Europe, through European explorers and traders who discovered and brought back a variety of new drugs, from 1500BC to 1525BC. The psychoactive drugs include coffee from Arabia, kola nut from Africa, tea from China (Andrew, 1972).

Heroin and cocaine spilled over to the Nigerian streets from drug traffickers who use Nigeria as a transit route in the international drug business (Broffka, 1966; Adelekan et al, 1992).

2.1.4: Tobacco.

Tobacco was first observed by Columbus from Central America (Andrew, 1972).

It was introduced into western Europe in the mid sixteenth century from Brazil to France. Then it was dubbed *Nicotina* in honour of Jean Nicot, who described its medicinal properties (Andrew, 1972; Gregory, 1979).

In Italy, Japan and Germany especially, smoking was banned in 1600BC, and the penalty for smoking was death. In 1664BC, China revoked all existing smoking ban and became the greatest smoking nation in Asia. In Russia, use of tobacco continued to increase. When smoking ban was lifted in 1676BC, it spread from foreign circles to the general population (Gregory, 1979).

2.1.5: Cannabis.

Indentured laborers from India arrived Jamaica bringing with them multi-purpose use of cannabis (Gregory, 1979). Concerns grew among the white land owning population over cannabis smoking among the poor native laborers and its demoralizing, criminogenic influence,
which brought about the dangerous drugs law in 1940. The laws increased penalties for use of cannabis (Barry, 1968; Gregory, 1979).

In Nigeria, little prominence was initially given to the problem of drug use in the country. Cannabis was introduced to the country, by Nigerian war veterans returning from Burma after the second world war (Broffka, 1966; Adefelikan et al, 1992).

2.2.1: **Global trends in psychoactive substance use.**

It is estimated globally that about 200 million people have used psychoactive substances at least once in the previous 12 months. People who use psychoactive substances have been reported from every country. UNODC (2009), reported that the annual prevalence of cocaine use was estimated to be between 0.3% and 0.5%.

The prevalence of stimulants use ranged between 0.3% and 1.3%. The predominant stimulant used varied between regions. Amphetamine group of stimulants dominate in Africa, the Americas and Asia, whereas in Europe and Pacific Islands, ecstasy group of stimulants prevalence rates are higher (UNODC, 2011). It was reported that methamphetamine is the most widely manufactured stimulant worldwide.

Cannabis is the most cultivated, trafficked and abused illicit drug worldwide. Its spread is global, encompassing practically every country in the world. The prevalence of cannabis use was put at 2.5% globally (Kalula, 2011; UNODC, 2011).

In South America, UNODC (2005), reported that the main drug use was cocaine, prevalence rate (54%), followed by cannabis (24%), while in North America, cannabis and opiates were the
commonest (32% and 31%) respectively. The same study estimated that in Europe, opiates topped the list with 59%, and in Asia with 65% opiates use (UNODC, 2005).

A national Australian survey, reported 66% lifetime prevalence use of painkillers, while others were tranquilizers 31%, marijuana 27%, barbiturates 7%, hallucinogen 7%, amphetamine 6%, cocaine 3%, inhalants 2% and heroin 1% (Bammer et al, 1995).

In Finland, in a nationwide survey of adult population, using a self administered questionnaire, Kontula et al (1995), reported that in comparison with other European countries, drug use among the Finns was less prevalent, although there was a high prevalence of multiple drug use among the population studied.

A survey in the United States showed that 37% of the population reported using one or more illicit substances in their lifetime. Thirteen percent had used the substance in the past 12 months and 6% had used them in the month before the survey. More than 66% of the people aged 12 to 25 years, had used a psychoactive substance, and more than 15% of the United States population older than 18 years of age had serious substance use problems (NIDA, 1991).

One United States population survey reported a 2% lifetime prevalence use of amphetamine. Those aged 18 to 25 years reported the highest level of use, with 9% reporting use at least once and 1% described themselves as current amphetamine users (Jaffe, 1995).

2.2.2: Trends in Africa.

It has been estimated that, about 161 million people used cannabis, most of them being Africans (UNODC, 2005). In Africa, since the 1960’s when psychoactive substance use came into prominence, the types of psychoactive substance use and methods of use have changed.
Initially alcohol, cannabis, amphetamine and related stimulants including khat were the drugs identified (Asuni, 1964).

Studies have estimated the prevalence of cannabis in Africa to be around 3% (Driss and Nadia, 2008; Samuel, 2003; Kalula, 2011). In a household survey in four regions of Tanzania, the authors reported that cannabis and khat were the two major psychoactive substances that people have experimented with, having a prevalence of 3.8% and 3.7% respectively (Kilozo, 1992; Kalula, 2011). In north Africa cannabis resin (hashish) has been traditionally used by members of the Sufi sect, while in east Africa, the use of khat was reported to be common. Cannabis (dagga) has been widely cultivated and used in South Africa (INCB, 2004). Khat chewing is a social, culture based activity and some religious leaders are involved in the habit. High incidence of khat chewing has been reported among university teachers, parents and other highly placed people in Ethiopia (Lamina and Subramanian, 2009).

A United Nations report showed that the annual prevalence of cannabis use in Egypt was 5%. This was followed by sedatives with prevalence of 2%. Amphetamines and opiates were 1% and 0.5% respectively (UN Report, 2009).

2.2.3: Trends in Nigeria.

In Nigeria, there has been a growing trend in the use of psychoactive substances. Current data indicate that drug use cuts across diverse groups, with high risk groups including males aged 10 to 29 years, law enforcement agents, commercial sex workers (CSW), commercial drivers and motor park touts (UNDCP, 2006; Suleiman et al, 2006; Gureje et al, 2007).

In a WHO sponsored rapid assessment and response (RAR) projects using snowball sampling technique to recruit street drug users from eight state capitals in Nigeria, including Kano, it was
reported that intravenous drug use contributes to the HIV/AIDS epidemic in Nigeria (Adelekan and Lawal, 2006).


Reports of psychoactive substance use in Northern Nigeria were first published in the 1980’s, long after the first reports from the southern parts of the country (Oshodi, 1986; Ahmed, 1986; Ifabumuyi, 1986).

In a nationwide study of psychoactive substance use among adults in five of the six geopolitical regions of Nigeria, Gureje et al (2007), reported that the prevalence of alcohol was 58%, tobacco 17%, sedatives 14%, stimulants 2.4% and cannabis 3% among the population studied. However, the study was limited to self report assessment of substance use among the respondents.

2.3: Hospital based studies in Nigeria of prevalence of psychoactive substance use.

In a review of psychoactive substance related cases admitted to the Department of psychiatry Ahmadu Bello University Teaching Hospital (ABUTH), Kaduna, in the 80’s it was reported that those aged 31 years and over tend to abuse alcohol, with majority being married. The studies reported that the combined use of alcohol with cannabis was more likely than combining cannabis with amphetamines (Ahmed, 1986; Suleiman et al, 2006).

In a study of substance abuse among patients with mental illness, carried out in Jos University Teaching Hospital (JUTH), Ayuba et al (2003), reported that the prevalence of psychoactive
substance use was 33.4%. The authors reported that patients with major depression were more likely to use drugs.

Previous studies reported prevalence of substance use among patients admitted for the first time for treatment at a drug abuse unit in Abeokuta. Cannabis was abused by 72%, alcohol 59% and heroin 34%. The studies reported that single drug abuse was the norm (SAMHSA, 1998; Adamson, 2007).

Researchers have reported that abuse of psychoactive substances play a major role in HIV transmission among drug users while those with a diagnosis of schizophrenia may also be at high risk for HIV infection. Nyamali et al (2010), in Federal Neuropsychiatric Hospital, Yaba, Lagos, reported that patients using psychoactive substances were more involved in sexual activities than those with schizophrenia. The authors reported that both groups of patients engaged in HIV risk behaviours such as having multiple casual sexual partners (substance users 21%, schizophrenia 9.5%).

Goar et al (2011), reported a high prevalence rate of alcohol related problems of 39.4% among HIV patients in a hospital in Jos. However, the study was limited to alcohol use disorders.

Information on the use of alcohol and other psychoactive substances among motorcyclists in Nigeria and more specifically in Northern Nigeria is limited.

2.4: Studies in different population groups.

2.4.1: Students and psychoactive substance use.
Many studies of psychoactive substance use in Nigeria have been conducted on student populations. Students constitute a large portion of youths in Nigeria. Studies of drug use have indicated that the prevalence of drug use was high among the students population (Lambo, 1960; Asuni 1964).

The university experience is unique as it provides students with the first opportunity to be part of a larger group of peers without parental supervision. This may partly contribute to making new students more vulnerable to try novel, previously prohibited and sometimes illicit experiences. The most commonly used psychoactive substances among university students have been reported to be salicylate analgesics (78%), alcohol was next (42%), stimulants, hypno-sedatives and cigarettes accounted for 35%, 18% and 11%, respectively (Adelekan et al, 1992).

In a study of psychoactive substance use among medical students in Ilorin, Nigeria, Makanjoula et al (2007), reported a prevalence of stimulants use as 33.3%, alcohol (13.6%), sedatives (7.3%) and tobacco (3.2%).

Various sentinel studies in the country reported that the prevalence of alcohol and other substance use among students’ population was high (Adelekan, 1989; Akinhanmi, 1996). Nevadomsky (1982), in a study of drug use among secondary students in southern Nigeria, reported a prevalence of alcohol use to be 65%, tobacco 24%. The author reported that use of benzodiazepines, cannabis and amphetamines among the subjects were less common.

In a study in United States of alcohol abuse and its consequences among undergraduates, Boyd et al (2003), reported a prevalence of 22.7% of alcohol abuse among the subjects. The authors used CAGE questionnaire via the internet as an indicator
of alcohol abuse. However, the study was limited to alcohol use. In Lithuania, a study among undergraduates of psychoactive substances, showed the prevalence for drug use were 35.9% among males and 17.7% among females students (Antanas et al, 2009).

Vázquez (2010), in a study of prevalence of psychoactive substance use and dependence among Spanish university students, reported that 86.5% had consumed psychoactive substances, and 10.5% satisfied DSM IV criteria for dependence on nicotine, alcohol, caffeine or cannabis.

2.4.2: Substance use among Transportation workers.

2.4.2.1: Global.

Hall (2005), in a study of alcohol and other psychoactive substance use in commercial transportation, reported a prevalence of cannabis as 52%, cocaine (63%), amphetamines (4.7%) and opiates (4.5%) among aviation transport workers in United States. In the same study psychoactive substance use among railroad workers was 3%, whereas a prevalence of 4.6% was found among commercial truckers. The study made use of breath alcohol analyzers and urine drug screening tests.

The national highway traffic safety administration in America, in a study among fatally injured drivers, reported that, 18% tested positive for psychoactive substances (NHTSA, 2009). SAMHSA (2010), reported that 4.2% of people in America drive under the influence of psychoactive substances. Alcohol and cannabis were the most prevalent psychoactive substances detected among impaired drivers.
In a collaborative United States/European Union international research effort to assess illegal psychoactive substance use among motor vehicle operators suspected of driving under the influence of drugs, Crouch et al (2008), reported that the sensitivities of the drug testing devices were amphetamines (36.4%), cocaine (35.9%), opiates (42.9%) and cannabis (7.7%). The authors assessed commercial drug testing devices (onsite testing of saliva and sweat with Drugwipe test) for use in law enforcement.

In Seattle, USA, in a study of prevalence of psychoactive substance use in commercial tractor trailer drivers, Couper et al (2002), reported that excluding caffeine and nicotine, positive findings were stimulants (9.5%), cannabis (4.3%) and alcohol (1.3%). The authors used urine specimen for drug analysis.

In a responsibility study of main illicit psychoactive substance use among commercial drivers in France, Gadegbeku et al (2011), reported that the effect of alcohol and cannabis on fatal car crashes responsibility were significant compared to amphetamine, cocaine and opiates. The authors reported a causal relationship between cannabis and road accidents.

In Australia, Drummer et al (2003), reported a prevalence of 26.7% of psychoactive substance use among fatally injured drivers. These included alcohol (18.6%), cannabis (13.5%), opiates (4.9%), stimulants (4.1%) and benzodiazepines (4.1%).

In Thailand, in a study of prevalence of psychoactive substance use among drivers, Inqsathit et al (2009), reported that among 1635 respondents, 5.5% tested positive for BAC that exceed the legal limit (≥ 50mg/dl). The authors reported that psychoactive substances were present in 9.7% urine samples analyzed.
In a study in Taipei, Taiwan, of comparison of the prevalence of substance use and psychiatric disorders between government and self employed commercial drivers, Lin et al (2003), reported a higher prevalence of 9.5% among self employed commercial drivers compared to 8.3% among government drivers. The authors used many instruments for the assessment of substance use, such as Chinese Health Questionnaire (CHQ), Michigan Alcoholism Screening Test (MAST), Drug Abuse Screening Test (DAST) and urine drug screening test among others.

2.4.2.2: Africa.

In a study in Ghana, of epidemiology of alcohol impaired driving, Asiamah et al (1999), reported that 21% of the respondents had a detectable BAC, with 7.3% above the legal limit of ≥ 80mg/dl. The authors reported that 64% of impaired drivers were commercial drivers. However, the study was limited to alcohol use.

In a study of motorcycle injuries in Tanzania, Chalya et al (2010), reported that motorcycle accidents constitute 37.2% of all road traffic injuries. However, there was high use of psychoactive substances among the respondents.

2.4.2.3: Nigeria.

Lasebikan and Baiyewu (2009), in a study in Ibadan, south western Nigeria, of problems associated with psychoactive substance use among long distance commercial drivers, reported a prevalence of alcohol use as 77.5%, tobacco (60.5%), cannabis (52.5%) and inhalants (8.1%). The authors reported that road accidents were the most common problems among the respondents, with a prevalence of 26.8%, and were commonest among those respondents with alcohol use disorders.
One study in Sagamu, south western Nigeria, of psychoactive substance use among commercial drivers and their assistants, Adenekan and Osibogun (1999), reported a prevalence of salicylates as 80.3%, alcohol (72.9%), tobacco (50.5%), cannabis (31%) and sedatives (23.5%). The authors reported that alcohol related accidents was 33.9%.

In a study in Benin-city, Nigeria, of morbidity and mortality among road users, Nzegwu et al (2008), reported that commercial drivers had an average of BAC of 54.16mg/dl among those that died in accidents. However the study was limited to alcohol use.

In Ife, Nigeria, Abiona et al (2006), in a study of pattern of alcohol consumption among commercial road transport workers, reported a prevalence of alcohol use in the study population as 67.2%. However, the study was limited to alcohol use. Makanjoula et al (2007), in a study of psychoactive substance use among long distance drivers in Ilorin, Nigeria, reported a prevalence of stimulants to be 56.1%, tobacco (53.6%), alcohol (37.7%) and anabolic steroids (34.8%).

Iribhogbe and Odai (2009), in Benin, Nigeria, in a study of driver related risk factors in commercial motorcycle crashes, reported a prevalence of alcohol use to be 39.8%, tobacco (34.6%), cannabis (0.6%) and cocaine (0.003%). In a study in Zaria, north central Nigeria, among commercial motorcycle operators, Alti-Mu’azu and Aliyu (2008), reported a prevalence of cannabis use as 25.8%, inhalants (24.5%), caffeine (15.8%) and coffee (4.5%).

2.5: Road traffic law violation, accident and psychoactive substance use.
Road traffic accident (RTA) represents a major epidemic of non-communicable diseases in Nigeria. It has been recognized as an important public health problem in both developed and developing nations (Adogu et al, 2009).

Among fatal accidents, motorcycle accidents rank first globally (Odzemir et al, 2005). A large proportion of vehicles involved in accidents are two wheelers, which when compared to cars, are unstable and provide little protection for their riders in accidents (Adogu et al, 2009). RTA and death among motorcyclists is further heightened by apparent reckless speeding, meandering in traffic and show of little regard for other road users. Studies reported that the use of psychoactive substances was found to be associated with the occurrence of road traffic accidents among motorcyclists (Crilly, 1998; Marks, 1982; Alti-Muazu and Aliyu, 2008).

Motorcycles have a sevenfold increase in accident rate for vehicle person per mile and a 17-fold fatality rate compared with motorcars (Sabey et al, 1980; Makanjoula et al, 2007).

Commercial motorcycle operation in Nigeria in general and Kano in particular is considered as a means of employment especially for the teeming urban youths. There is high use of motorcycle as a means of transport in Nigeria generally and specifically in Kano. Previous studies have suggested a possible link between psychoactive substance use and accidents (Makanjoula et al, 2007; Iasebikan, 2010).

The relationship between cannabis use and car crash is controversial. Studies have reported increased risk of crash associated with cannabis use (Iasebikan, 2010; Mura 2003). Some cannabis users who drive on a set course show little or no impairment under the influence of the substance, except if it is combined with alcohol (Sutton, ...
Nigeria has an estimated lifetime consumption of cannabis of 10.8% of which commercial drivers and other motor park operative seem vulnerable (Makanjoula et al, 2007; UNODC, 2007; Lasebikan, 2010).

### 2.6: Substance use among Youths.

#### 2.6.1: Global.

Mason et al (2004), in a study of substance use, social networks, and the geography of urban adolescents in Washington, USA, reported a prevalence of psychoactive substance use among the respondents as 65%. The authors reported that most popular psychoactive substances used were alcohol, cannabis and cocaine. Tobacco was not measured in the study as a primary psychoactive substance as some participants (18 years and older) can legally use it.

Centre for Disease Control and Prevention (CDC, 2008), reported a high prevalence of cannabis use (19.6%) among teenagers aged 16 to 19 years. SAMHSA (2010), reported a high prevalence of cannabis use (12.8%) among young adults aged 18 to 25 years.

In Turkey, studies reported that alcohol use disorders are a major health problem in the western world, especially among youths (Room et al, 2005; Ilhan et al, 2007).

#### 2.6.2: Africa.

In Tanzania, Kalula (2011), in a qualitative study of cannabis use among young people, reported an increasing trend of cannabis use among youths aged 15 to 25 years with a prevalence rate of 5%
2.6.3: Nigeria.

There is paucity of studies of drug use among youths in Nigeria (Omuluabi, 1995). Early employment leads individuals to draw back from controlled settings such as family and school. One study found that students consumed less alcohol in comparison to the working youths (Wegman and Davis, 1999). Working youths are special group that should be handled carefully because of the burden of early employment and engagement in adult roles (Kouvonen and Lintonen, 2002).

Adebiyi et al (2010), in a study of tobacco use among out of school adolescents aged 10 to 19 years in Ibadan, southwestern Nigeria, reported a prevalence of tobacco use as 20.5%. However, the study was limited to tobacco use.

2.7: Effects of psychoactive substance use.

It has been reported that experimentation, curiosity, alertness for study, the belief that psychoactive substance increases the strength for physical work, are the main reasons that people use drugs (Suleiman et al, 2006). The contribution of drugs to the burden of illness and effects of drug related activities, such as drug trafficking and crime on societal values, especially in the youths, have been enormous (UNDCP, 2006; Obot, 1993; Odejide, 1982; Suleiman et al, 2006).

It is almost impossible to calculate the effect of drug use on society. The effects vary and may take decades to reveal themselves (Kaplan and Sadock, 1998). People whose parents take drugs have a greater chance of developing both physical and psychological difficulties, which will have an impact on the fabric of society as measured by education, employment and socioeconomic levels in the population (Oladeji et al, 2010).
People may also engage in risky sexual behaviour due to the influence of drugs. For those that engage in intravenous or intramuscular use of drugs, there is also the risk of use of contaminated syringes and needles increasing the risk of HIV infections.

Studies showed that the effects of psychoactive substances on the brain could lead to emotional instability, poor impulse control and poor intellectual functioning (SAMHSA, 2010). Hall and Degenhardt (2009), in Australia, reported that those who had tried cannabis by age 18 years were two to four times more likely to be diagnosed with schizophrenia than those who had not.

Berghaus et al (1995), in a meta analysis of 60 experimental studies, found that behavioural and cognitive skills related to driving performance were impaired in a dose dependant fashion with increased cannabinoids blood levels. The authors reported that impairment increased significantly when cannabis was combined with alcohol.
Chapter Three

3.1: Aim.

To assess the prevalence of drug use among commercial motorcycle operators in a selected local council Area in Kano, Nigeria.

3.2: Objectives.

i. To determine the types, prevalence rates and any associated clinical syndromes of substance use among commercial motorcycle operators in Tarauni Local Government Area.

ii. To identify some sociodemographic factors associated with psychoactive substance use in the study subjects.

3.3: Hypothesis.

1. Motorcyclists who used psychoactive substances will not have more traffic law violation and accidents.

2. Psychoactive substance use will not be high among the commercial motorcycle operators.

3.4: Justification of the study.

The present study is expected to contribute to the body of knowledge on the substance use literature in Nigeria. Commercial motorcycle operation in Nigeria will remain for a time. The
usual sense of urgency in people involved in various businesses make commercial motorcyclists a most sought after means of local transportation. It is important to evaluate driver related factors in commercial motorcyclists when accidents occur. Apart from uncertain driving skills, it is possible that some motorcyclists are unaware of road rules, ethics and proper conduct on the road. Psychoactive substance use has been found to be associated with occurrence of traffic crashes among motorcyclists. This may probably hold true in Kano.

Very few epidemiological studies on psychoactive substance use in populations of commercial drivers have been carried out in Nigeria. In Northern Nigeria, the only published community based study of psychoactive substance use and commercial motorcycle operators was in Zaria (Alti-Muazu and Aliyu, 2008). The study focused more on health and social consequences of psychoactive substance use among commercial motorcyclists. The authors did not use standard instrument for data collection.

The present study was carried out in the most populated city in Northern Nigeria that is believed to have the highest number of commercial motorcyclists and highest prevalence of psychoactive substance use in the country (NDLEA, 2009). Therefore, the study of psychoactive substance use among commercial motorcycle operators might allow for more exploration on the use and abuse of different types of psychoactive substances among the studied population.
Chapter Four

4.0: Methodology

4.1: Setting of the study.

The study was carried out at Tarauni Local Government Area of Kano State, the most populated state in Nigeria with population of more than nine million people distributed among its 44 local Government areas (National Population Commission, 2006). Tarauni, one of the eight Local Governments Areas (LGAs) within Kano city, has a population of 221,367 inhabitants, with 111,688 males and 109,679 females (National Population Commission, 2006). This LGA plays host to the Aminu Kano Teaching Hospital (AKTH).

The LGA is made up of 12 political wards each represented by a Councilor in the Local Government Council. Tarauni is a predominantly Hausa community and most inhabitants are of the Moslem faith. The inhabitants are mainly subsistence farmers, planting maize, millet and guinea corn. There are no records of psychoactive plants grown in the LGA. The Local Government is undergoing a transition where tradition and modernity co-exist and some inhabitants have been employed as junior staff and domestic helps to the workers of AKTH and other businesses in the LGA. Some local inhabitants are self employed selling in small shops and others are involved in ferrying workers to and from the LGA and other parts of Kano Metropolis.

There are specific taxi routes within the city, and anyone going out of the route has a choice of using commercial motorcyclists, commercial tricyclists (“keke NAPEP”) or trekking. The commercial motorcyclists have specific stands along the taxi routes. In all the stands, there are local cafes (“me shayi”) selling tea, coffee and the local stimulant (“gadagi”) in the mornings and evenings. There are food vendors, who have spots where the motorcyclists eat, take tea, coffee,
smoke cigarette, or take “gadagi” and discuss generally. There is a modest functional urinal for the motorcyclists in each stand.

4.2: Study Population.

The study was conducted among commercial motorcycle operators who are registered with the Tarauni Local Government Area branch of Amalgamated Commercial Motorcycle Owner’s and Riders Association of Nigeria (ACOMORAN). This is the only umbrella body that registers motorcyclists. The association has its main office in Abuja, with state offices in each state capital, the local government offices in each Local Government Area of the Federation. A good number of the commercial motorcycle operators are however not under any association.

4.3: Study design.

Descriptive cross sectional study.

4.4: Ethical consideration.

Ethical clearance was obtained from the Research Ethical Committee of Aminu Kano Teaching Hospital. The National Patron of ACOMORAN (retired colonel Isa Kachako), gave permission for the study.

Participation in the study was entirely voluntary. No commercial motorcycle operator was forced to take part in the study. Informed consent was obtained from the participants after the
nature of the study, aim, objectives and the procedure were explained to them. All information from participants have been kept confidential. The research had the plan to refer any participant with serious clinical problems to AKTH.

4.5: Sample size determination.

The sample size was determined using the formula

\[ N = \frac{z^2 \cdot p \cdot q}{d^2} \]

Where

- \( N \) = minimal sample size required
- \( Z \) = Standard normal deviate at 95% confidence interval = 1.96
- \( P \) = 34.3% (prevalence of substance use obtained from a previous study in Kano city (Kabir et al, 2004).
- \( q \) = Complementary probability to \( P \) = 1 – \( P \) = 1 - 0.34 = 0.66
- \( d \) = precision of the study = 5% = 0.05.

\[ n = \frac{(1.96)^2 \cdot (0.34 \times 0.66)}{(0.05)^2} \]
=

338.

The calculated sample size was 338, but this was increased to 400 (to give greater power).

4.6: Sampling.

The sampling technique adapted was multistage.

Stage I - Systematic probabilistic selection of 4 political wards from the 12 existing wards (Marhaba, Kasuwa, Dangi, and Bawo wards).

At the time of the study there were 126 registered commercial motorcycle stands within Tarauni LGA, with 5040 registered members, and 14-66 members per stand.

Stage II – Systematic selection of 3 stands on each selected wards, bringing the total number of randomly selected stands to twelve.

Stage III – Whole population study of the commercial motorcyclists in each selected stand after being identified by their identity card of the association, until when the required sample size was achieved.

4.7: Inclusion criteria.

1. Age ≥ 18 years.

2. Registered membership of ACOMORAN in Tarauni LGA.

3. Consent to participate in the study.
4.8: **Exclusion criteria.**

1. Motorcyclists with a history of mental illness.

2. Absence from the stand during data collection after 3 return visits.

4.9: **Instruments for data collection.**

4.9.1: **The WHO student drug use questionnaire (SDUQ).**

The WHO student drug use questionnaire (SDUQ), also known as youth survey questionnaire was adapted for this study. The questionnaire was developed by the WHO in cooperation with the United Nations Fund for Drug Abuse Control, for use in different socio-cultural settings (Smart et al, 1980). The original questionnaire is made up of 22 items. The questionnaire was adapted for this study in the following manner.

4.9.1.1: **Socio-demographic characteristics.**

1. Item on age was retained, while item on sex was discarded, as the study was conducted on male respondents only, as commercial motorcycle operation is a male business at least in Kano city.

2. The item “How many years of school have you completed?” was retained and “How long have you been a commercial motorcycle operator” was introduced.

3. The items asking if the respondent was a student, full-time or part - time, for most of the last 12 months was discarded. An item asking if the respondent is a
commercial motorcycle operator, full-time or part-time, for most of the last 12 months, and whether the respondent has been a commercial motorcycle operator elsewhere was introduced.

4. Other items were added to elicit information on

(i) Respondent’s marital status, number of wives and children, state of origin, religion and participation in religious activities, history of violence, violation of traffic laws and road traffic accident.

(ii) Average amount of money the respondent makes per month.

(iii) Level of education and occupation of respondent’s parents.

(iv) Whether one or both respondent’s parents is/are dead and if so, age of respondent at the time.

(v) Whether respondent’s parents are still married to each other and if not, age of respondent at the time of their divorce.

(vi) Whether or not respondent’s parents smoke cigarette or take alcoholic drinks.

The items on parental level of education and occupation as well as that on respondent’s amount of money made per month were incorporated into the questionnaire as measures of socioeconomic status. Those on age of respondent at the time of divorce or death of parents (if applicable) were to estimate the proportion of respondents who suffered some degree of parental deprivation. The other added items on road traffic accidents and violence were incorporated as measures of relationship between psychoactive substance use, road traffic accidents, and violence. It was possible from the item on violence to identify if the respondent had been a perpetrator on intimate partner physical violence or threat of violence.
4.9.1.2: Drug abuse.

1. All the core items on drug abuse were retained.

2. Two alterations were made on item two.

   a. The age categories for first use of each drug were altered from 10 years to 23 years in view of the expected age range of the study population.

   b. The item ‘Do you know of any other drug/s that people are now taking to make them feel good or intoxicated”, was altered to refer specifically to respondent’s co-workers.

3. Other additions were made

   a. for each type of drug the respondent had used, he was asked to state

      - When he first used it.

      - The name of the particular one he had used most recently, and, where applicable, if he had tried to stop or reduce his use of the drug during the previous 12 months.

   b. To check reliability, a lie item “mitrenar” was included as a psychoactive substance.

4.9.1.3: Honesty questions.

The two questions on self-reported honesty, i.e. “if you had ever used any cannabis, would you have admitted it in this questionnaire?” and “if you had ever used any opium or heroin, would you have admitted it in this questionnaire?” were retained unaltered.
The student drug use questionnaire has been used extensively in Nigeria. Many of the alterations mentioned above have been incorporated in some of the earlier versions used in Nigeria (Makanjoula et al, 2007; Akinhanmi, 1996).

4.9.2: Modules in schedules for clinical assessment in neuropsychiatry (SCAN), Alcohol and psychoactive substance use sections.

The Modules in Schedules for Clinical Assessment in Neuropsychiatry (SCAN) on use of Alcohol and use of psychoactive substances other than alcohol was adapted for the study (WHO, 1999).

The SCAN system is a set of instruments and manuals aimed at assessing, measuring and classifying the psychopathology and behaviour associated with major psychiatric disorders of adult life. The SCAN text has three components: the tenth edition of the Present State Examination, the Item Group Checklist and the Clinical History Schedule.

The SCAN system contains two other essential elements: the Glossary of differential definitions and CATEGO, a set of Computer programs for processing SCAN data and providing out-put.

In its complete form, the SCAN text is intended for use only by clinicians with an adequate knowledge of psychopathology who have taken a course at a WHO-designated SCAN training centre. The researcher had formal SCAN training in December 2007.

The development of SCAN was funded by National Institute of Health, WHO, the field Trial Centres, and the Institutes employing individual contributors (WHO, 1999).

The SCAN was adapted in the following manner

4.9.2.1: Abuse and dependence item on alcohol use section.

41
1. Items on types alcohol beverages, age at first use, frequency of use were discarded because it was asked by SDUQ.

2. Other items on abuse and dependence such as subjective need, family and social problems, neglect of other activities, problems with the law, tolerance, withdrawal states and physical damage were retained unaltered.

4.9.2.2: Abuse and dependence items on use of other psychoactive substances section.

1. Items on types of other psychoactive substances other than alcohol, age at first use, frequency of use were discarded because it was asked by SDUQ.

2. Other items on abuse and dependence such as subjective need, family and social problems, neglect of other activities, problems with the law, tolerance, withdrawal states and physical damage were retained unaltered.

4.9.3: Urine drug screening test.

Urine drug screening test was adapted for the study (Wong, 2002). A drug test is commonly a technical examination of urine, hair, blood, sweat, or oral fluid samples to determine the presence or absence of specified drugs or their metabolites traces (Wong, 2002; Miller et al, 1990; Giannini and Giannini, 2001; U S Department of transportation, 2007).

Saliva testing results for the most past mimic that of blood, the only exceptions are tetrahydrocannabinols and benzodiazepines. Urine can not detect current drug use. It takes approximately 6-8 hours or more post-consumption for most drug to be metabolized and
excreted in urine (Wong, 2002). Similarly, hair requires two weeks, and sweat, seven days (U S Department of transportation, 2007).

The efficacy of urine testing is debatable due to systematic cheating as well as its questionable accuracy.

Urine drug test kits are available as on-site tests, or laboratory analysis. The main disadvantages of urine-based drug test kits are,

i- The ease with which they can be cheated, unless specimen is directly observed.

ii- Inability to detect current drug use,

iii- The need for bathroom facilities for sample collection (Wong, 2002).

The urine drug screening kit is user friendly in that the testing is done on-site, with an average of 8 to 15 minutes for a test to be completed with appropriate colour change on the dip stick. For the purpose of the present study, urine testing was done on every fourth respondents.

4.10: Procedure.

The sampling procedure has been explained earlier. The data was collected between November and December 2009. Daily visit was paid to each of the selected motorcycle stands in the LGA, with assistance of the ACOMORAN chairman and his team, one ward a week. Two wards with larger number of participants required a second week visit of data collection. Specific visitation week was allocated to each of the wards. The motorcycle operators who were in their stand, who met the inclusion criteria, were administered the socio-demographic data and SDUQ. The questionnaires were interviewer administered. An average of ten interviews were conducted
daily (with range of six to 14 interviews). Each one in four of the respondents had his urine tested voluntarily irrespective of drug use history, using the urine drug screening kit dip stick, for the presence of psychoactive substances (Miller et al, 1990). The testing was done at the roadside using the modest urinating area, which exist in each stand. Urinalysis was also done on all the urine sample collected to check for the specific gravity and pH.

The subjects who admitted life time use of any drug (with exception of tobacco), proceeded to the second stage examination with the SCAN interview.

4.11: Data analysis.

Data analysis was done with the statistical package for the social sciences (SPSS), 16th edition (Chicago, 2007). Simple descriptive data were presented with frequencies, proportions and percentages.

Continuous variables and categorical (nominal) variables were compared with student t- test and $X^2$ test respectively. All tests were two tailed, with p value < .05 taken as significant.
Table 5.1: Sociodemographic characteristics of subjects.

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total N=394</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age group (yrs)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 – 35</td>
<td>264</td>
<td>67.0</td>
</tr>
<tr>
<td>≥ 35</td>
<td>130</td>
<td>33.0</td>
</tr>
<tr>
<td><strong>State of origin</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kano</td>
<td>276</td>
<td>70.1</td>
</tr>
<tr>
<td>Kaduna</td>
<td>48</td>
<td>12.2</td>
</tr>
<tr>
<td>Jigawa</td>
<td>39</td>
<td>9.9</td>
</tr>
<tr>
<td>Katsina</td>
<td>21</td>
<td>5.3</td>
</tr>
<tr>
<td>Others**</td>
<td>10</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>31</td>
<td>7.9</td>
</tr>
<tr>
<td>Primary (completed)</td>
<td>133</td>
<td>33.8</td>
</tr>
<tr>
<td>Secondary (completed)</td>
<td>158</td>
<td>40.1</td>
</tr>
<tr>
<td>Higher education (completed)</td>
<td>72</td>
<td>18.3</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>45</td>
<td>11.3</td>
</tr>
<tr>
<td>Married</td>
<td>349</td>
<td>88.7</td>
</tr>
</tbody>
</table>
Table 5.1 shows the distribution of the participants according to sociodemographic variables. There were 394 participants, aged 22 to 60 years, with mean age of 32.7 years ± 6.6. One hundred and fifty eight (40.1%) of the participants had completed secondary education, 72 (18%) had completed higher education (diploma and NCE). Two hundred and seventy six (70.1%) of the participants were from Kano state while Kaduna and Jigawa contributed 48 (12.2%) and 39 (9.9%) respectively. Three hundred and forty nine (88.7%) of the respondents were married, with 306 (77.7%) being married to one wife and the majority of them had between 1 to 5 children.

All the respondents were males and Moslems, who participate (>90%) regularly in their religious activities.
The table also shows that the duration of operating as commercial motorcyclist among the respondents was between one to 20 years, with a mean of 8.6 years ± 4.5. One hundred and seventy one (43.4%) respondents had been working as commercial motorcycle operators for 6 to 10 years.
The lifetime use, 12 months use and current use of psychoactive substances are presented in table 5.2. Tobacco had the highest prevalence for lifetime use with 76 respondents (19.3%), 12 month use with 63 respondents (16.0%) and current use of 63 respondents (16%). This is followed by stimulant use, with lifetime use of 47 respondents (11.9%), 12 month use with 46 respondents (11.7%) and current use with 41 respondents (10.5%).

There was no reported use of alcohol, heroin, cocaine and benzodiazepines among the respondents.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tobacco n (%)</th>
<th>Stimulants n (%)</th>
<th>Cannabis n (%)</th>
<th>Inhalant n (%)</th>
<th>Opiates n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifetime use</td>
<td>76 (19.3)</td>
<td>47 (11.9)</td>
<td>15 (3.8)</td>
<td>8 (2.0)</td>
<td>5 (1.3)</td>
</tr>
<tr>
<td>12 months use</td>
<td>63 (16.0)</td>
<td>46 (11.7)</td>
<td>13 (3.3)</td>
<td>8 (2.0)</td>
<td>5 (1.3)</td>
</tr>
<tr>
<td>Current use</td>
<td>63 (16.0)</td>
<td>41 (10.5)</td>
<td>13 (3.3)</td>
<td>7 (1.8)</td>
<td>5 (1.3)</td>
</tr>
</tbody>
</table>
Table 5.3: Relationship between age, marital status and education level of respondents compared with current substance use status.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Drug use</th>
<th>Statistics test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Users</td>
<td>Non users</td>
</tr>
<tr>
<td>Age (years)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>22 – 35</td>
<td>64 (83.1)</td>
<td>201 (63.4)</td>
</tr>
<tr>
<td>&gt; 35</td>
<td>13 (16.9)</td>
<td>116 (36.6)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>54 (70.2)</td>
<td>31 (9.8)</td>
</tr>
<tr>
<td>Married</td>
<td>23 (29.8)</td>
<td>286 (92.2)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary (completed)</td>
<td>36 (46.8)</td>
<td>128 (40.4)</td>
</tr>
<tr>
<td>Secondary (completed)</td>
<td>33 (42.9)</td>
<td>125 (39.4)</td>
</tr>
<tr>
<td>Higher (completed)</td>
<td>8 (10.4)</td>
<td>64 (20.2)</td>
</tr>
</tbody>
</table>

Note *= Statistically significant
Table 5.3 shows the relationship between age, marital status and education level of respondents by current substance use status. Among the psychoactive substance users, the younger respondents (22-35 years) were more likely to use psychoactive substances (83.1%) than the older respondents (16.9%) (>35 years), $X^2 = 10.9$, $P < .001$.

The singles were twice as likely to use psychoactive substances than the married respondents ($X^2 = 4.3$, $P = .034$).
Table 5.4: Relationship between current specific substance use and age of respondents.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Age (years)</th>
<th>Statistics test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>22 -35</td>
<td>&gt; 35</td>
</tr>
<tr>
<td>Tobacco</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Users</td>
<td>53 (20.0)</td>
<td>23 (17.8)</td>
</tr>
<tr>
<td>Non users</td>
<td>212 (80.0)</td>
<td>106 (82.2)</td>
</tr>
<tr>
<td>Stimulant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>34 (12.8)</td>
<td>13 (10.1)</td>
</tr>
<tr>
<td>Non users</td>
<td>231 (87.2)</td>
<td>116 (89.9)</td>
</tr>
<tr>
<td>Cannabis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>7 (2.6)</td>
<td>8 (6.2)</td>
</tr>
<tr>
<td>Non users</td>
<td>258 (97.4)</td>
<td>121 (93.8)</td>
</tr>
<tr>
<td>Inhalants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>5 (1.9)</td>
<td>3 (2.3)</td>
</tr>
<tr>
<td>Non users</td>
<td>260 (98.1)</td>
<td>126 (97.7)</td>
</tr>
<tr>
<td>Opiates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>5 (1.9)</td>
<td></td>
</tr>
<tr>
<td>Non users</td>
<td>260 (98.1)</td>
<td>129 (100)</td>
</tr>
</tbody>
</table>

Table 5.4 shows the relationship between current use of specific psychoactive substances and age group of respondents. More older respondents (>35years) use cannabis compared to younger respondents (6.2% vs 2.6%) ($X^2= 3.0$, $P = .08$). Opiate use was limited to those under 35years.
Table 5.5 Relationship between current specific substance use and marital status of respondents.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Marital status</th>
<th>Statistics test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Single</td>
<td>Married</td>
</tr>
<tr>
<td><strong>Tobacco</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>13 (28.9)</td>
<td>63 (18.1)</td>
</tr>
<tr>
<td>Non users</td>
<td>32 (71.1)</td>
<td>286 (81.9)</td>
</tr>
<tr>
<td><strong>Stimulant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>10 (22.2)</td>
<td>37 (10.6)</td>
</tr>
<tr>
<td>Non users</td>
<td>35 (77.8)</td>
<td>312 (89.4)</td>
</tr>
<tr>
<td><strong>Cannabis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>7 (.15.6)</td>
<td>8 (2.3)</td>
</tr>
<tr>
<td>Non users</td>
<td>38 (84.4)</td>
<td>341 (97.7)</td>
</tr>
<tr>
<td><strong>Inhalants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>5 (11.1)</td>
<td>3 (0.9)</td>
</tr>
<tr>
<td>Non users</td>
<td>40 (88.9)</td>
<td>346 (99.1)</td>
</tr>
<tr>
<td><strong>Opiates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>3 (6.7)</td>
<td>2 (0.6)</td>
</tr>
<tr>
<td>Non users</td>
<td>42 (93.3)</td>
<td>347 (99.4)</td>
</tr>
</tbody>
</table>

Note * = Significant statistics

Table 5.5 shows the relationship between current specific psychoactive substance use and marital status of respondents. Cannabis, stimulants, inhalants, and opiates were more likely to be use by single respondents. Five of the eight respondents who use inhalants were single \( (\chi^2 = 21.06, P =.001) \) and 15.6\% of those who use cannabis were single compared to 2.3\% who were married \( (\chi^2 = 5.12, P =.028) \).
Table 5.6: Relationship between parental characteristics and respondents current substance use.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Drug use</th>
<th>Statistics test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Users</td>
<td>Non users</td>
</tr>
<tr>
<td>Father alive</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Yes</td>
<td>41 (53.2)</td>
<td>149 (47.0)</td>
</tr>
<tr>
<td>No</td>
<td>36 (46.8)</td>
<td>168 (53.0)</td>
</tr>
<tr>
<td>Mother alive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>71 (92.2)</td>
<td>220 (69.4)</td>
</tr>
<tr>
<td>No</td>
<td>6 (7.8)</td>
<td>97 (30.6)</td>
</tr>
<tr>
<td>Father smoking cigarette</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5 (6.5)</td>
<td>6 (2.0)</td>
</tr>
<tr>
<td>No</td>
<td>72 (93.5)</td>
<td>294 (98.0)</td>
</tr>
<tr>
<td>Father drinking alcohol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>-</td>
<td>3 (1)</td>
</tr>
<tr>
<td>No</td>
<td>77 (100)</td>
<td>298 (99.0)</td>
</tr>
</tbody>
</table>

Note * = Significant statistics

Table 5.6 shows the relationship between some parental characteristics of respondents and respondents current psychoactive substance use. Seventy one out of seventy seven (92.2%) of the respondents who currently use psychoactive substances had mothers who were alive compared to 220 out of 317 (69.4%) of non psychoactive substance users. This difference is statistically significant ($\chi^2 = 16.69, P < .001$). Almost 7% of the respondents who currently use psychoactive substances and 1.9% of the non psychoactive using respondents had fathers who were still using tobacco ($\chi^2 = 4.28, P = .04$).
All the parents belong to 4 to 9 major occupational groups (clerks, service workers, plant and machine operators, other elementary occupations). Almost 70% of the parents had no education.
Table 5.7: Relationship between road traffic accidents, road traffic law violation and respondents current substance use.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Drug use status</th>
<th>Statistics test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Users n (%)</td>
<td>Non users n (%)</td>
</tr>
<tr>
<td>Road traffic accident</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>69 (89.6)</td>
<td>240 (75.7)</td>
</tr>
<tr>
<td>No</td>
<td>8 (10.4)</td>
<td>77 (24.3)</td>
</tr>
<tr>
<td>Road traffic violation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>66 (85.7)</td>
<td>190 (59.9)</td>
</tr>
<tr>
<td>No</td>
<td>11 (14.3)</td>
<td>127 (40.1)</td>
</tr>
</tbody>
</table>

Note *= statistically significant

Table 5.7 shows the relationship between road traffic accidents, road traffic violation and respondents current substance use status. It shows that substance users were more likely to have road traffic accidents and road traffic violations than non users.
Table 5.8: Correlation between respondents sociodemographic characteristics and current substance use status

| Spearman’s correlation coefficient |
Table 5.8 shows the spearman’s correlation between current substance use status and sociodemographic characteristics of the respondents. Negative correlation was obtained between age, marital status and substance use status at 95% confidence interval and at 99% confidence interval respectively, while positive correlation was obtained between road traffic violations and road traffic accidents and substance use status at 99% confidence interval.
Table 5.9: Distribution of the participants according to drug urine test results.

<table>
<thead>
<tr>
<th>Test result</th>
<th>Users</th>
<th>Non users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>+ ve</td>
<td>1 (4)</td>
<td>-</td>
</tr>
<tr>
<td>- ve</td>
<td>22 (96)</td>
<td>74 (100)</td>
</tr>
</tbody>
</table>

Total N = 97
Table 5.9 shows the distribution of the respondents according to drug urine test results. Twenty-three of the respondents who currently use psychoactive substances had their urine screened with (4%) of them testing positive for the presence of cannabis. All the 74 non psychoactive substance users tested negative.
Figure 1 shows the distribution of the participants by SCAN substance diagnoses. In all, 8% of the respondents had SCAN substance dependence diagnosis, while 45% had a SCAN diagnosis of substance abuse.
Chapter six

6.0: Discussion

6.1: Summary of major findings.

Psychoactive substance use was more prevalent among the younger age group which comprised more than half of the study subjects.

It would seem that marriage had a moderating effect on substance use by the respondents, as use of cannabis, stimulants, inhalants and opiates was more among the respondents who were single. Having a smoking father was statistically related to respondents substance use. This finding agrees with many studies which reported the strong influence of parental and siblings exposure on psychoactive substance use (Yisa and Fatiregun, 2007; Okoza and Aluede 2009; Ndaguye, 2010; Abasiubong et al, 2008; Oladeji et al, 2010). Substance dependence and substance abuse were the only SCAN diagnosis made in the respondents. Many of the subjects who met dependence diagnosis had increased desire to consume the substance, time wastage in using the substance and increased use of the substance to achieve the desired effect. The substance users accepted significantly more violations of road traffic regulations. The substance users had significantly more road traffic accident than the non-substance users. An American study on nonfatal injury compared 15,000 substance users between the ages of 10 and 64 years with a group of 75,000 non users. Users were more likely to be injured than non-users. Of subjects categorized as both drug and alcohol users, 58% sustained an injury over the three years of observation (Accidents and Injuries from drugs, 2001-2006).

In Iran, a study done to determine addiction role in motorcycle accidents found that of 400 motorcyclists who had accidents, 17.3% had a history of drug use (Araghi and Vehedian, 2007).
The authors reported that using drugs was relatively prevalent among injured motorcyclists, which served as a predisposing factor in accidents (Adogu et al, 2009). Another study on prevalence of psychoactive substance use among commercial motorcyclists and its health and social consequences in Zaria, north central Nigeria, showed a high prevalence of 59.5% of road traffic accidents associated with the use of psychoactive substances (Alti-Muazu and Aliyu, 2008).

Every fourth cyclist was randomly selected for urine test. The urine screening test was newly introduced to AKTH as a means of assessing people with psychoactive substance use. The test has high reliability and validity. It has an important use especially in the United Kingdom (UK) and other parts of the world, where it is used for forensic purposes (Wong, 2002; Miller et al, 1990; Giannini and Giannini, 2001; U S Department of transportation, 2007).

Unpublished results of urine drug screening test in Aminu Kano Teaching Hospital, indicate the high reliability of this test, when compared with self report and history of psychoactive substance use from patients.

6.2: Sociodemographic characteristics of the respondents.

The present study was conducted among males, as commercial motorcycle operation is an all male business in Kano state, and many studies have reported that there is higher male preponderance in all psychoactive substance use (SAMHSA, 1998; Gureje et al 2007; Alti-Muazu and Aliyu, 2008).

The results of this study differ from a study in southwestern Nigeria among refugees from Liberia, where more of the respondents in the age group (31 to 40 years) used psychoactive
substances more than the younger age group of 18 to 30 years (Amosu, 2008), the results however are in keeping with other studies done among commercial motorcyclists in Zaria and Nnewi (Alti-Muazu and Aliyu, 2008; Adogu et al, 2009).

All the respondents were Moslems, which is the predominant religion in Kano state. Majority of the respondents participated regularly in their religious activities, which may partly account for the low prevalence of psychoactive substance use in them. This is consistent with the findings of similar studies in Ilorin and Abeokuta where significant association was found between substance use and religiosity, with those who were very religious being less likely to use psychoactive substances. It is also consistent with the finding of inverse relationship between substance use and religiosity (Gureje et al, 2007; Makankanjoula et al, 2007; Akinhanmi, 1996).

More than 88% of the respondents were married, and more than 60% had between one and 5 children, in keeping with the study in Ilorin among long distance drivers with more than 95% of the subjects married with children.

The indigenes of Kano state constituted more than 70% of the subjects, and only about 30% of the subjects originated from Kaduna, Jigawa, Katsina, Borno, Plateau and Bauchi states, all from the northern part of the country.

Most of the respondents in this study had some form of education, up to secondary school, which is consistent with the study in Ilorin and Zaria where more than 68% had some form of education ranging from primary to tertiary education (Makankanjoula et al, 2007; Alti-Muazu and Aliyu, 2008).

On the whole the parental background of the respondents can be described as fairly stable with more than half still having both parents alive. Moreover, the parents had little or no education,
with more than 70% of the parents having no education. All the parents belong to 4 to 9 major occupational groups (clerks, service workers, plant and machine operators, other elementary occupations), which is a measure of their socio economic status (Elias and Birch, 1994).

6.3: **Prevalence of psychoactive substance use among the respondents.**

The lifetime prevalence of drug use among the subjects in this study was 19.3%, far lower than most studies reviewed in Nigeria. Studies in southwestern Nigeria (Oluwadiya et al, 2004; Owoaje et al, 2005; Iribhogbe and Odai, 2009) and in southeastern Nigeria (Adogu et al, 2009) among commercial motorcycle operators showed a higher prevalence of more than 30% of psychoactive substance use among the subjects. A study in north central Nigeria among long distance drivers (Makanjoula et al, 2007) and another in Zaria, among commercial motorcyclists showed higher prevalence of lifetime substance use of more than 20%, (Alti-Muazu and Aliyu, 2008).

Five classes of psychoactive substances stood out as being used by the motorcyclists. This was tobacco (19.3%), stimulants (11.9%), cannabis (3.8%), inhalants (2.0%) and opiates (1.3%) in that decreasing order of prevalence. Prominently absent was alcohol use. It is not clear whether the absence of alcohol use was an artifact of the responses or represent the true state of affairs. If alcohol breath analyzers were used or other biological examinations of alcohol, it would be easier to reach conclusion. The Holy Qoran expressly forbids its (alcohol) use, but the religious leaders are divided over the use of other psychoactive substances (Gureje et al, 2007). The reported non use of alcohol may also be due to proscription by religion and legislation against the use and sale of alcohol by the state government, which may be the same reason for non use of benzodiazepines.
The difference between lifetime use, 12 months use and current use is rather small, and coupled with the time at which they started using the psychoactive substances (more than 19 years), this may perhaps imply that once people start using psychoactive substances as adults it is difficult to stop (Gureje et al, 2007).

Tobacco was found to be the most commonly used psychoactive substance both for lifetime use and current use. This finding is consistent with previous reports in Ilorin among long distance vehicle drivers where tobacco topped the list for both current and lifetime use with a prevalence of 30.4% and 53.6% respectively (Makanjoula et al, 2007).

Stimulants was the second most used substance (second to tobacco) in this study, and ‘gadagi’ was the preferred stimulant. Among commercial motorcycle operators in Kano state, ‘gadagi’ is a common name (Atiku et al, 2009). It is a special tea, mixture of different herbs and shrubs (picture in appendix xi), sold mostly by a tribe from neighboring Niger Republic that operates mainly as local security officers in Kano. Respondents claimed that it gives them a feeling of immortality, invulnerability and energy, and ensures that they work without fatigue. It has different brand names such as “Kano no junction, no roundabout”. It is relatively recently introduced into the town, the biological property is not yet known. Some local newspaper has called ‘gadagi’ a hallucinogen, and its use is a rapidly growing habit among the youths in Kano. The rate of “gadagi” consumption is probably on the increase in Kano metropolis, especially among commercial motorcycle operators. It is a socially acceptable psychoactive substance, and there is no law governing its sale and consumption. It is considered to be a local energy booster and may be generally very addictive.

The bulk of the respondents knew nothing about some commonly used psychoactive substances in the country. Only about a quarter of the respondents knew about drugs like amphetamines,
barbiturates, benzodiazepines and opiates. Even among those who knew about the drugs, the perceived ease of acquiring the drug varied. For example benzodiazepines (valium) as many said it was difficult to obtain as those that said it was easy.

There was non use of heroin and cocaine, and this is in keeping with a study in Ilorin among long distance drivers and the study in Zaria among commercial motorcyclists where there was non use of cocaine and heroin (Makanjoula et al 2007, Alti-Muazu and Aliyu, 2008).

The prevalence of current cannabis use was 3.3%. This is consistent with the study in Ilorin and Zaria which reported current cannabis use as 4.3%.

A study in Abeokuta among refugees from Liberia, reported current cannabis use as 6.7% which is much higher than the prevalence found in this study (Amosu, 2008).

The common opiates used among the subjects was codeine (as found in the cough syrup “benyline with codeine”), and tramadol (tramal) tablets. This may be partly due to the fact that it is easily available and affordable in most of the pharmaceutical shops and outlets in Kano metropolis. There does not appear to be strong legislation against the sale of such substances without prescription.

Current prevalence of inhalants use was 2.0% which is much lower than the study among long distance drivers in Ilorin, which reported 8.7%. The use of inhalants is reportedly popular among commercial motorcycle operators (Alti-Muazu and Aliyu, 2008).

The non categorization under the law of these psychoactive substances (inhalants, cough syrup and tramadol) as illegal, and the absence of legislation regulating their sale and consumption may perhaps aid their widespread availability and use.
Chapter Seven

7.0: Conclusion and Recommendations.

7.1: Conclusion.

This study has highlighted the prevalence and pattern of psychoactive substance use among commercial motorcycle operators.

The study has important implications for policy makers to initiate primary preventive measures that would be focused towards the reduction of psychoactive substance use among commercial motorcycle operators in the community.

Clinicians working in the area, especially those not familiar with the culture of the people should be alert to the possibility of psychoactive substance use disorders, and where required interventional measures should be instituted early.

There is need for more epidemiological studies, especially community based, covering wider areas, involving various medical specialties, psychologists, sociologists, so as to have a more comprehensive picture of psychoactive substance use problems among different population groups, especially commercial motorcycle operators.

7.2: Limitations.

1. The cross-sectional design employed in the study would not permit any conclusions on the direction of causality.
2. The completed questionnaires were anonymous. This would not permit follow-up studies of individual participants.

3. Generalizability: The study was among registered commercial motorcyclists, and the results can not be generalized to all commercial motorcycle operators. As indicated earlier, there are many motorcycle operators not registered with ACOMORAN.

7.3: Strengths.

The main strength of this study is in the use of well standardized internationally accepted instruments of data gathering – the SDUQ and SCAN. Also the use of an internationally recognized method of assessing psychoactive substance with urine drug screening test was employed.

7.4: Recommendations.

1. Electronic and manual searches could not yield any studies of psychoactive substance use among commercial motorcycle operators in north western Nigeria. The present study may help to provide basic information for further studies dealing with the subject in the region.

2. Stricter enforcement of the law on the availability of psychoactive substances including opiates and stimulants.
3. It may be helpful to consider providing incentives for motorcycle operators who do not use psychoactive substances. This may help them sustain their abstinence state and perhaps encourage others to consider not to use psychoactive substance.

4. ACOMORAN may be used as a spring board and platform for awareness campaign on psychoactive substance use.

5. FRSC members can benefit by employing the use of psychoactive substance detectors such as breath analyzers and urine drug test among commercial motorcycle operators to enhance law enforcement.
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Appendix i

Socio-demographic data

1. What is your age? ------------------ (years)

2. (a) What is your religion?

          0. None at all
          1. Christianity
          2. Islam
          3. Traditional

(b) How often do you participate in your religious activities (e.g. attending church, Mosque, etc).

          0. Never
          1. Rarely
          2. Sometimes
          3. Often times
          4. Regularly

3. What is your state of origin? ------------------ State.
4 What is your marital status? If married
   
   a) No. of wives ______
   
   b) No. of children ______

5 (a) How long have you been a commercial motorcycle operator? -------------- Month/years.
   
   (b) Have you been a commercial motorcycle operator elsewhere? ______________

6 (a) Do you have any other occupation? ______________
   
   (b) How much money do you make averagely each month? N_________
   
   (c) How much education did you receive? (Mark the highest level attended)

      --------------0. No formal education

      --------------1. Adult education

      --------------2. Some primary school

      --------------3. Completed primary school

      --------------4. Some secondary school

      --------------5. Completed secondary school

      --------------6. Others (specify)----------------------

      --------------7. Don’t know
7  How much education did your father receive?  (Mark the highest level attended)

---------- 0.  No formal education

---------- 1.  Adult education

---------- 2.  Some primary school

---------- 3.  Completed primary school

---------- 4.  Some secondary school

---------- 5.  Completed secondary school

---------- 6.  Others (specify)----------------------------------------

---------- 7.  Don’t know

8  How much education did your mother receive?  (Mark the highest level attended)

---------- 0.  No formal education

---------- 1.  Adult education

---------- 2.  Some primary school

---------- 3.  Completed primary school

---------- 4.  Some secondary school

---------- 5.  Completed secondary school

---------- 6.  Others (specify)----------------------------------------
7. Don’t know

9. Is your father alive?

1. No

2. Yes

10. If your answer to question 9 is “No”, how old were you at the time of his death?

1. I was less than 10 years old

2. I was more than 10 years old

3. Not applicable (He is alive)

4. I don’t know how old I was at his death

11. Is your mother alive?

1. No

2. Yes

12. If your answer to question 11 is “No”, how old were you at the time of her death?

1. I was less than 10 years old

2. I was more than 10 years old

3. Not applicable
4. I don’t know how old I was at her death

13 Are your parents still married to each other?

1. No

2. Yes

3. Not applicable (one or both of them are dead)

14 (a) If your answer to question 13 is “No”, how old were you at the time of their separation or divorce?

1. I was less than 10 years old

2. I was more than 10 years old

3. Not applicable

4. I don’t know how old I was at the time of their separation or divorce?

(b) Who brought you up after the separation or divorce?

1. My father

2. My mother

3. Others (Specify)

4. Not applicable
15. What is your father’s occupation?

Specify---------------------------------------------

16. What is your mother’s occupation?

Specify---------------------------------------------

17. Does your father smoke cigarettes?

-------- 1. No

-------- 2. Yes

-------- 3. Not applicable (He is dead)

-------- 4. Don’t know

18. Does your mother smoke cigarettes?

-------- 1. No

-------- 2. Yes

-------- 3. Not applicable (She is dead)

-------- 4. Don’t know
19. Does your father take alcoholic drinks?

---------- 1. No
---------- 2. Yes
---------- 3. Not applicable (He is dead)
---------- 4. Don’t know

20. Does your mother take alcoholic drinks?

---------- 1. No
---------- 2. Yes
---------- 3. Not applicable (He is dead)
---------- 4. Don’t know
Appendix ii

W H O student drug use questionnaire

Instructions

For each question pick the answer that fits you best and put an X in the space provided opposite that answer. Pick only one answer for each question. Most of the questions have many parts (e.g. a-g). Please read and answer each part.

Example

Have you drunk any water during the last 30 days?

-------------- 1. No

-------------- 2. Yes, on 1-5 days

-------------- 3. Yes on 6-19 days

-------X------- 4. Yes, on 20 or more days

The answer chosen was “4”, indicating that the person who answered the question had drunk water on 20 or more days during the previous 30 days.

1. a. Have you ever smoked, chewed, or sniffed any tobacco product (such as cigarettes, cigars, pipe tobacco, chewing tobacco)?

-------- 1. No
2. Yes

(b) Have you smoked, chewed, or sniffed a tobacco product in the past 12 months?

1. No

2. Yes

(c) Have you smoked, chewed, or sniffed a tobacco product during the past 30 days?

1. No

2. Yes

(d) How old were you when you first smoked, chewed, or sniffed a tobacco product?

0. Have never smoked, chewed, or sniffed tobacco products.

1. 10 years old, or less

2. 11-14 years old

3. 15-18 years old

4. 19-22 years old

5. 23 years old, or more

(e) Have you tried to stop or reduce your use of tobacco products during the last 12 months and found that you were unable to do so?

0. Not applicable (I don't take any tobacco product)
1. I have successfully stopped/reduced it

2. I have not tried to stop/reduce it

3. I have tried but was unable to stop or reduce it.

(f) If you have ever smoked, chewed, or sniffed a tobacco product, write the name of the one you have taken most recently.

2. (a) Have you ever drunk any alcoholic beverage (including beer, wine, “hot drink”, “ogogoro”, and “burukutu”)?

1. No

2. Yes

(b) Have you drunk any alcoholic beverage in the past 12 months?

1. No

2. Yes

(c) Have you drunk any alcoholic beverage in the past 30 days?

1. No

2. Yes, on 1-5 days

3. Yes, on 6-19 days

4. Yes, on 20 or more days

(d) How old were you when you first had a drink of an alcoholic beverage – more
than just a sip?

------ 0. Have never drunk alcoholic beverage

------ 1. 10 years old, or less

------ 2. 11-14 years old

------ 3. 15-18 years old

------ 4. 19-22 years old

------ 5. 23 years old, or more

(e) Have you tried to stop or reduce your use of alcoholic beverages during the last 12 months and found that you were unable to do so?

------ 0. Not applicable (I don’t take any alcoholic beverage)

------ 1. I have successfully stopped/reduced it.

------ 2. I have not tried to stop or reduce it.

------ 3. I have tried but was unable to stop or reduce it.

If you have ever drunk any alcoholic beverages, write the name of the one you have taken most recently-----------------------------------------------

3. (a) Have you ever taken any cannabis (Indian hemp, marijuana, hashish, ganja, “wee-
wee", "ganye")?

-------- 1. No

-------- 2. Yes

(b) Have you taken any cannabis during the past 12 months?

-------- 1. No

-------- 2. Yes

(c) Have you taken any cannabis during the past 30 days?

-------- 1. No

-------- 2. Yes, on 1-5 days

-------- 3. Yes, on 6-19 days

-------- 4. Yes, on 20 or more days

(d) How old were you when you first took cannabis?

-------- 0. Have never taken cannabis

-------- 1. 10 years old, or less

-------- 2. 11-14 years old

-------- 3. 15-18 years old

-------- 4. 19-22 years old

-------- 5. 23 years old, or more
(e) Have you tried to stop or reduce your use of cannabis during the last 12 months and found that you were unable to do so?

----------- 0. Not applicable (I don’t take cannabis)

----------- 1. I have successfully stopped/reduced it.

----------- 2. I have not tried to stop or reduce it.

----------- 3. I have tried but was unable to stop or reduce it.

(f) If you have ever taken any cannabis, write the name of the one you have taken most recently-----------------------------

4.  
   a. Have you ever taken any cocaine?

      ----------- 1. No

      ----------- 2. Yes

   
   b. Have you taken any cocaine during the past 12 months?

      ----------- 1. No

      ----------- 2. Yes

   
   c. Have you taken any cocaine during the past 30 days?

      ----------- 1. No

      ----------- 2. Yes, on 1-5 days
3. Yes, on 6-19 days

4. Yes, on 20 or more days

d. How old were you when you first took cocaine?

0. Have never taken cocaine

1. 10 years old or less

2. 11-14 years old

3. 15-18 years old

4. 19-22 years old

5. 23 years old or more

(e) Have you tried to stop or reduce your use of cocaine during the last 12 months and found that you were unable to do so?

0. Not applicable (I don’t take cocaine)

1. I have successfully stopped/reduced it.

2. I have not tried to stop or reduce it.

3. I have tried but was unable to stop or reduce it.

(f) If you have ever taken any cocaine, write the name of the one you have taken most recently-----------------------------
5. a. Have you ever taken any amphetamines or other stimulant (Benzedrine, dexamphetamine, Ritalin, diet pills, “speed”, “kwaya” etc) without a doctor or health worker telling to do so?

---------- 1. No

---------- 2. Yes

a. Have you taken any amphetamines or other stimulant in the past 12 months?

---------- 1. No

---------- 2. Yes

b. Have you taken any amphetamines or other stimulant during the past 30 days?

---------- 1. No

---------- 2. Yes, on 1-5 days

---------- 3. Yes, on 6-19 days

---------- 4. Yes, on 20 or more days

d. How old were you when you first took amphetamines or other stimulant?

---------- 0. Have never taken amphetamines or other stimulants without a doctor or health worker telling
me to take it.

------------- 1. 10 years old, or less

------------- 2. 11-14 years old

------------- 3. 15-18 years old

------------- 4. 19-22 years old

------------- 5. 23 years old, or more

e. Have you tried to stop or reduce your use of amphetamines or other stimulants during the last 12 months and found that you were unable to do so?

------------- 0. Not applicable (I don’t take amphetamines or other stimulants without prescription)

------------- 1. I have successfully stopped/reduced it.

------------- 2. I have not tried to stop or reduce it.

------------- 3. I have tried but was unable to stop or reduce it.

f. If you have ever taken any amphetamines or other stimulants, write the name of the one you have taken most recently-------

6. (a) Have you ever taken any hallucinogens (LSD, mescaline, peyote, psilocybin, phencyclidine (PCP), “gadagi”)?
1. No

2. Yes

(b) Have you taken any hallucinogens in the past 12 months?

1. No

2. Yes

(c) Have you taken any hallucinogens in the past 30 days?

1. No

2. Yes, on 1-5 days

3. Yes, on 6-19 days

4. Yes, on 20 or more days

(d) How old were you when you first took hallucinogens?

0. Have never taken hallucinogens

1. 10 years old or less

2. 11-14 years old

3. 15-18 years old

4. 19-22 years old

5. 23 years old or more

(e) Have you tried to stop or reduce your use of hallucinogens during the last 12
months and found that you were unable to do so?

-------- 0. Not applicable (I don’t take hallucinogens)

-------- 1. I have successfully stopped/reduced it.

-------- 2. I have not tried to stop or reduce it.

-------- 3. I have tried but was unable to stop or reduce it.

(f) If you have ever taken hallucinogens, write the name of the one you have taken most recently-----------------------------

7. a. Have you ever sniffed or inhaled things such as glue, aerosol sprays, “sholisho”, or other gases) to get high? (Do not include smoke).
   
   -------- 1. No
   
   -------- 2. Yes

   b. Have you sniffed or inhaled things to get high in the past 12 months?
   
   -------- 1. No
   
   -------- 2. Yes

   c. Have you sniffed or inhaled things to get high in the past 30 days?
   
   -------- 1. No
   
   -------- 2. Yes, on 1-5 days
3. Yes, on 6-19 days

4. Yes, on 20 or more days

d. How old were you when you first sniffed or inhaled something to get high?

0. Have never sniffed or inhaled things to get high

1. 10 years old, or less

2. 11-14 years old

3. 15-18 years old

4. 19-22 years old

5. 23 years old, or more

e. Have you tried to stop or reduce your sniffing or inhaling something to get high during the last 12 months and found that you were unable to do so?

0. Not applicable (I don’t sniff or inhale things to get high)

1. I have successfully stopped/reduced it.

2. I have not tried to stop or reduce it.

3. I have tried but was unable to stop or reduce it.

f. If you have ever sniffed or inhaled something to get high, write the name of
the one you have sniffed or inhaled most recently

8. a. Have you ever taken any tranquilizers (Librium, valium, nobrium, ativan, mogadon) without a doctor or health worker telling you to do so?

------- 1. No

------- 2. Yes

a. Have you taken any tranquilizer in the past 12 months without a doctor or health worker telling you to do so?

------- 1. No

------- 2. Yes

b. Have you taken any tranquilizer in the past 30 days without a doctor or health worker telling you to do so?

------- 1. No

------- 2. Yes, on 1-5 days

------- 3. Yes, on 6-19 days

------- 4. Yes, on 20 or more days

b. How old were you when you first took tranquilizer without a doctor or health worker telling you to take it?

------- 0. Have never taken an tranquilizer without a doctor
or health worker telling me to do so.

1. 10 years old, or less

2. 11-14 years old

3. 15-18 years old

4. 19-22 years old

5. 23 years old, or more

e. Have you tried to stop or reduce your use of tranquilizers during the last 12 months and found that you were unable to do so?

0. Not applicable (I don’t take tranquilizers without prescription)

1. I have successfully stopped/reduced it.

2. I have not tried to stop or reduce it.

3. I have tried but was unable to stop or reduce it.

f. If you have ever taken tranquilizers without a doctor or health worker telling you to do so, write the name of the one you have taken most recently--

9. a. Have you ever taken any sedative (phenobarbitone, soneryl,
seconal) without a doctor or health worker telling you to do so?

--------- 1. No

--------- 2. Yes

b. Have you taken any sedatives in the past 12 months without a doctor or health worker telling you to do so?

--------- 1. No

--------- 2. Yes

c. Have you taken any sedatives during the past 30 days without a doctor or health worker telling you to do so?

--------- 1. No

--------- 2. Yes, on 1-5 days

--------- 3. Yes, on 6-19 days

--------- 4. Yes, on 20 or more days

d. How old were you when you first took sedative without a doctor or health worker telling you to do so?

--------- 0. Have never taken any sedatives without a doctor or health worker telling me to do so.

--------- 1. 10 years old, or less

--------- 2. 11-14 years old
--- 3. 15-18 years old

--- 4. 19-22 years old

--- 5. 23 years old, or more

  e. Have you tried to stop or reduce your use of sedatives during the last 12 months and found that you were unable to do so?

--- 0. Not applicable (I don’t take sedatives without prescription)

--- 1. I have successfully stopped/reduced it.

--- 2. I have not tried to stop or reduce it.

--- 3. I have tried but was unable to stop or reduce it.

  f. If you have ever taken sedatives without a doctor or health worker telling you to do so, write the name of the one you have taken most recently——

10. a. Have you ever taken any heroin?

--- 1. No

--- 2. Yes

  b. Have you taken any heroin in the past 12 months?

--- 1. No
2. Yes

c. Have you taken any heroin during the past 30 days?

1. No

2. Yes, on 1-5 days

3. Yes, on 6-19 days

4. Yes, on 20 or more days

d. How old were you when you first took heroin?

0. Have never taken heroin

1. 10 years old, or less

2. 11-14 years old

3. 15-18 years old

4. 19-22 years old

5. 23 years old, or more

e. Have you tried to stop or reduce your use of heroin during

the last 12 months and found that you were unable to do so?

0. Not applicable (I don’t take heroin)

1. I have successfully stopped/reduced it.

2. I have not tried to stop or reduce it.
3. I have tried but was unable to stop or reduce it.

f. If you have ever taken any heroin, write the name of the one you have taken most recently

11. a. Have you ever taken any other opiate (Methadone, morphine, codeine, pethidine) without a doctor or health worker telling you to do so?

   1. No
   2. Yes

   b. Have you taken any of these opiates in the past 12 months without a doctor or health worker telling you to do so?

   1. No
   2. Yes

   c. Have you taken any of these opiates during the past 30 days without a doctor or health worker telling you to do so?

   1. No
   2. Yes, on 1-5 days
   3. Yes, on 6-19 days
   4. Yes, on 20 or more days

   d. How old were you when you first took any of these opiates
without a doctor or health worker telling you to do so?

-------- 0. Have never taken any of these opiates without a doctor or health worker telling me to do so.

-------- 1. 10 years old, or less

-------- 2. 11-14 years old

-------- 3. 15-18 years old

-------- 4. 19-22 years old

-------- 5. 23 years old, or more

e. Have you tried to stop or reduce your use of any of these opiates during the last 12 months and found that you were unable to do so?

-------- 0. Not applicable (I don’t take any of these opiates without prescription)

-------- 1. I have successfully stopped/reduced it.

-------- 2. I have not tried to stop or reduce it.

-------- 3. I have tried but was unable to stop or reduce it.

f. If you have ever taken any of these opiates without a doctor or health worker telling you to do so, write the name of the one you have taken most recently----------

-----------------------------------
12. a. Have you ever taken any mitrenar?

-------- 1. No

-------- 2. Yes

b. Have you taken any mitrenar in the past 12 months?

-------- 1. No

-------- 2. Yes

c. Have you taken any mitrenar during the past 30 days?

-------- 1. No

-------- 2. Yes, on 1-5 days

-------- 3. Yes, on 6-19 days

-------- 4. Yes, on 20 or more days

d. How old were you when you first took mitrenar?

-------- 0. Have never taken mitrenar

-------- 1. 10 years old, or less

-------- 2. 11-14 years old

-------- 3. 15-18 years old

-------- 4. 19-22 years old
5. 23 years old, or more

e. Have you tried to stop or reduce your use of mitrenar during the last 12 months and found that you were unable to do so?

0. Not applicable (I don’t take mitrenar)

1. I have successfully stopped/reduced it.

2. I have not tried to stop or reduce it.

3. I have tried but was unable to stop or reduce it.

f. If you have ever taken any mitrenar, write the name of the one you have taken most recently

13. (a) Are there any other drugs not mentioned that you have taken in the past year to make you feel good or intoxicated?

1. No

2. Yes

(b) If Yes, write the name of the drug or drugs here

14. (a) Do you know any other drugs that some of your co-workers are now taking to make them
feel good or intoxicated?

1. No

2. Yes

If Yes, what are these drugs called?

15. How difficult do you think it would be for you to get each of the following types of drug from a hospital if you wanted some without a doctor prescribing them? (Mark one box for each type of drug).

<table>
<thead>
<tr>
<th>DRUG TYPE</th>
<th>Probably</th>
<th>Very</th>
<th>Fairly</th>
<th>Fairly</th>
<th>Very</th>
<th>Don’t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzodiazepines e.g. valium, Librium, mogadon, ativan etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **B** | Opiates  
e.g.  
pethidine,  
morphine,  
methadone  ,  codeine  |   |   |
| **C** | Amphetamines  
e.g.,  
Ritalin  
Dexamphetamine  |   |   |
| **D** | Barbiturates  
e.g.  
phenobarbitone  ,  soneryl,  seconal  |   |   |

State how you may obtain any of these drugs from a hospital without a doctor prescribing them? (if possible)  
------------------------------------------------------------------------  
------------------------------------------------------------------------  
------------------------------------------------------------------------
16. If you had ever used any cannabis, would you have admitted it in this questionnaire?

-------- 1. No

-------- 2. Not sure

-------- 3. Yes

17. If you had ever used any opium or heroin, would you have admitted it in this questionnaire?

-------- 1. No

-------- 2. Not sure

-------- 3. Yes

18. (a) Have you ever had any road traffic accident?

-------- 1. No

-------- 2. Yes

(b) Have you ever violated any Road traffic regulations

-------- 1. No

-------- 2. Yes

How many times have you been involved in a physical fight in the last 12 months?

(a) at home ________ times

(b) at work ________ times

In the last 30 days have you taken any **drug at work**?
(a)  No

(b)  Yes

If ‘Yes’

19. Name of drug ___________How many times_________

   Name of drug ___________How many times_________

   Name of drug ___________How many times_________

   Name of drug ___________How many times_________

   Name of drug ___________How many times_________

20. THANK YOU FOR COMPLETING THIS QUESTIONNAIRE
Appendix iii

Scan chapter on use of alcohol

1. Do you drink alcohol at all?
   a. Has never used alcohol
   b. Once or twice in a life time
   c. Alcohol used more than twice.

CUT OFF – if rated 1 or 2

2. Have you ever felt that you needed alcohol and could not manage without it?
   0. No undue subjective need
   1. Uneasy, and conscious of need
   Strong, and intrusive preoccupation

3. Have you recently/ever wanted to cut down or stop using alcohol but could not?
   0. No difficulty in controlling intake
   1. Has used methods successfully for a month or more.
   Unable to succeed for as long as a month.

4. Have you found that, once you have started to drink you take more than you intended?
   0. No difficulty in controlling once started.
   1. Is sometimes successful, sometimes not
   2. Usually takes more than intended once started.
Severely impaired control, including “binges”.

5. Has drinking led to problems with family, friends or employment?
   0. None
   1. Mild
   2. Moderate
   3. Serious

6. Has drinking led to legal problems on more than one occasion?
   0. None
   1. Mild
   2. Moderate
   3. Serious
   SKIP → If (5) and (6) are rated 0 to (8)

7. Did you continue to drink, even though you knew you had problems?
   0. No
   1. Yes

8. When you have been drinking, have you neglected to do things expected of you, like not going to work or missing important events or appointments?
   0. No
   1. Some obligations neglected
2. Most obligations neglected

3. Nearly all obligations neglected

9. Have you taken alcohol in situations where it increased the chance of getting hurt?

0. No risk-taking behaviour associated with alcohol.

1. Repeatedly takes risks involving self and/or others but no harm done.

2. Repeatedly has been involved in harm to others or to self.

10. How important is drinking compared with other activities?

0. No undue priority given to drink-related activities

1. Some obligations over-ridden

2. Drink-related activities nearly always given priority.

11. Have you spent a great deal of time drinking or recovering from the effects of it?

0. No, or only minimal time lost

1. Much time lost

2. Has lost a month or more in more or less everyday Involvements
12. Have you settled into a routine of drinking?

------------------- 0. No, narrowing of drinking pattern

------------------- 1. Some narrowing

------------------- 2. Severe narrowing. Pattern fixed in stereotyped routines.

13. Does a drink have less of effect on you than before; you need more to get the same effect?

------------------- 0. No, development of tolerance

------------------- 1. Some but not marked

------------------- 2. Marked; can tolerate at least 50% more than previously

------------------- 3. Reversed tolerance

14. Do you think that (specify most severe type of symptoms) is related in any way to drinking?

------------------- 0. No

------------------- 1. Yes

SKIP → To 16 if 14 above is rated 0.

15. Did you continue to drink even when you knew that (problem rated in 14 ) was related to alcohol

------------------- 0. No

------------------- 1. Yes
16. Have you had any health problems due to drinking?

------------------- 0. No health problems from drinking

------------------- 1. Mild physical illness

------------------- 2. Moderate severity

------------------- 3. Life threatening

SKIP → To 18 if rated 0.

17. Did you continue to drink, even when you knew you had one of those health problems?

------------------- 0. No

------------------- 1. Yes

18. Have you found, if you cut down or went without alcohol for a time that you felt any ill-effects?

------------------- 0. No withdrawal effects

------------------- 1. Mild withdrawal effects, monthly or more often.

------------------- 2. Moderate to severe withdrawal effects (at least 3 symptoms)

------------------- 3. Delirium or convulsions as withdrawal symptoms

SKIP → To 20 if 18 rated 0.

19. Have you taken alcohol when you had symptoms like that, in order to feel better? Or to
avoid these ill-effects entirely?

-- In past year/Ever?

-- First thing in the morning?

-- To stop yourself getting the shakes?

------------------ 0. No

------------------ 1. Yes, up to once a week

------------------ 2. Yes, more often than once a week.

20. Do you find that alcohol has more effect on you than one most people?

   i. In what way?

   ii. How quickly does it start?

   iii. Does your personality seem to change when you have had a drink?

------------------ 0. No pathological reaction

------------------ 1. Definite idiosyncratic or pathological reaction after small doses of alcohol

------------------ 2. Inappropriate social behaviour only when intoxicated

------------------ 3. Violent or aggressive behaviour only when intoxicated.
4. Both inappropriate social behaviour and violent or aggressive behaviour only when intoxicated.

5. Uncertain (description not definite)
Appendix iv

Use of psychoactive substances other than alcohol

Specify all drugs used by name. Use local terms to explain which types of drug are being considered.

1. Now I should like to ask you about your use of various kinds of drugs. Have you ever used drugs, either on your own or on prescription from a doctor?

   If ‘No’:

   Not even experimentally, to see what one of them was like?

   ---------------1. Has never used drugs

   --------------- 2. Once or twice in a life time

   --------------- 3. Drug/s used more than once or twice.

2. Have you ever felt that you needed [DRUG/S] and could not manage without it?

   - How strong is/was that feeling?

   - Were you unease at times or in places when [DRUG/S] was not available?

   - In situations where you could not use it, did you ever have such a strong craving that you could not think of anything else?

   - Have you had this feeling during the past year?

   --------------- 0. No undue subjective need
1. Uneasy, and conscious of need

2. Strong and intrusive preoccupation.

3. Have you recently/ever wanted to cut down or stop using [DRUG/S] but could not?
   - Have you been able to abstain, or use at a lower level for up to a month?
     0. No difficulty in controlling intake.
     1. Has used methods successfully for a month or more.
     2. Unable to succeed for as long as a month.

4. Have you found that, once you have started to use [DRUG/S] you tend to take more than you intended
   - In past year? Ever?
   - Have you found it difficult to stop, once started?
   - Have you ever continued to use it over the whole of a day and into the next, without recovering from the effects?
     0. No difficulty in controlling once started.
     1. Is sometimes successful, sometimes not
     2. Severely impaired control (binge pattern).

5. Has drug taking led to problems with family, friends, or employment?
   - Have any of these happened during the past year?
     0. None
1.  Mild

2.  Moderate

3.  Serious

6.  Has drug taking led to legal problems on more than one occasion?

   - Like getting into physical fights while taking drugs or right after taking drugs?
   - Getting arrested or held at a police station because of your drug taking?

0.  None

1.  Mild

2.  Moderate

3.  Serious

7.  Did you continue to take [DRUG/S], even though you knew you had one of these problems?

0.  No

1.  Yes

8.  When you have been using drugs, have you neglected to do things expected of you, like missing important events or appointments?

0.  No

1.  Some obligations neglected
2. Most obligations neglected

3. Nearly all obligations neglected

9. How important is drug taking compared with other activities?
   - Does [DRUG/S] take priority over important social obligations?
   - Do you spend money that you should spend on your family on [DRUG/S]?
   - Or miss work or appointments because activity connected with drugs was
     more important? In past year? Ever?

0. No undue priority given to drug related activities

1. Some obligations over-ridden

2. Drug-related activities nearly always given priority

10. Have you spent a great deal of time taking or recovering from [DRUG/S]?
   - Has there been a period as long as a month when other activities were limited
     by this? In past year? Ever?

0. No, or minimal time lost

1. Much time lost

2. Has lost a month or more, involved nearly everyday

11. Have you settled into a routine of drug taking?
   - Could you describe the pattern?

Do you find it almost impossible to change your habitual routine?
12. Does a drug have less effect on you than before; you need more to get the same effect?

- Do you find you can take much larger amounts of [DRUG/S] than previously without getting the same effects?
- How much more?

13. Do you think that [specify most severe type of symptom] is related in any way to drug taking? What makes you think that?

14. Did you continue to take drug even when you knew that [problem rated in 13] were
related to [DRUG/S]?

- When did you know; during the past year or before?

---------- 0. No

---------- 1. Yes

15. Have you had any health problems due to drug taking?

- What problem? In the past year? Ever?

---------- 0. No health problems due to drug taking

---------- 1. Mild physical illness

---------- 2. Moderate severity

---------- 3. Life threatening

SKIP → to 17 if 15 is rated 0.

16. Did you continue to take [DRUG/S], even when you knew you had one of these health problems?

---------- 0. No

---------- 1. Yes

17. Have you found, if you cut down or went without [DRUG/S] for a time, that you felt any ill-effects?
- Please describe them.
- How often have you had them?
- Have any of these been due to cutting down or stopping?

---------- 0. No withdrawal effects

---------- 1. Mild withdrawal effects, monthly or more often.

---------- 2. Moderate severe withdrawal effects, monthly

---------- 3. Delirium or fits as withdrawal symptoms

18. Have you taken [DRUG/S] when you had symptoms like that, in order to feel better? Or to avoid these effects entirely?

  - In the past year? Ever?
  - First thing in the morning?

---------- 0. No

---------- 1. Yes, up to once a week

---------- 2. Yes, more often than once a week
Appendix v

Consent

I’m Dr Gudaji M I, from the department of Psychiatry, AKTH, Kano. I am conducting a study on the use and abuse of psychoactive substances among commercial motorcycle operators. This is an academic activity.

Your participation is completely voluntary and you may choose to end the interview at any stage. This interview may last up to 30 minutes. I will be asking you questions about use and abuse of psychoactive substances. Some of the questions may embarrass you or may be difficult to answer but they are only intended to find the problems of use and abuse of psychoactive substances and how it can be helped.

It is important for you to understand that your answers to these questions will be kept confidential. You will be given a code number and your name will not be written on the form so that it will never be use in connection with any information you give me.

In case you have any concern about the study you may contact the Institution review body.

**CONSENT** -Now that the study has been explained to me and I fully understand the content of the study process, I’m willing to take part in the study.

Signature/thumbprint/verbal/date

____________________________

Signature of the interviewer/date

____________________________
Appendix vi

Hospital ethical clearance.
Appendix vii.

ACOMORAN clearance.
Appendix viii.

SCAN certificate.
Appendix ix.

“Gadagi”.

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