

**THE PREVALENCE OF SUBSTANCE USE AND ITS EFFECTS ON SLEEP  
AND ACADEMIC PERFORMANCE AMONG STUDENTS OF THE  
POLYTECHNIC IBADAN**

**BY**

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## DEDICATION

This research project is dedicated to God Almighty, the merciful and gracious Lord who has seen me through this program and to my parents for their unceasing prayers and support and also to my lovely aunty (Mrs Abimbola Bernard) and family. Thanks a lot for your prayers, love and care.

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Agun, Ifomesho JAMES

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## ABSTRACT

Sleep has been found to be of the least priority of most individuals especially students. This may not be unconnected with the fact that, they feel they must always meet up with deadlines in form of school assignments and examinations which necessitate the use of substance to delay sleep.

A descriptive survey design combining both qualitative and quantitative research strategies was used to find the relationship between substance use and its effects on sleep and academic performance of the students of The Polytechnic Ibadan. The population comprised National Diploma (ND) and Higher National Diploma (HND) undergraduate students of The Polytechnic Ibadan in Oyo State, South-West Nigeria. 295 participants were randomly selected from five faculties in the polytechnic for the study.

The instruments used for collection of data were a self-designed questionnaire called Substance Use and Sleep Questionnaire (SUSQ), an inventory for collection of students' results and supplemented by personal interviews where necessary. The data were analysed by computer using a statistical software SPSS (Statistical Package for Social Sciences). Results of data analysis were presented using frequency distribution tables and bar graphs. The two hypotheses raised were tested at 0.5 level of significance. The study determined that there was significant relationship between substance use and academic performance and between sleep and academic performance. In the study, it was also discovered that substance use and insufficient sleep negatively affects students' academic performance in The Polytechnic Ibadan.

The respondents were assessed on socio-demography, the common substance used as study aid on campus, the perceived effect of substance use on sleep, the perceived effects of sleep on academic performance and the causes for substance use on sleep on campus. The study revealed that more than half of the respondents use one substance or the other to aid study. Of those surveyed 82.0% used coffee, 51.5% used energy drink, 39.3% used paracetamol + caffeine, 29.9% used alcohol, 23.4% used coffee + cigarette, 51.9% used tea. Also 86.8% were using stimulants to study longer, 76.8% to stay awake, 93.9% to study better, and 37.6% to improve memory, 49.8% to help concentration, 87.5% to help study, and 52% to increase alertness. The study also

found out that 74% respondents were of the view that good academic performance depend on the length of hours spent without sleep to study. The study therefore recommends that public awareness of the significance of sufficient sleep and the danger of effortful control should be increased. Primary, secondary and tertiary methods of prevention of substance use to alter sleep or anybody adjustment should be proper communicated to the students. Also school guidance and counseling units and health care provider may need to become more sensitized to the potential serious ramification of substance use on sleep. Pre-enrolment messages for first year students and restriction of the sale of stimulants on campus were also recommended. It is expected that this study will lead to a better understanding to the major contributors to student's academic performance.

**Keywords:** Substance use, sleep delay, study aid, academic performance.

**Word count:** 436.

## CERTIFICATION

I hereby certified that this study was carried out by JAMES, Agun Ifomesho in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.

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## LIST OF ACRONYMS

<b><u>Abbreviations</u></b>	<b><u>Meaning</u></b>
<b>AASM</b>	- American Academy of Sleep Medicine
<b>ADSM</b>	- Academy of Dental Sleep Medicine
<b>ASAA</b>	- American Sleep Apnea Association
<b>AIDS</b>	- Acquired Immunodeficiency Syndrome
<b>CBOs</b>	- Community Based Organizations
<b>CDC</b>	- Centres for Disease Control and Prevention
<b>DSPS</b>	- Delayed Sleep Phase Syndrome
<b>HPE</b>	- Health Promotion and Education
<b>IDI</b>	- In-Depth Interview
<b>KII</b>	- Key Informant Interview
<b>MOE</b>	- Ministry of Education
<b>MOH</b>	- Ministry of Health
<b>MDGs</b>	- Millennium Development Goals
<b>NACADA</b>	- National Agency For the Campaigns Against Drug Abuse
<b>NAFDAC</b>	- National Agency Food and Drug Administration and Control
<b>NCSDR</b>	- National Center on Sleep Disorders Research
<b>NDLEA</b>	- National Drug Law Enforcement Agency
<b>NGO</b>	- Non Governmental Organization
<b>NIH</b>	- National Institute of Health
<b>NIDA</b>	- National Institute on Drug Abuse
<b>NSF</b>	- National Sleep Foundation
<b>PHC</b>	- Primary Health Care
<b>SAMSHA</b>	- Substance Abuse and Mental Health Services Administration
<b>SCAD</b>	- Student Campaign Against Drugs
<b>SDB</b>	- Sleep-Disordered Breathing
<b>SHEP</b>	- Sleep Health Education and Promotion
<b>SPSS</b>	- Statistical Package for Social Sciences
<b>SRS</b>	- Sleep Research Society
<b>UN</b>	- United Nations
<b>UNDCP</b>	- United Nations Drug Control Programme
<b>UNICEF</b>	- United Nations International Children's Emergency Fund
<b>W H O</b>	- World Health Organization

## OPERATIONAL DEFINITION OF TERMS

<b>Sleep:</b>	The natural state of rest during which your eyes are closed and you become unconscious.
<b>Sleep Apnea:</b>	Apnea that occurs during sleep and is caused especially by obstruction of the airway or a disturbance or a disturbance in the brain's respiratory center.
<b>Insomnia:</b>	The condition of not being able to sleep.
<b>REM sleep:</b>	A stage of sleep during which you dream and your eyes make quick movements.
<b>Slow-wave sleep:</b>	A state of deep usually dreamless sleep that occurs regularly during a normal period of sleep.
<b>Caffeine:</b>	A substance that is found especially in coffee and tea and that makes you feel more awake.
<b>Substance:</b>	A drug that is considered harmful and whose use is controlled by law or made illegal.
<b>Drug:</b>	Is any substance that, when absorbed in to the body of a living organism, alters normal bodily function.
<b>Academic performance:</b>	The coursework-related performance of students who are enrolled in colleges or universities (Longman Dictionary of Contemporary English, 2003).
<b>Non-sleep-deprived:</b>	Sleeping 5 hours or more in a 24-hour period.
<b>Sleep deprivation:</b>	A condition in which an individual is continually awake for several consecutive nights (Drummond & McKenna, 2009).
<b>Drug dependency:</b>	A physical and or a psychological need for a mood-altering substance.
<b>Motivation in learning:</b>	This is taken to mean interest in the pursuit of learning activities in school as portrayed by parameters like academic achievements, school attendance, participation in co-curricular activities, discipline, absenteeism and conflict with teachers.
<b>Stimulants:</b>	These are drugs which cause alertness and create energy for example Amphetamines.

- Drug related problems:** This term is used to describe all the negative effects associated with drug abuse including ill health, violence, conflicts with friends or school authorities, destruction of school property and academic underperformance.
- Illegal/legal drugs:** In this study illegal drugs refer to the substances deemed harmful to the mental and physical wellbeing of the individual by the government who seeks to control or discourage consumption by law. Legal drugs refer to those such as alcohol and tobacco that are potentially dangerous but whose consumption the government allows.
- Intervention:** Attempts to help drug users positively modify their behaviour and change their attitude towards the misuse of drugs are referred to as interventions. These can include activities and programmes put in place to address or end drug abuse.
- Prevention:** Prevention is best understood when explained in its totality which includes three levels of prevention: primary, secondary and tertiary. Primary prevention involves preventing the initiation of psychoactive substance use or delaying the age at which use begins (UNICEF & WHO, 2006). Secondary prevention is intervention aimed at individuals in the early stages of psychoactive substance use. The goal here is to prevent substance abuse from becoming a problem thereby limiting the degree of damage to the individual (Rossi, 2000). Tertiary prevention aims to end dependence and minimize problems resulting from use/abuse. This type of prevention strives to enable the individual to achieve and maintain improved levels of functioning and health. Tertiary prevention is sometimes called rehabilitation or relapse prevention (UNICEF & WHO, 2006). For the purposes of this study, prevention will refer to educational activities, programmes or policies aimed at

enabling young people to stay healthy and productive and inhabit an environment free from drug abuse (primary prevention). It also refers to the education of young people about the effects of substance abuse with the intention of preventing their use/abuse and enabling them to make informed decisions when faced with offers of illegal substances.

**Protective factors/risk factors:** Research has shown that in order to prevent substance abuse, two things must happen (O'Malley, et al., 2001) factors that increase the risk of the problem must be identified, and ways to reduce the impact of those factors must be developed. Factors that help to prevent substance abuse are called protective factors and those that contribute to or increase the risk of abuse are called risk factors.

**Strategies:** This term refers to the methods or approaches that schools have put in place to address drug related problems.

**Substance abuse:** Refers to the use of all chemicals, drugs and industrial solvents that can produce dependence (psychological and physical) (Cheryl & Gert, 2003). It can also refer to repeated non-medical use of potentially addictive chemical and organic substances. According to UNICEF and WHO (2006), substance abuse includes the use of chemicals in excess of normally prescribed treatment dosage and frequency, even with knowledge that they may cause serious problems and eventually lead to addiction.

**Withdrawal:** What someone who is addicted to drugs and alcohol experiences when they abruptly discontinue the use of drugs or alcohol.



# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the Study

Sleep provides reparative and restorative bodily functions. Adequate amount of sleep is important for one's mental and physical health, for cognitive restitution, processing, learning and memory consolidation. Sleep may be one of the most important factors for student success and often one of the most neglected. A lot of students especially when preparing for Certificate Examination "kill their sleep" through several actions and substances believed to cause insomnia with great intake of coffee, or taking bath, intake of caffeine, among others (Atieah & Ghamdi, 2013). They will sacrifice sleep in order to work, play, or get school projects completed. However, although most people think they can function well when they don't get sleep, the truth is they cannot. Sleep requirements vary from person to person but 7-8 hours of sleep in adults is considered normal (Ahrberg, Dresler, Niedermaier, Steiger, & Genzel, 2012). It has been reported that inadequate sleep can cause emotional instability, memory loss, day time sleepiness and decreased concentration. A substantial proportion of undergraduates report poor sleep due to academic stress mid-term, with negative consequences for academic performance and well-being (Wattenmaker, 2013). Perceived stress and somatic complaints have been shown to increase during exam periods and so do sleeping problems (Ahrberg et al 2012). Additionally, sleep deprivation has been negatively related to academic performance. One study showed that sleep-deprived students performed worse on attention, memory, and problem-solving tasks and this adversely affected their academic performance (Curcio, Ferrara, & Gennaro, 2006). The subjective quality of sleep among various populations has become a focus of research in recent times. Using diverse assessment tools, a etiological and associated factors of poor sleep quality have been reported.

Sleep is broadly classified into two types: rapid-eye-movement (REM) sleep and non-REM sleep (NREM). Cycling through all of the sleep stages for an adequate amount of time is essential to being fully rested (Zunhammer, Eichhammer, & Busch, 2014). NREM sleep consists of four stages that range from drowsiness to deep sleep. In the early stages (I and II), individuals awake easily and may not even realize that they

have been sleeping. In the deeper stages (III and IV), waking is difficult. When awakened, individuals in stages III and IV may feel disoriented and confused. In NREM sleep their muscles are more relaxed than when awake. Although the sleeper in stages III and IV is able to move, this doesn't happen because the brain is not sending signals to the muscles to move (Dawson, 2005).

REM sleep refers to active sleep, which is when dreaming occurs. During REM sleep, the breath and heart rate become irregular, the eyes move rapidly back and forth under the eyelids, and body temperature is impaired so a sleeper does not sweat when hot or shiver when cold. Below the neck, however, the body is essentially paralyzed because the nerve impulses to the muscles are blocked (Williams, & Aderanti, 2014). Both REM and NREM sleep states develop before birth. Sleep cycle patterns and the amount of sleep needed changes from infancy to childhood, but at the age of four, most children sleep 10 hours a night and cycle through sleep patterns much like those of adults.

Adolescent sleep patterns deserve particular attention because of their potential to affect school performance. Adolescents typically get significantly less sleep than younger children, not because they *need* less sleep but because their schedule and biorhythms impede adequate sleep. Researchers studying the optimal sleep periods of adolescents have found that under controlled conditions (e.g., with no clocks and lighting cues), adolescents typically sleep nine hours a night (Carskadon, 2002). Although research indicates that adolescents require at least as much sleep as they did as preteens, 8.5–9.25 hours per night, fewer than 15% of adolescents report that they sleep at least 8.5 hours on school nights and more than 25% report that they get less than 6.5 hours of sleep on school nights (National Sleep Foundation, 2000).

With increasing academic demands, high school and college students are finding new ways to enhance their academic performance. This includes the use of substances as a form of “academic steroids” to improve their performance during classes and examinations (Wattenmaker, 2013). The term “academic steroids” or “study drugs” refers to prescription drugs used to increase concentration and stamina for the purpose of studying or cramming. Study drugs are prescription stimulant medications that are used improperly by a person with a prescription, or more often, illegally by a person

without a prescription. These medications are used to treat Attention Deficit Disorder (ADD) and Attention Deficit Hyperactivity Disorder (ADHD), which affect attention span, impulse control, self-discipline, and hyperactivity in the case of ADHD.

Prescription stimulants used to treat ADD and ADHD include Ritalin, Adderall, Concerta, and Focalin. Using or buying these medications without a prescription is illegal. Selling your own prescription is also illegal. The misuse of prescription drugs, especially study drugs, is a growing problem on our campus. Some students feel like everyone they know is using study drugs, and they feel pressured to use or to 'catch up' with peers.

Prescription stimulants like Adderall and Ritalin have potential for physical and psychological dependence, especially among people who do not have ADHD. Continued use will result in higher tolerance to the drug and eventually require larger doses to reap the same effects. Once discontinued, withdrawal effects such as depression may occur.

Some students may feel like study drugs and cramming are their only options for success without knowing that there are a number of resources on campus to help them deal with academic and more generalized stress. The ADD and ADHD medications that are being abused mostly as study aids are methylphenidate (Ritalin) and amphetamine (Adderall). These drugs are known as stimulants and act on the brain by increasing levels of the neurotransmitter dopamine. Many of the effects of these drugs deceive users and make it seem as though the drugs are beneficial. Stimulants such as Ritalin and Adderall cause a person to have a decreased need for sleep, an increased ability to concentrate and an increase in motivation to do work (Atieah & Ghamdi, 2013). All of these effects may seem beneficial to students who want to study for longer hours, increase their motivation to study and increase their concentration so that they can retain more information.

These drugs are popular because they are highly accessible; students who abuse stimulants generally get the drug from friends and other students who have legitimate prescriptions for Ritalin or Adderall. As well, they are also perceived to be safe because they come from a doctor and are used by many individuals for actual health problems. However, the perceived benefits of drugs such as Ritalin and Adderall as

safe study aids is very misleading. Taking these drugs without a prescription, and taking them in increased dosages or frequencies, puts the individuals at a great risk. Abusing prescriptions such as Ritalin and Adderall puts the individual at risk for seizures, coma, Irregular heartbeat, Increased blood pressure, Restlessness, Anxiety, Nervousness, Paranoia, Headache, Dizziness, Insomnia, Mouth dryness, Suppressed appetite, Diarrhea or constipation, Impotence or changes in sex drive and death resulting from blood vessels in the brain bursting, and may exacerbate any underlying heart conditions or cause heart failure (Wattenmaker, 2013).

Although there is a well-established body of evidence that has evaluated sleep among adults and children, few have investigated the prevalence and influence of poor sleep among younger, college-aged students. Furthermore, there is limited research on the influence of alcohol, caffeine and the consumption of other stimulants on sleep duration and sleep quality among college-aged students and young adults. Caffeine, the most widely used drug in the world, is believed to influence the performance and mental state by lack or loss of sleep (Patel et al., 2015). Some studies have reported that caffeine is beneficial in restoring low levels of wakefulness and in offsetting the reduced cognitive abilities that result from sleep deprivation while other investigators have demonstrated that caffeine had a significant negative effect on mood and performance when ingested after a period of sustained abstinence. Caffeine consumption has also been shown to adversely impact sleep patterns in manners that promote daytime sleepiness (Patel et al., 2015). A fairly substantial literature has documented associations of caffeine consumption, particularly high levels, with alterations in multiple indices of sleep duration and sleep-quality among students and young adults.

In an attempt to control sleep or energise themselves, most adolescents and young ones start experimenting with tobacco, alcohol, ephedrine and other caffeinated substances such as Nescafe and red bull. Some of the reasons for the drug abuse, as identified by Ajayi and Ekundayo (2010), are to study long, reduce pain, anxiety and tension, ignorance and misinformation, parental background, urge to commit crimes, peer group influence, isolation and loneliness.

The use and misuse of stimulant drugs to enhance academic performance show that many students feel the need to go to whatever lengths possible to succeed (Singleton & Wolfson, 2006). The issue of the abuse of stimulants as study aids needs to be addressed so that undergraduates can realize that there are other ways to achieve academic success that do not involve the use of drugs.

In Nigeria, research on sleep quality and drug use among student populations is scanty. Among students in The Polytechnic Ibadan as a specific subgroup, none has been conducted to the knowledge of the author. This study is considered on this subject area among students in Nigeria tertiary institutions as relevant for the following reasons; first, frequent industrial actions (strikes) among university lecturers in recent times have resulted in longer and unpredictable training periods. Secondly, government funding is minimal and students may grapple with financial constraints, overcrowded classrooms, poor or non-existent teaching aids as well as scarce hostel facilities. In the light of the aforementioned constraints, one can hypothesize that; Nigeria undergraduates may likely to report poorer sleep quality compared to their counterparts from developed countries reported in the literature. Time management, effective study habits and stress-relieving skills should be taught to students, as well as providing a supportive environment to help individuals find other ways to get good grades and achieve success in school situations. If undergraduates use stimulant drugs to get an edge throughout their school career, they will find that in the workforce, they may be lacking the skills necessary to cope with their workload and to do their job with quality. This study intends to examine the relationship between substance use and its effect on sleep quality and academic performance within a group of The Polytechnic Ibadan students. The study should also test whether self-regulation mediated the effect of substance use on sleep and academic performance.

### **1.2 Statement of the Problem**

In a country as Nigeria with increasing academic demand where the government place education at the centre of the social pillar with the vision of producing viable graduates to boost the country's economic. The government has shown its commitment through highly subsidized secondary education, creation of more federal universities and amendment in the cut-off mark of JAMB recently; 180 score for university admission and 150 score for polytechnic. The government rely on graduates especially those

with high grades to drive the economy to the next level which has threatened students and subsequently they seek motivating means to enhance learning capacity.

Sleep, like nutrition and physical activity, is a critical determinant of health and well-being. Sleep is a basic requirement for infant, child, and adolescent health and development. Sleep loss and untreated sleep disorders influence basic patterns of behaviour that negatively affect family health and interpersonal relationships. Fatigue and sleepiness can reduce productivity and increase the chance for mishaps such as medical errors and motor vehicle or industrial accidents.

Adequate sleep is necessary to fight off infection, support the metabolism of sugar to prevent diabetes, perform well in school, Work effectively and safely.

Sleep timing and duration affect a number of endocrine, metabolic, and neurological functions that are critical to the maintenance of individual health. If left untreated, sleep disorders and chronic short sleep are associated with an increased risk of heart disease, high blood pressure, obesity, diabetes and all-cause mortality.

Sleep health is a particular concern for individuals with chronic disabilities and disorders such as arthritis, kidney disease, pain, human immunodeficiency virus (HIV), epilepsy, Parkinson's disease, and depression. Among older adults, the cognitive and medical consequences of untreated sleep disorders decrease health-related quality of life, contribute to functional limitations and loss of independence, and are associated with an increased risk of death from any cause.

Sleep-disordered breathing (SDB), which includes sleep apnea, is another serious threat to health. SDB is characterized by intermittent airway obstruction or pauses in breathing. People with untreated SDB have 2 to 4 times the risk of heart attack and stroke. Obesity is a significant risk factor for SDB, and weight loss is associated with a decrease in SDB severity.

Despite student affairs professionals at polytechnics and universities continue to address numerous issues that affect student health, safety and retention. Specifically, campus-wide committees exist at many polytechnics and universities to work on solving issues related to mental health, high-risk substance use, and reducing negative outcomes that students experience, during their time of orientation and matriculation. Faculties and staff in polytechnic and university counselling services, student health

services, and wellness departments develop workshops, meet one-on-one with students, and continually assess students' need for interventions and health education. The possibility that level of drinking, use of caffeine, am-phetamine, nicotine, quality of sleep and depressive symptoms each significantly affect the probability of a student experiencing memory-related problem could shed light on a substantial area of prevention in college health. As such, interventions may be tailored more effectively to reach the students with the highest need.

### **1.3 Justification of the Study**

Sleep deficiency has become an important issue in recent years as indicated by the National Sleep Foundation (2002). However, studies have not investigated the relationship between substance use and its effects on sleep and academic performance among students in polytechnics. This study is expected;

- i) To yield significant empirical data and information on the short and long term effect of substance use on quality of sleep.
- ii) To help ministry of education officials and school personnel to understand the effects of sleep and academic performance.
- iii) To add to the body of knowledge in the area of substance use, effects on sleep and academic performance of polytechnic students that may be utilized by other researchers.

Furthermore, the study ascertains the following:

- This study found out that irrespective of the learning institution students still abused substance to aid study. Up to 82% use caffeine. This affects student's daytime alertness and concentration levels hence leads to poor academic performance. It is therefore advisable that pre enrolment messages should be spread across during orientation and counseling be put in place to help the already affected students.
- The study also noted that students abused substance in an attempt to achieve high level of concentration, improve study during reading and understanding, enable brain to rest and recall all that is studied and otherwise achieve high grade at the end of examination. These however resulted to lack of coordination, lost of appetite, anxiety and confusion, daytime sleepiness and tiredness and lower grades. Therefore prevention strategies of polytechnic



should incorporate guidance and counseling services and other support services so as to handle students' problems adequately.

- This study established that sleeping 7 – 8 hours per day enable the body to function at its best. This determines student's cognitive ability. Respondent with adequate sleep time were more likely to have daytime alertness and concentrate in class. The study recommends that students should be properly oriented on the importance of sleep during orientation of new students. School counselors and health care officers on campus should communicate adequate measures for students to balance up academic work and sleep.
- Prescriptive drugs like piriton, amphetamine and other stimulants were highly abused due to peer influence and to meet up with high academic demand on campus. Many students also believe that substance abuse like alcohol is a way of life on campus. Abuse of Tobacco is highly addictive and is associated with sleep disorders and lower concentration levels hence students fall behind in class, the study recommended that activities that did not involve the use of any of this drugs should be introduced to promote a drug free environment. All drugs should be prescribed by the school doctor or Nurse.

#### **1.4 Purpose of the Study**

The purpose of this study is to investigate substance use and its effects on sleep and academic performance among students, and to compare results between those who had quality sleep and those who do not have quality sleep and academic performance.

#### **1.5 Research Objectives of the Study**

The specific objectives of the study sought to:

- i) Identify the common substances used as study aid among students of The Polytechnic Ibadan.
- ii) Examine the perceived effects of substance use on sleep and academic performance among students.
- iii) Determine the perceived effects of sleep on academic performance among students of The Polytechnic Ibadan.
- iv) Determine the causes of substance use on academic performance among students of The Polytechnic Ibadan.



## **1.6 Research Questions**

The study will attempt to answer the following questions;

- i) What are the common substance used as study aid among students of The Polytechnic Ibadan?
- ii) What are the perceived effects of substance use on sleep and academic performance among students?
- iii) What are the perceived effects of sleep on academic performance among students of The Polytechnic Ibadan?
- iv) What are the causes of substance use on academic performance among students of The Polytechnic Ibadan?

## **1.7 Research Hypothesis (Study Variables)**

In order to investigate the problems, the following null hypotheses were tested at 5% level of significance:

- (a) Null Hypothesis 1 - There is no significant association between substance use and academic performance among students of The Polytechnic Ibadan.
- (b) Null Hypothesis 2 - There is no significant association between sleep and academic performance among the students of The Polytechnic Ibadan.

## **1.8 Delimitations of the Study**

The study was carried out in tertiary institutions of learning particularly The Polytechnic, Ibadan Oyo State, Nigeria. The polytechnic is a government-run institution and The polytechnic currently awards National Diploma (ND), Higher National Diploma (HND), Post Graduate Diploma ( PGD) and other professional certificates to its deserving graduates. It has four satellite campuses at Eruwa, Saki, Iree and Esa-Oke. This study concentrated on investigating substance use and its effects on sleep and academic performance among students, and compared results between those who had adequate sleep and those who do not have adequate sleep and academic performance within The Polytechnic Ibadan. This study examined how sleep is compromised, common substance use on campus, periods mostly use, availability rate of consumption and various effects on student's performance.

The Polytechnic Ibadan, main campus is located 24 kilometres Ibadan North and on a 1, 2621.06 hectares of land. The polytechnic is located in a rural agricultural prone area along Apete community of Ibadan and is about 12km away from University of Ibadan. The study targeted both students and administrative personnel of The Polytechnic Ibadan and was carried out between July and September 2015.

### **1.9 Scope of the Study**

It is not possible to carry out the study in all the departments in all the polytechnics in Oyo state due to financial constraints, time factor and other logistics. Again, the study targeted Polytechnic students and principal administrators and therefore other stakeholders like parents and community leaders were not involved in the study.

### **1.10 Assumptions of the Study**

In this study the researcher assumed that the reasons for students' high prevalence of substance use and its effects on sleep and academic performance are ones enumerated in the objectives of the study. Other factors have no or negligible influence on the frequency of substance use on sleep among students. Therefore the study findings, conclusions and recommendations are pegged on the factors of the study and all other factors held constant.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter will be based on the work of authors, editors, journals and columnist as well as periodicals published by international organizations on the perception and prevalence of substance use, sleep problems and academic performance among undergraduate students. UNICEF and the World Health Organisation (2006) define drug abuse as the self-administration of any drug in a manner that diverts from approved medical or social patterns within a given culture. Legal or licit drugs and substances are socially accepted and their use does not constitute any criminal offence. In Nigeria, these include alcohol and nicotine. *Substance* abuse among students is dominated by the use of these legal drugs and substances. Among the illegal drugs commonly used by students are cannabis, ecstasy, heroine, mandrax and lysergic acid diethylamide (NAFDAC, 2004). *Substance dependence* involves continued substance abuse despite significant substance-related problems, and usually includes tolerance of the drug (requiring higher doses to achieve the same effect) as well as withdrawal (symptoms experienced when use of the drug is discontinued). (APA, 2000; NIDA, 2005). It involve the repetitive prolonged use of a habit-forming drug such that, there is an overriding desire for the drug and tendency to increase the frequency and quantity use. Sleep on the other hand, is the natural state of rest during which your eyes are closed and one become unconscious. Good sleep is therefore fundamental and an important prerequisite to good health. Health as defined by WHO (1948) is said to be a state of complete physical, social and mental well being and not just the absence of disease or infirmities.

Two forms of unhealthful behaviour that are well documented among college students are heavy substance use such as alcohol (Wechsler and Wuethrich, 2002) and insufficient and irregular sleep (Buboltz et al., 2006). Both heavy substance consumption and unhealthy sleep habits are associated with various behavioural problems, including poor academic performance (Buboltz et al., 2006; Perkins, 2002). Yet substance use and sleep researchers who have examined these shameful effects have done so in relative isolation, as neither line of inquiry is informed by the other.

This is surprising, especially with respect to academic performance, given the known effects of substance use on sleep (Roehrs and Roth, 2001). For it is possible that substance use influences both sleep patterns and academic performance and that sleep mediates the effects of substance use on performance. The present study examines these possibilities, bringing together three independent lines of research involving substance use, sleep, and academic performance.

## **2.2 Conceptual Clarification of Substance Use**

Students' substance use may be described in many ways. For instance, nature of substance use, which is often illustrated in prevalence rates, is often reported in studies or national surveys of American youth (Johnston et al., 2009; Bachman et al., 2008). The nature of substance use encompasses the various aspects that characterize substance use. Beyond prevalence rates, it includes types of substance, age of first use, and patterns of use. Another way to describe adolescent substance use is through the consequences associated with it. These consequences tap on the different domains of students development including cognitive and psychosocial. The next sections discuss these two aspects of students substance use (i.e., nature and consequences of substance use) in detail.

### **2.2.1 Nature of Substance Use**

Reports of substance use prevalence rates suggest that marijuana, alcohol, and cigarettes are three of the most commonly used substances by adolescents. Marijuana remains a popular drug choice among middle school and high school students with increasing rates of usage in 2008 (Johnston et al., 2009). When asked about marijuana use, 10.9% of 8<sup>th</sup> graders, 23.9% of 10<sup>th</sup> graders, and 32.4% of 12<sup>th</sup> graders reported using marijuana in the past year. Although both cigarette and alcohol use declined in 2008, the proportion of middle and high school students who engage in cigarette smoking and drinking alcohol is still quite high. The 30-day prevalence rate of cigarette smoking among high school seniors was 20.4% and the annual prevalence rate of alcohol intoxication (i.e., being drunk in the past year) was 30% and 45.6% for 10<sup>th</sup> and 12<sup>th</sup> graders, respectively. However, prevalence rate is just one aspect that describes substance use. In order to better understand the nature of substance use and how it relates to academic performance and engagement, it is essential to look beyond

the prevalence rates and explore other components such as onset age and frequency of substance use.

### 2.2.2 Onset Age of Use

The age of initial substance use has been linked to future patterns of use and problem behaviours (Steuve & O'Donnell, 2005; Agrawa, Neale, Prescott, & Kendler, 2004). In a retrospective study, Prescott and Kendler (1999) examined the relationship between onset age of drinking and alcoholism among 8,746 adult twins. The results suggested that early drinking was strongly related to alcohol dependence, characterized by a “persistent desire or unsuccessful efforts to cut down or control substance use” and may also include reduced engagement in social or recreational activities, and manifestations of withdrawal symptoms (DSM-IV, 2000). However, they also found that early drinking was weakly related to alcohol abuse, which is characterized by more serious symptoms, often describing social and relational impairments including failure to fulfill obligations at work, school, or home and substance-related involvement in legal problems (DSM-IV, 2000).

Prescott and Kendler's (1999) findings that onset age of substance use was significantly associated with future substance dependence and abuse are consistent with a more recent study by Grant, Stinson, and Harford (2001). Utilizing data from the 1979 NLSY survey, Grant et al. (2001) examined the relationship between onset age of alcohol use and later alcohol dependence and abuse in a sample of 5,792 respondents ages 14-21. The authors found that an additional year in onset of drinking predicted a 9% decrease in alcohol dependence and a 7% decrease in alcohol abuse. In summary, onset age of use is related to the intensity and duration of substance use. Individuals who engage in substance use early are more likely to develop harmful patterns of use, which may include frequent and longer use of illicit substances. When other illicit substances such as marijuana are considered, the predictive significance of onset age of use to future patterns of substance use still holds. In a sample of 1,265 teenagers ages 14 and 15, Fergusson, Lynskey, and Horwood (1996) examined if and how early use of cannabis was related to mental health and adjustment problems. The results showed that individuals who started using cannabis prior to the age of 15 were at greater risk for later substance use, delinquency, truancy, and mental health problems including anxiety and depression. The results remained significant even after

the authors accounted for differences in other risk factors such as family disadvantages, early adjustment problems, and association with delinquent peers. Hence, in addition to behavioural problems that include antisocial behaviour and delinquency, onset age of use also relates to mental health problems. Individuals who are exposed to illicit substances early are also more likely to be exposed to disadvantageous situations that could have significant implications not only behaviourally, but psychologically as well.

The extent to which an individual engages in early substance use may pose serious academic consequences considering the intensity and duration of substance use. Given that onset age of use relates to substance dependence and abuse, manifestations of mental problems and delinquency, these negative consequences of early onset of substance use may be disruptive to short-term and long-term academic performance.

### **2.2.3 Frequency of Use**

Essentially, early onset age promotes longer exposure to and more frequent use of licit or illicit substances. For example, in a large national sample of individuals 18 years and older, Grant (1998) examined the relationship of early onset age of smoking cigarettes to later consumption of cigarettes and alcohol use. Results of linear regression analyses revealed that early onset smokers (i.e., age 13 or younger) were significantly more likely to have longer and heavier smoking patterns than late onset smokers. Grant (1998) also found that early onset of smoking was a significant predictor of later excessive alcohol consumption and alcohol use disorders.

In another related study, Fergusson and Horwood (1997) assessed the relationship between frequency of cannabis use and psychosocial adjustment using the same 1,265 teenagers in the Fergusson et al. (1996) study. Frequency of use was defined as use of cannabis over the past year and participants were classified into three categories: (1) non-users, (2) those who used less than 10 times, and (3) those who used 10 or more times. As expected, the authors found that individuals who reported using cannabis more than 10 times in the past year were at greater risk of subsequent substance use and were more likely to drop out of school and be unemployed. Consequently, it is commonly accepted that abstainers or individuals who do not use licit or illicit substances fare better (or do not do worse) psychologically and psychosocially than

those who engage in substance use (Tucker, Ellickson, Collins, & Klein, 2006; Milich et al. 2000). However, some studies have challenged this assumption and suggested that substance use may not necessarily reflect harmful psychological or psychosocial consequences. For instance, studies that examined personality correlates of substance use suggested that individuals who occasionally use illicit substances (i.e., experimenters) have healthier psychological well-being than those who abstain or frequently use alcohol (Wolf & Wolf, 2002) and marijuana (Shedler & Block, 1990). On the other hand, when substance use among academically successful students was examined, Evans and Skager (1992) found that a significant proportion (21%) of academically successful (A-average) students belonged to the high-risk substance users. These students reported frequent drug use such as weekly or more marijuana and/or polydrug use (use of more than one substance). In comparison with abstainers and conventional users (occasional users who do not engage in polydrug use or use of hard drugs such as crack and PCP), high-risk users were no more likely to report life dissatisfaction and school disengagement.

In summary, a number of studies suggest that early onset and frequency of substance use pose detrimental consequences to the individual including development of substance dependence, mental health problems, dropping out of school, and unemployment. On the other hand, there seems to be a subset of students who engage in substance use, and yet perform well psychosocially and academically. It could be the case that certain protective factors may be present in this subset of academically successful adolescent substance users. Nevertheless, given the functional impairments (e.g., failure to fulfil obligation at home, work, school; DSM-IV, 2000) associated with substance abuse and dependence, the costs of early and frequent substance use may have far-reaching outcomes that relate to problem behaviours, which affect several areas of development including social, psychological, and cognitive.

#### **2.2.4 Prevalence Rate of Drug Abuse in Nigeria**

From the record of drugs abuse in Nigeria, the Northwest has a statistics of 37.47 percent of the drug victims in the country, while the Southwest has been rated second with 17.32 percent, the south-East is been rated third with 13.5 percent, North-central has 11.71 percent, while the North-east zone has 8.54 percent of the drug users in the country (Akannam, 2008). In Nigeria, the estimated life time consumption of cannabis



among the population is 10.8 percent, followed by psychotropic substances like benzodiazepines and amphetamine-type stimulants 10.6 percent, heroin 1.6 percent, and cocaine 1.4 percent, in both urban and rural areas. Drugs abuse appears to be common among males with 94.2 percent than females 5.8 percent, and the age of first use is 10 to 29 years. The use of volatile organic solvents is 0.53 percent, and is widely spread among the street children, in school youth's and women. Multiple drug use happens nationwide with 7.88 percent to varying degree (UNODC, 2007).

### **2.2.5 Emerging Issues in Substance Abuse**

In recent years, the impact of substance and alcohol abuse has been notable among the adolescent. Adolescent abuse of prescription drugs has continued to rise over the past 5 years. The 2007 MTF survey found high rates of nonmedical use of the prescription pain relievers Vicodin and OxyContin. It is believed that 2 factors have led to the increase in abuse. First, the availability of prescription drugs is increasing from many sources, including the family medicine cabinet, the Internet, and doctors. Second, many adolescents believe that prescription drugs are safer to take than street drugs.

Data from the Substance Abuse and Mental Health Services Administration (SAMSHA) National Survey on Drug Use and Health indicate that from 2004 to 2006, 7.1 percent of veterans (an estimated 1.8 million people) had a substance use disorder in the past year.

In addition, as the Federal Government begins to implement health reform legislation, it will focus attention on providing services for individuals with mental illness and substance use disorders, including new opportunities for access to and coverage of treatment and prevention services.

### **2.3 The Common Substance Used as Study Aid by Students**

Legal or licit drugs and substances are socially accepted and their use does not constitute any criminal offence. In Nigeria, these include alcohol and nicotine. Drug abuse among students is dominated by the use of these legal drugs and substances. Among the illegal drugs commonly used by students are cannabis, ecstasy, heroine, mandrax and lysergic acid diethylamide (NAFDAC, 2004).



Ndu (2010), in his study classified most of the pharmacological agent commonly abused for subjective purpose with six. They include: opium and related analgesic compounds, general central nervous system stimulant, nicotine cannabis and related compound and psychedelic.

Attah (2007), gave a lot of insight about some of these drugs which he named as follows: First there are the morphine types of drugs. Common drugs in this family are opium, heroine, morphone and methadone. There are the barbiturates types of drugs which include pentabarbitons quinbarbintone, ranaldelyde, and, moprobamaten. Attah (2007).

Another type of drug is alcohol, it includes, beer, wine and spirit. A fourth class of drug is the amphetamine which include cannabis leaf, resin, marijuana and hashish. Cocaine a class of drug which has become popular recently in the country has cocoa-leaf and other preparation of cocaine in the family. Attah (2007). Another class of drug according to the same Attah is hallucinogenic. These drugs include mescaline, mescal, cafes and morning glory. There other offers like petrol, nut meg, tobacco smoking, e.g. cigarette, cigar and pipe smoking.

In a study conducted in secondary schools in Lagos involving about 14,584 students, Samuel, Fasuyi and Njoku (2005), reported that one out of every ten students has taken marijuana or some other dangerous drugs at east once. They listed some of the possible causes of the practice as foolws: lack of parental care and guidance curiosity and lack of proper understanding of effect of drugs. On physical, psychological and emotional well- being.

Prescription and over the counter drugs are abused when taken without the specified medical condition and/or proper prescription. Some of these drugs can be mood elevators, pain killers or antidepressants. Prescription drugs include pain killers with codeine, phenorbaritone, valium, piriton and sleep control drugs. A study by Rew (2005) found that these psychoactive substances can produce feelings of surplus energy, euphoria, stimulation, depression, relaxation, hallucinations, a temporary feeling of well being, drowsiness and sleepiness. Their misuse often leads to physical or physiological addiction.

Use of either prescribed or nonprescribed stimulants is a growing problem in young adults. The most commonly reported reason is to “stay awake to study” or increase concentration. Students may utilize these drugs more than age-matched non-students. A survey at 119 colleges and universities across the US found a 6.9% lifetime prevalence for the use of stimulants. Other studies show prevalence as high as 14%. Men are more likely than women to use stimulants, as well as caffeine and energy drinks. Nonprescribed use of stimulants is associated with increased use of alcohol, cocaine, and marijuana. Not all stimulant use is illicit, as between 2%–8% of college students’ self-reported symptoms are consistent with attention deficit hyperactivity disorder (ADHD). However, when parents of college students were asked to report such symptoms in their children, the prevalence of ADHD decreased to around 1%. Stimulants increase sleep latency and suppress REM sleep; subjects who use stimulant medications report worse sleep quality.

It is well-accepted that student substance use can have substantial negative effects on short- and long-term development and adjustment (Blum et al 2004; McGorry et al, 2007). One early sign of potential harm is compromised academic performance, which may be both a consequence of and contributor to increased substance use (Bryant, Schulenberg, O’Malley, Bachman, & Johnston, 2003). As a consequence of substance use, poor academic performance appears not only to be a frequent immediate negative effect in its own right but also a stable predictor of other negative outcomes including poorer physical and mental health during adolescence and in adulthood (Sigfusdottir, Kristjansson, & Allegrante, 2007). Of the range of licit and illicit substances used by adolescents, nicotine and alcohol have long been of particular concern (Jeynes, 2002; Piko & Kovács, 2010).

Although interest in nicotine and alcohol is well justified, particularly considering their widespread use by campus students, prevalence of use for both is greatly exceeded by the consumption of caffeine. Population surveys indicate that approximately 13% of American students are likely to have smoked and 17% to have consumed alcohol in the past month (Substance Abuse and Mental Health Services Administration, 2002), whereas 75% of students consume one or more caffeine beverages on a typical day (National Sleep Foundation, 2006). Although the ubiquity of caffeine possibly encourages beliefs that it is benign, its use cannot be assumed to be free of harm

(James, 1997). When considering potential for harm, it is important to acknowledge that the range of available caffeine products has expanded greatly beyond the traditional beverages of coffee and tea. The main new additions include caffeine-containing “energy drinks” and a diversified variety of soft drinks to which caffeine is added. Product expansion has been accompanied by increased advertising designed to appeal to young consumers.

## **2.4 Effects of Substance Use on Sleep**

Caffeine, the most widely used drug in the world is believed to influence the performance and mental state by lack or loss of sleep. Some studies have reported that caffeine is beneficial in restoring low levels of wakefulness and in offsetting the reduced cognitive abilities that result from sleep deprivation while other investigators have demonstrated that caffeine had a significant negative effect on mood and performance when ingested after a period of sustained abstinence. Caffeine consumption has also been shown to adversely impact sleep patterns in manners that promote daytime sleepiness (Mathers et al, 2006). A fairly substantial literature has documented associations of caffeine consumption, particularly high levels, with alterations in multiple indices of sleep duration and sleep-quality among students and young adults. For instance, high-caffeine users in Massachusetts were found to have shorter sleep duration, more disturbed sleep, longer sleep latencies, more complaints of daytime sleepiness, and poor sleep quality when compared with low users (Mason, & Ratcliffe, 2009). One study conducted in Iceland reported that adolescents use caffeine to delay sleep during night time. However, these studies have almost exclusively been conducted in populations residing in North America, Europe, and Asia. Few studies have been conducted among populations residing in sub-Saharan Africa. Moreover, few studies have simultaneously explored participants’ sleep patterns and their use of stimulants. Risk taking behavior is modulated by individual differences in base levels of sleepiness and response requirements (complexity of task, speed of response, motor ability). In general, behavioral choices of alert subjects were less risky and more optimal when compared to sleepy subjects. Sleepiness degrades an individual's "acuity"(speed/sharpness) to make complex decisions (Roehrs, Greenwald, Roth, 2004).

## 2.5 The Health Hazards of Substance Use

It is not surprising, therefore, that there have been expressions of concern regarding the possible health implications of caffeine for young people and that such concerns have been accompanied by calls for increased research (Reissig, Strain, & Griffiths, 2009; Savoca et al., 2005). Use of substances other than caffeine during adolescence has been associated with a wide array of behavioural and socio-cultural outcomes and processes, with sleep emerging as a possible important mediator of behavioural sequelae (Mathers et al, 2006; Pasch, Laska, Lytle, & Moe, 2010). Changed sleep patterns and architecture often occur in conjunction with active substance use. Additionally, substance use and changed sleep patterns, independently and combined, may negatively affect academic performance (Gromov & Gromov, 2009). Certainly, many students receive less sleep than is thought desirable. For example, the United States National Sleep Foundation (2006) has estimated that as many as 80% of adolescents receive less than an optimal amount of sleep. Short sleep duration (generally defined as less than 7 hours) increases rates of mortality and has been reported as an important risk factor for adverse cardiovascular, endocrine, immune, and nervous system outcomes, such as obesity among adults and children, diabetes and impaired glucose tolerance, cardiovascular disease and hypertension, mood and anxiety disorders, and substance abuse.

The World Health Organisation (WHO, 2009) reported that risk of exposure to substance abuse has become one of the factors that influence the development of the burden of disease. It was also noted that one-third of the disease burdens of adults can be associated with behaviours that began in adolescence. WHO (2009) further stressed that alcohol may have more immediate and severe effects on young people because their muscle mass is smaller than that of adults. Oshodi, Aina and Onajole (2010) also stated that extensive use of caffeine has been associated with brain fatigue syndrome, a culture-bound syndrome among West African students. They noted that brain fatigue syndrome usually presents poor study assimilation, functional somatic complaints involving the head and neck region, and visual disturbances.

Sleep processes have particular salience in the context of regular caffeine use. At dietary doses, caffeine has the potential to increase latency to sleep (Landolt, 2008), and it has been reported that many students actively employ caffeine to forestall sleep

during nighttime leisure activities, including use of electronic devices such as videos and computer games (Calamaro, Mason, & Ratcliffe, 2009). In addition, sleepiness is a confirmed effect of caffeine withdrawal even after periods of abstinence as brief as several hours (Juliano & Griffiths, 2004). Because children and adolescents tend to have less regular patterns of caffeine consumption than adults (James, 1991), they may be at increased risk of experiencing withdrawal-induced daytime sleepiness (Heatherley & Rogers, 2006; Pollak & Bright, 2003).

Moreover, Olley (2008) discovered that use of alcohol contributes 25% to the total explanatory power of sexual-risky behaviours among adolescents which exposes them to a higher risk of HIV/AIDS and other STD infections. Science and Nutrition (2009) also noted that excessive chewing of kola, consumption of bland coffee and other substances to stay awake, could lead to addiction and substance abuse. Sanni, Udoh, Okediji, Modo and Ezeh (2010) identified vandalism, drug abuse, weapon carrying, alcohol abuse, rape, examination malpractices, school violence, bullying, cultism, truancy, and school drop-outs as anti-social behaviours often associated with juvenile delinquents

In conclusion, drug abuse has become a threat to the lives and success of the youth. This is evidently a source of sorrow to the parents, guardians and relatives. It is also a big challenge to the whole nation. Stakeholders and members of the public, generally, should devote urgent and adequate attention to the alarming rate of drug abuse, especially among the youth who will be our future leaders.

## **2.6 Consequences of Substance Use**

Research suggests that substance use is linked to academic performance and engagement in two ways (King, Meehan, Trim, & Chassin, 2006). First, substance use may affect cognitive functioning reflected in memory impairments and inattentiveness, which may disrupt academic performance. Second, substance use may relate to academic achievement and engagement via its social and behavioural components. For instance, association with antisocial peers may elicit delinquent behaviours such as substance use and may reduce school engagement and may increase disruptive behaviours (e.g., truancy), all of which may disrupt psychosocial development.

**Cognitive.** Perhaps the most evident consequence of substance use as it relates to academic achievement and engagement is cognitive functioning. However, the cognitive correlates of substance use receive relatively little attention. Studies from the field of neuroscience suggest that early substance use may leave permanent structural changes in the brain that could lead to cognitive-related deficits such as attention and memory problems, which may hurt academic performance (Lubman, Yucel, & Lawrence, 2008; Lubman, Yucel, Hall, 2007; Tapert, Granholm, Leedy, & Brown, 2002). For example, in a study of 115 adolescents diagnosed with substance abuse or dependence disorders, Tapert and Brown (1999) examined the relationship between neuropsychological functioning and substance use. Participants were given a battery of psychological tests that tapped cognitive skills such as general intelligence, abstract reasoning, attention, recall, and memory. Individuals with prolonged alcohol abuse showed more deficits in attention than non-users (Taper & Brown, 1999).

In a more recent study comparing heavy and minimal adult cannabis users, Pope et al. (2003) examined the relationship between early cannabis use (prior to age 17) and cognitive deficits. The authors found that early onset of cannabis use was significantly associated with poorer verbal functions including visuospatial memory, word memory, and verbal intelligence. Interestingly though, the significance disappeared after adjusting for differences in verbal intelligence. The authors suggested that it could be the case that early cannabis users had initially lower cognitive capacities compared to late users. The extent to which substance use relates to poor cognitive outcomes is particularly relevant in examining its relationship to academic achievement and engagement. However, most of the studies that examined the relationship between substance use and cognitive functioning focused on heavy substance users. Essentially, it may take prolonged and frequent substance use for cognitive impairments to manifest, which may not be possible to see in a population of adolescents. Thus, it is equally important to examine the second mechanism (i.e., social and behavioral components) that may explain the link between substance use and academic achievement and engagement.

**Psychosocial.** The psychosocial consequences of adolescent substance use typically describe an indirect relationship between substance use and academic performance. For instance, psychosocial consequences of substance use reflect the importance of

peer relationships in adolescent development (Becker & Luthar, 2007). More particularly, susceptibility to peer influence peaks during early adolescence and resistance to peer pressure continues to develop until early adulthood (Cauffman & Steinberg, 2000). Using a simulated computer game and vignette case scenarios to assess risk taking, risk preference, and risky decision-making, Gardner and Steinberg (2005) compared young adolescents (ages 13-16), old adolescents (ages 18-22), and adults ( $\geq$  age 24) in their susceptibility to peer influence. The authors found that in general, the presence of peers predicted more risk-taking among participants in all age groups, and peer influence was greater among young adolescents than older participants.

In another study, Allen, Porter, and McFarland (2006) investigated whether susceptibility to peer influence predicted risky behaviour including substance use among a sample of 7<sup>th</sup> and 8<sup>th</sup> graders. The results showed that susceptibility to peer influence was significantly associated with higher levels of externalizing problems such as drug use. This finding is consistent with previous studies in which youth whose peers use illegal substances are more likely to engage in similar antisocial behaviors including substance use (Shoal & Giancola, 2005; Curran, Stice, & Chassin, 1997).

School settings present an increased opportunity of peer interaction and exposure to peer pressure and influence. The extent to which a student is influenced by his/her peers may explain the relationship between substance use and academic achievement. For example, Swaim, Bates, and Chavez (1998) examined the relationship between peer influences in drug use among 910 7th-12th-grade school drop outs. Using structural equation modeling, the authors found that association with drug-using peers was directly related to polydrug use and mediated the relationship between school adjustment (i.e., attitudes toward school and school performance) and polydrug use. Consistent with other studies, socializing with drug-using peers promotes increased substance use; however, students' positive attitudes toward school and school performance serve as protective factors against substance use.

In addition to peer influence, the social consequences of substance use may also be explained by parental monitoring and involvement. Parents play a significant role in



shaping and cultivating a person's development. For example, ample amount of research has shown that parenting styles relate to adolescent substance use (Bogenschneider, Wu, Raffaelli, & Tsya, 1998) and academic performance (Simons-Morton & Chen, 2009; Fan & Chen, 2001). In a sample of 1,355 juvenile offenders, Steinberg, Blatt-Eisengard, & Cauffman (2006) examined how parenting styles were related to adolescent competence and adjustment, which included measures of academic achievement and engagement, substance use, and resistance to peer influence. The results revealed that adolescents with authoritative (balanced between demanding and responsive (Baumrind, 1991) and authoritarian (more demanding) parents fared better on measures of academic achievement and engagement than adolescents with neglectful and indulgent parents. In addition, adolescents with authoritative parents reported fewer externalizing problems (including substance use) and adolescents with authoritarian parents reported less aggressive and income-related (e.g., taking someone's property) offending rates than adolescents with indulgent and neglectful parents. These findings further support the idea that good parenting skills serve as a protective factor from delinquent activities and substance abuse (Austin, Macgowan, & Wagner, 2005).

In another study of parental involvement and adolescent substance use, Dorius, Bahr, Hoffman, and Harmon (2004) examined if and how parents' closeness with and support of their children changes the influence of peers on marijuana use among 4,987 7<sup>th</sup> to 12<sup>th</sup> graders. Parental closeness reflected spending time and sharing thoughts with parents; parental support reflected recognition and praise received from parents. Distinct from other studies, the authors categorized parental closeness into paternal and maternal closeness, taking into account that adolescents may relate differently to one parent versus the other. The results showed that closeness to father (but not to mother) moderated the relationship between peer and adolescent substance use. In other words, the closer the youth was to his father, the weaker the relationship between peer substance use and adolescent substance use. The findings indicate that peer pressure and parental involvement may help explain the relationship between substance use and academics. The extent to which an adolescent is influenced by his/her peers to engage in substance use may strengthen the negative association between substance use and academic achievement and engagement. Put another way, substance use influenced by positive peer pressure could pose less serious academic consequences than substance



use in the context of peers who engage in substance use. As peer pressure could be considered a risk factor in adolescent substance use and academic outcomes, the extent of parental involvement could play a protective role. Children with parents exhibiting the balance between responsiveness and demandingness may fare better behaviorally and academically and resist peer pressure more effectively.

## **2.7 Causes of Young People Vulnerability to Drug Abuse**

Studies have revealed that most of the drug addicts started smoking from their youths. As they grow older they seek new thrills and gradually go into hard drug abuse, (Oshodi, Aina & Onajole, 2010; Igwe, et al., 2009). A nationwide survey of high school students reported that 65 percent used drugs to have good time with their friends 54 percent wanted to experiment to see what it is like, 20 percent to 40 percent used it to alter their moods, to feel good, to relax, to relive tension and to overcome boredom and problems (Abudu, 2008). No single factor could be defined as solely responsible for the abuse of drugs but the following are some of the causes of young people vulnerable to drug abuse in Nigeria. (Oshodi, Aina, & Ajibulu, 2011; Henry, Smith, & Caldwell, 2006).

1. Curiosity and Desire to find out the Effectiveness of a particular drug: Curiosity to experiment the unknown facts about drugs thus motivates youth's into drug use. The first experience in drug abuse produces a state of arousal such as happiness and pleasure which in turn motivate them to continue. Some time youth's takes drugs in order to find out their effectiveness of a particular drug and if they find out that the drug is effective they continue using such drugs.

2. Peer group Influence: Peer group pressure plays a major role in influencing many youth's into drug usage. This is because peer pressure is a fact of teenage and youth's life. In Nigeria, and other parts of the world, one may not enjoy the company of others unless he conforms to their norms.

3. Environment: Many young people live in communities which suffer from multiple deprivations, with high unemployment, low quality housing and where the surrounding infra-structure of local services is splintered and poorly resourced. In such communities drug supply and use often thrive as an alternative economy often controlled by powerful criminal groups. As well as any use that might be associated with the stress and boredom of living in such communities, young people with poor

job prospects recognise the financial advantages and the status achievable through the business of small scale supply of drugs.

4. Promotion and Availability: There is considerable pressure to use legal substances. Alcohol and pain relieving drugs are regularly advertised on television. The advertising of tobacco products is now banned, but research from Strathclyde University published by Cancer Research concluded that cigarette advertising did encourage young people to start smoking and reinforced the habit among existing smokers. Despite legislation, children and adolescents have no problems obtaining alcohol and tobacco from any number of retail outlets. Breweries refurbish pubs with young people in mind, bringing in music, games, more sophisticated decor and so on while the general acceptance of these drugs is maintained through sports sponsorship, promotions and other marketing strategies.

5. Enjoyment: Despite all the concerns about illicit drug use and the attendant lifestyle by young people, it is probably still the case that the lives of most young people are centred on school, home and employment and that most drug use is restricted to the use of tobacco and alcohol. They may adopt the demeanour, fashion and slang of a particular subculture including the occasional or experimental use of illegal drugs without necessarily adopting the lifestyle. Even so, the evidence of drug use within youth culture suggests that the experience of substances is often pleasurable rather than negative and damaging. So probably the main reason why young people take drugs is that they enjoy themselves.

6. Lack of Parental Supervision: Many parents have no time to supervise their sons and daughters. Some parents have little or no interaction with family members, while others put pressure on their children to pass exams or perform better in their studies. These problems initialize and increases drug usage.

7. Socio-economic Status of the Parents: Socio-economic status of the parents entails direct costs which are very important to families; particularly this is related to every aspects of the family's life and caring to children. The implications of family relationship on students have remained an alarming factor to the total life of the children. By implication the socio-economic status of the parents may influences adolescents to abuse or not to abuse drugs even if the parents have very low income, low income average, high, or very high income.

8. Self – medication of primary psychological disorders.

9. Pathological family background – broken homes, illegitimate relationships, alcoholic parents or parent's involvement in antisocial and illegal activities.
10. Ignorance of the dangers of illegal drug use.

## **2.8 Substance Use and Academic Performance**

Because it is unethical and illegal to provide any substance such as alcohol to minors, controlled studies of the effects of alcohol use on academic performance are nonexistent. Research with adults has shown that alcohol use disrupts learning and memory (Ziegler et al., 2005). However, such effects may be only temporary, and their severity and duration may depend on the frequency and quantity of alcohol consumed. Furthermore, the relatively few correlational studies that have examined the relationship between alcohol use and academic performance among college students have produced inconsistent results.

On the one hand, national surveys have shown that heavy episodic drinkers are far more likely than non heavy drinkers to report that drinking caused them to miss class, fall behind in their schoolwork, and perform poorly on a test or other project (Presley and Pimentel, 2006; Wechsler et al., 2000). Large-scale surveys also have found an inverse association between alcohol consumption and self-reported grade-point average (GPA; Core Institute, 2006). In one study, based on a multivariate analysis of the 1993 College Alcohol Study, heavy alcohol use was found to be associated with a lower GPA both directly and indirectly through its association with fewer study hours (Wolaver, 2002). Two studies attributed the association between alcohol misuse and academic problems to student differences at matriculation. Wood et al. (1997) found a bivariate correlation of .32 between alcohol "involvement" in the first year and subsequent academic problems among 444 students at a large Midwestern university. However, this association was non significant when controlling for academic aptitude, high school rank, and other baseline variables. Similarly, in a study of 465 first-year students at the University of California, Berkeley, Paschall and Freisthler (2003) found that high school GPA predicted both heavy drinking and self-reported college GPA and that drinking was unrelated to college GPA. In contrast, a third study of 754 students at a northeastern liberal arts college found a negative association between alcohol consumption and GPA after controlling for precollege factors such as academic aptitude, high school class rank, and parents' education (Singleton, 2007).

## 2.9 Sleep and Academic Performance

The association between sleep problems (e.g., insomnia, poor sleep quality, excessive daytime sleepiness) and academic performance has been shown in studies with elementary school students (El Sheikh, Buckhalt, Keller, Cummings, & Acebo, 2007), junior high and high school students (Chung & Cheung, 2008; Joo et al., 2005) and college students (Lack, 1986). In a group of 166 U.S. elementary school students, emotional security mediated the effect of marital conflict on the quality and duration of sleep, as indicated by actigraph data (note: actigraphs are instruments, usually in the form of a wrist watch, that measure activity level at wake time and sleep time) (El-Sheikh et al., 2007). Disruptions on the quality and duration of sleep in turn had a negative effect on academic, emotional, and behavioural performance (El-Sheikh et al., 2007). A study of 3871 11th graders in Korea showed that those with excessive daytime sleepiness were more likely than other students to report insufficient sleep and low school performance (Joo et al., 2005). Another study of 1629 Chinese adolescents aged 12-19 years found that students with poorer grades reported more daytime sleepiness, later bedtime, shorter sleep during school nights, and more delayed bedtime on weekends than students with better grades (Chung & Cheung, 2008). Insomnia was also related to lower academic performance in a group of 713 high school seniors in Greece (Lazaratou et al., 2005). In a sample of 211 freshmen in an Australian university, students with delayed sleep phase syndrome (i.e., those who fell asleep several hours after midnight and had difficulty waking up in the morning) reported daytime problems related to lack of sleep and performed academically worse than those without the syndrome (Lack, 1986). However, it is unclear what processes may mediate (explain) the relations between sleep problems and academic performance.

Altogether these studies suggest that poor sleep quality and deprivation impair learning and academic performance. The Pilcher and Walters (1997) experiment implies that sleep is the *cause* in the relationship. Also, those studies in which the measurement of sleep preceded the measurement of performance establish temporal order. Still, all but one study consisted of volunteer participants, often first-year students enrolled in introductory psychology courses. The only exception was a random sample of first-year students living on campus (Trockel et al., 2000).

In addition, the findings yielded few consistent patterns, and analytical deficiencies obfuscate the meaning of some results. For example, nearly all of the studies failed to measure and control other factors that could explain or moderate the relationship. The relationship could be moderated by academic class, the effects of which would have been suppressed in studies with predominantly first-year students. There is evidence suggesting that sleep patterns might change over the emerging adulthood and college years, becoming more consistent and less delayed (Roenneberg et al., 2004). It also is possible that the relationship is spurious—that academic aptitude or alcohol consumption accounts for both sleep habits/problems and academic performance.

### **2.9.1 Sleep Habits and Daytime Alertness**

One way that sleep habits may influence academic performance is through their effect on daytime alertness or sleepiness. Determinants of sleepiness include the quantity and quality of sleep and the misalignment of circadian rhythms (Roehrs et al., 2005). The sleep–wake cycle is a circadian rhythm that functions in accord with other circadian rhythms such as core body temperature (Carskadon and Dement, 2005). Abrupt changes in the sleep–wake schedule, such as occurs in shift work and jet lag, lead to misaligned circadian rhythms (Roehrs et al., 2005).

Some studies also suggest that irregular day-to-day sleep–wake habits can produce similar effects. For example, in an intervention study of undergraduates, Manber and associates (1996) found that regularization of sleep–wake schedules was associated with less daytime sleepiness when nocturnal sleep was not deprived. Similarly, Wolfson and Carskadon (1998) found that high school students who experienced delays of more than 2 hours (vs less than 1 hour) between weekday and weekend bedtimes reported significantly more daytime sleepiness.

### **2.9.2 The Interaction of Sleep and Memory**

Both theories may help to explain how a student’s sleep pattern could impact learning. In one study, REM sleep deprivation eliminated sleep-induced improvement on a visual perceptual learning (procedural) task; the same effect was not found with selective slow-wave sleep deprivation. REM sleep normally occurs every 90–120 minutes, approximately 4–5 times in a typical night, with each REM sleep period growing progressively longer, with the last episode near rise time. Therefore, college

students with early morning classes may not attain the last 1–2 REM sleep periods, thus adversely affecting procedural memory. However, other studies suggest that NREM rather than REM sleep enhances procedural memories, while other studies correlated improvement with slow-wave sleep followed by REM sleep. Both of these theories support that sleep deprivation may limit the amount of REM sleep and/or slow-wave sleep that students obtain, which may compromise both learning and memory, but further research is required to clarify this.

Many studies investigating the interaction of sleep, memory, and learning use scenarios of a specific memory task and then alter subjects' sleep pattern or duration to determine the impact that sleep had on the subject's performance. These scenarios often may not directly correlate with the memory and learning that college students are expected to perform or the alterations in their sleep schedule they experience. Despite these limitations, these studies illuminate the impact of sleep on students' memory, learning, and potential academic performance.

Some students may “pull an all-nighter” (24 hours or more of sleep deprivation) before examinations in the hope of improved grades. The literature suggests that all-night study sessions are the wrong plan for improved grades and learning. Subjects were taught a visual discrimination task to identify the presence of “T” or “L” and the orientation of three diagonal bars on a screen. Subjects who were sleep deprived for 30 hours showed no improvement in performance, even after 2 days of post-recovery sleep. Non-sleep-deprived subjects' performance improved for the next 4 days. In another study investigating if improvement correlated with time or time spent in sleep, subjects were taught a motor task and then tested either after a 12-hour period of wakefulness or a 12-hour period that included sleep. Subjects tested at 10 am and then retested at 10 pm without sleep showed no significant change in performance. After a night of sleep, subjects' performance improved by 18%. Subjects tested at 10 pm initially, then retested after sleep, also had a significant improvement in performance. This supports the concept that sleep, and not just time, is required for learning and memory consolidation. It may be possible that there is a window for potential learning that requires sleep, and that this opportunity for learning may not be salvaged even after sleep is recovered (Ahrberg et al., 2012).

Sleep before learning may also be necessary. To investigate this concept, subjects were tested on an episodic memory encoding task, which involved viewing a series of images with a recognition test 48 hours later. Subjects were tested after 35 hours of sleep deprivation; memory performance was approximately two letter grades (19%;  $P=0.031$ ) worse when compared to the non-sleep-deprived subjects. This difference did not seem to be due to alertness, as there was no significant difference between the two groups in terms of response rate, which has been correlated with alertness.

Looking at more global functions, total sleep deprivation showed a significant decrease of performance in cognitive tasks assessing inference, recognition of assumptions, and deduction. Although this study was not carried out on college-aged students, subjects aged 10–14 years of age restricted to 5 hours of sleep, had impaired performance on verbal creativity and abstract thinking. Less complex cognitive functions did not appear impaired; this has been shown in other studies and may indicate that motivation, individual response to sleep deprivation, or certain tasks may be less impacted by sleep.

In summary, these findings suggest that sleep, likely before and after specific memory tasks, plays an integral part in memory consolidation. Many of these studies isolate memory into specific areas such as visual, declarative, or procedural; however, college students' learning, memory, enhancement drugs and performance in classes rarely would have such a narrow memory domain. Further research with real-life circumstances of students would better help clarify these important issues.

## **2.10 Ways of Reducing Substance Use Among Students**

We are aware that government on its own has tried in Nigeria to curtail, eradicate or discourage the use, sale, trafficking and recycling of illegal drugs by promulgating various decrees against such drug use. There is the popular Anti-narcotic Decree under which the NDLEA was set up. In 1989, the Federal Military Government enacted Decree 48 now Cap N30 Law of the federation establishing the National Drug Law Enforcement Agency. The Agency is charged with the dual responsibility of reducing the supply and demand for drugs. The Federal Government of Nigeria appreciates the fact that supply reduction efforts alone cannot solve the drug problem, hence the



emphasis on Demand Reduction. The Drug Reduction Directorate is charge with the responsibility of reducing the demand for illicit drugs.

At the inception of the Agency, the Drug Demand Reduction Directorate was known and referred to as the Counselling Unit. This former name was considered inappropriate as it referred to just an aspect of the functions and constitutional responsibility of the Directorate. Consequent upon this, the Units' name was changed to Drug Demand Reduction Directorate encompassing all the activities of the Directorate. The Drug Demand Reduction Directorate is charged with the responsibility of reducing the demand for illegal drugs. To achieve these objectives, the Drug Reduction Directorate is divided into three (3) units namely.

### **1. Drug Abuse prevention Education**

This is geared towards providing factual information and learning experiences on drug problems. To this end, NDLEA in conjunction with NERDC has concluded the development of preventive drug education curriculum and infused its content into relevant school subjects at various levels of learning (Primary, Secondary and Tertiary) while the implementation is in progress. The essence of preventive education in schools is to encourage students to recognize the benefits of adopting drug free and healthy life style and to provide them with necessary skills to be able to resist pressures to take drugs. Besides, the NDLEA has launched the formation of drug free clubs in Secondary School in Nigeria so as to promote alternative activities to drug involvement by students.

#### **➤ Public Awareness Campaigns**

This approach aims at involving community groups in drug abuse and trafficking prevention. It involves the use of traditional rulers, community/opinion leaders, youth leaders, religious leaders, professional bodies, voluntary organizations, NGOs etc to campaign against drug abuse and illicit drug trafficking. Community resources are mobilized towards prevention and social integration programs.

### **2. Treatment and Rehabilitation**

It is in line with the statutory responsibility of the Agency that the Treatment and Rehabilitation unit in the Drug Demand Reduction Directorate was created. Drug Rehabilitation is predicated on the need to provide help to identified as drug dependent persons. Drug Dependency is a public health problem that impacts negatively on the



social multiple levels. There are four major Treatment/rehabilitation methods in use in Nigeria, namely:

- Non-Governmental Based Treatment/Rehabilitation
- Community Based Treatment/Rehabilitation
- Hospital based Treatment/Rehabilitation
- Religious/Faith Based Treatment / Rehabilitation

### **3. Research and non-Governmental Organization Liaison**

Researches are carried out on the trends, patterns and prevalence of drug abuse problems among different target groups. These researches include school survey, hospital survey, trafficking survey and others. Data is collected from suspected traffickers in NDLEA pre-trial cells and drug abusers on admission in treatment centers across the country. The data collated is analyzed and produced as annual research report on drug abuse and trafficking. These reports are distributed to relevant Governmental, Non-Governmental, International Organizations, Corporate bodies and Individuals involved in drug abuse and trafficking prevention in Nigeria. (National Drug Law Enforcement Agency 2009).

#### **2.11 Theoretical Framework**

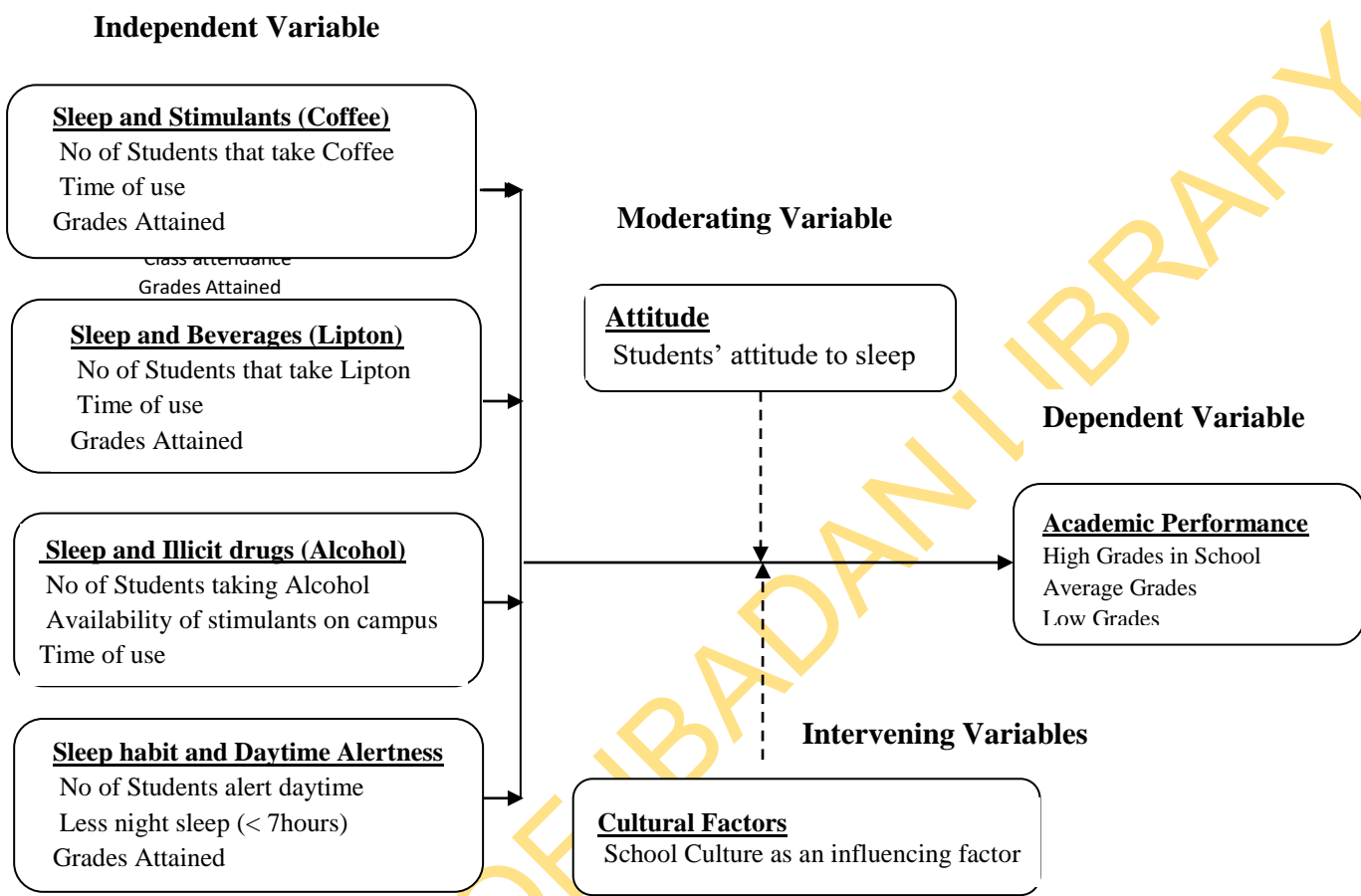
The social developmental Theory developed by Hawkins and Weis, (2002), suggests that individuals develop bonds to groups and organizations when they experience opportunities for involvement, possess necessary skills for involvement, and receive positive feedback regarding their involvement. Once an individual bonds to a context they are more likely to behave according to the group's norms and beliefs. The Social Development Model highlights the steps to developing programs that promote bonding and positive behaviour development. The following research to practice points provides specific programming guidelines. Youth will tend to form groups that engage in similar activities, those using substance to alter sleep will be able to identify with each other since they are more comfortable with the same group hence the influence will be equal in the entire group. Hawkins and Weis (2002) proposes that substance use and deviant behaviours emerge from interactions with the primary socialization sources--the family, the school, and peer clusters. The theory further postulates that the individual's personal characteristics and personality traits do not directly relate to substance use and deviance, but, in nearly all cases, influence those outcomes only

when they affect the interactions between the individual and the primary socialization sources.

Interpretation of research results from the point of view of primary socialization theory suggests the following: Characteristics such as pressure, anxiety, depression and low self-esteem are related to substance use and deviance only when they have strong effects on the primary socialization process among younger children. Traits such as mental problem, daytime sleepiness, anger, aggression, and sensation seeking are related to substance use and deviance because these traits are more likely to influence the primary socialization process at all ages. The psychopathologies that are least likely to interfere with bonding with prosocial socialization sources, the anxieties and most of the affective disorders, are less likely to have comorbidity substance use dependence.

### **2.11.1 Conceptual Framework**

In this study the conceptual framework has been constructed with independent variables to include: if campus students take substance to influence sleep they may lure their peers to substance use. However, the students who socialize their peers into an anti-sleep substance use culture greatly reduce the chances of other students getting quality sleep experiences regardless of the availability of substance as shown in figure 2.1 below;



**Figure 2.1. Effects of Sleep and Substance Use on Academic Performance**

Figure 2.1 above shows the relationship between the dependent and independent variables of the study. As shown in the figure, the academic performance, which was the dependent variable, could be affected by influencing sleep with substance use such as alcohol, caffeine, marijuana, and stimulants among others. If students use substance such as alcohol, caffeine, marijuana, and stimulants to influence quality sleep then this will directly impact negatively on their academic performance. Easy access to such substance at home or at school influence whether a student is likely to be an addict.

The culture of the people in the community and mostly peers in the school directly impacts the student's life. Substance use is common in Nigeria campuses, especially illicit brews, therefore this is tied to students taking the habit from peers and associates and bonding with other substance users in the society. However, a student's attitude towards quality sleep, impacted by education and knowledge can contribute to them deciding not to or to influence sleep by any substance use. The effects of these variables on the academic performance in campuses could also be influenced by cultural factors, such as community acceptance or lack of intervention, which was the intervening variable of the study.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter comprises of the research design, target population and the samples under consideration, the research tools and instruments, data collection methods and data analysis. A combination of all these components will lead to the results upon which conclusions will be made. Research methodology therefore provides a framework under which the study is conducted.

#### **3.2 Research Design**

The study will adopt a descriptive survey. Descriptive survey design is used in preliminary and exploratory studies to allow the researcher gather information, summarize, present and interpret it for the purpose of clarification. It also allows the researcher to describe record, analyze and report conditions that exist or existed. This design will allow the researcher to generate both numerical and descriptive data that will be used in measuring correlation between variables. Descriptive survey research will be intended to produce statistical information about the influence of substance use and its effects on sleep and students' academic performance. The field survey implies the process of gaining insight into the general picture of a situation, without utilizing the entire population (Gall, Borg and Gall, 1996: 28).

#### **3.3. Study Location**

The study site was The Polytechnic Ibadan which is sited in Ibadan, Ibadan North Local Government Area of Oyo State, Nigeria. Ibadan North is one of the eleven (11) Local Governments in Ibadan Metropolitan area consisting of five urban local governments in the city and six semi-urban local governments in the less city.

Ibadan is the capital city of Oyo State and the third largest metropolitan area, by population, in Nigeria, after Lagos and Kano, with a population of over 3 million, and the largest metropolitan geographical area. At Nigerian independence, Ibadan was the largest and most populous city in the country and the third in Africa after Cairo and Johannesburg.

Ibadan is located in south-western Nigeria, 128 km inland northeast of Lagos and 530 km southwest of Abuja, the federal capital, and is a prominent transit point between

the coastal region and the areas to the north. The principal inhabitants of the city are the Yorubas. Christianity is the dominant religion in Ibadan with the overwhelming majority of the core Ibadan City Center inhabitants being Christian. Islam is the 2nd most popular religion in the city.

Ibadan came into existence in 1829. The city ranges in elevation from 150 m in the valley area, to 275 m above sea level on the major north-south ridge which crosses the central part of the city. The city's total area is 3,080 square kilometres (1,190 sq mi).

Ibadan has a tropical wet and dry climate ( Köppen climate classification Aw ), with a lengthy wet season and relatively constant temperatures throughout the course of the year. Ibadan's wet season runs from March through October, though August sees somewhat of a lull in precipitation. This lull nearly divides the wet season into two different wet seasons. November to February forms the city's dry season , during which Ibadan experiences the typical West African harmattan. The mean total rainfall for Ibadan is 1420.06 mm, falling in approximately 109 days. There are two peaks for rainfall, June and September. The mean maximum temperature is 26.46 C, minimum 21.42 C and the relative humidity is 74.55%.

The Polytechnic, Ibadan generally regarded as Poly Ibadan is a higher institution of learning in Ibadan in Oyo State , Nigeria , founded in 1970 . The institution and other polytechnics in Nigeria were established to provide alternative higher education to university education particularly in the area of technical skills acquisitions.

The Polytechnic is few metres away from the prestigious University of Ibadan. The first university to be set up in Nigeria was the University of Ibadan. Established as a college of the University of London in 1948, and later converted into an autonomous university in 1962. It has the distinction of being one of the premier educational institutions in Africa.

The polytechnic currently awards National Diploma (ND), Higher National Diploma (HND), Post Graduate Diploma ( PGD) and other professional certificates to its deserving graduates. The institution main campus is located at 24 kilometres Ibadan North and covers 1, 2621.0 hectares of land along Sango-Apete road. Also, it has four satellite campuses at Eruwa, Saki, Iree and Esa- Oke.



Figure 3.1

**A Map showing the location of The Polytechnic Ibadan**

### 3.4 Target Population

Target population is defined as all the members of a real or hypothetical set of people, events or objects to which a researcher wishes to generalize the results of the research study (Borg & Gall, 1989). The target population for this study consisted of all undergraduate students from five faculties in The Polytechnic, Ibadan which were Faculty of Science, Faculty of Business & Communication Studies, Faculty of Engineering, Faculty of Environmental Studies, and Faculty of Financial and Management Studies. Therefore the total population for the study was 5,670 subjects including administration staff who were a total of 12. The Study will use Simple Random Sampling Technique to get the subjects of the study.

**Table 3.1: Target Population**

Description	Student Population
Faculty of Business & Communication Studies	450
Faculty of Engineering	582
Faculty of Environmental Studies	280
Faculty of Financial and Management Studies	365
Faculty of Science	464
Total	2141

### 3.5 Inclusion Criteria:

1. Students who are currently undergraduates of The Polytechnic Ibadan.
2. Both male & female adolescents aged 15-30 who are either National Diploma and Higher National Diploma and participated in the school examination.

### 3.6 Exclusion Criteria:

1. Students who are not available or willing to participate in the study.
2. First year students who has never participated in the examination of the school.

### 3.7 Sample Size

Sampling means selecting a given number of subjects from a defined population as representative of that population. Any statements made about the sample should also be true of the population Orodho, (2002). It is however agreed that the larger the sample the smaller the sampling error. Gay (1992) recommends that when the target



population is small (less than 1000 members), a minimum sample of 20% is adequate for educational research.

The survey used a sample size determined using the Sloven's formula Altare et al. (2003).

$$n = \frac{N}{1 + N(e^2)}$$

$$1 + N(e^2)$$

Where,

n = Sample Size

N= Total population (5670)

e= margin of error (5% or 0.05)

The study was conducted in all the five faculties in The Polytechnic Ibadan. From the 5,670 students, the researcher used Simple Random sampling to select 295 undergraduate students who participated in the study. This formed 23.5% of the target population, which is in line with Gay's (1992) recommendation. Table 1 presents the sampling matrix.

**Table 3.2: Sampling Matrix**

Description	Student Population	Sample Size
Faculty of Science	464	65
Faculty of Engineering	582	74
Faculty of Environmental Studies	280	40
Faculty of Business & Communication Studies	450	60
Faculty of Financial and Management Studies	365	56
Total	2141	295

### 3.8 Sampling Technique

A three stage sampling technique was used for this study. It involved the following stages.

**Stage 1:** Using stratified random sampling, the faculties of The Polytechnic Ibadan were stratified into Faculty of Sciences, Faculty of Engineering, Faculty of Environmental Studies, Faculty of Business and communication studies and Faculty of

Financial and Management studies thus giving a ratio of 14: 12: 8: 6: 4. (see Table 3.2)

Sciences = 14 departments x 44 (total number of students) = 464

Engineering = 12 departments x 44(total number of students) = 582

Environmental studies = 4 departments x 44(total number of students) = 280

Business & communication studies = 8 departments x44 (total number of students) = 450

Financial and Management Studies = 6 departments (total number of students) = 365

The ratio was further used to calculate the sample size for each stratum thus giving a sample size of 74:65:60:56:40.

**Stage 2:** using the ratio (10:8:6:4: 4) 10 departments were selected from the Faculty of Sciences, 8 departments were selected from Faculty of Engineering, 4 departments were selected from Faculty of Environmental studies, 6 department were selected from Faculty of Business and Communication studies, and 4 departments were selected from Financial and Management studies. The ratio was then used to calculate the number of questionnaire to be administered in each of the selected faculty which gave a figure of 6.5 for each of the selected 10 departments in faculty of sciences, 9.3 for each of the 8 departments selected in faculty of Engineering, 6.7 for each of 6 departments selected in Environmental studies, 15 for each of the selected 4 departments in Business and communication studies and 14 for each of the selected 4departments in faculty of Finance and management studies. See below:

Faculty of sciences = $464 \div 7.5=65$  in each of the selected faculty

Faculty of Engineering = $582 \div 8=$  in each of the four selected faculty

Faculty of Environmental Studies = $280 \div 7=40$  in each of the selected faculty

Faculty of Business & Communication Studies =  $450 \div 7.5=60$

Faculty of Financial and Management Studies =  $365 \div 7 = 56$

**Stage 3:** The questionnaire was administered to the consenting students who met the criteria for the study.

### 3.9 Research Instruments

This study used questionnaires and record reviews to collect quantitative and qualitative data required for the study. Qualitative research consisted of detailed notation of behaviour events and contexts surrounding the event and behaviour. The

researcher used one dimension covertly with the full knowledge and permission of Head of Departments to review examination result records of students. The researcher went through the questions with the respondent from all faculties to ensure a common understanding of the questions and ability to answer them correctly. They were open and closed ended.

### **3.9.1 Validity and Reliability**

To enhance validity and reliability, a pilot study was done in Ibadan City Polytechnic through administering the instruments to randomly selected respondents. It was further enhanced by making necessary adjustments to the questionnaire based on the pilot study. The reliability and validity of the research instruments for this study have been discussed below:

### **3.9.2 Validity of Instrument**

Validity refers to the degree of congruence between the explanations of the phenomena and the realities of the world (Schumacher 2006) and it seeks to establish if the instrument measures what it is purported to measure. The researcher ensures continuous refinement of the sampling and data collection techniques throughout the process. The expert opinion of a professional in research as well as the supervisor was considered. To enhance validity convergent validity was put to use. Convergent validity can be established when there is high degree of correlation between two different sources responding to the same measure.

### **3.9.3 Reliability of Instrument**

The reliability of a measure is established by testing for both consistency and stability of a research instrument. Consistency indicates how well the items measuring a concept hang together as a set. Cronbach's alpha is a reliability coefficient that indicates how well the items in a set are positively correlated to one another Cronbach's alpha 0.77; Bryant et al.(2000).

The researcher used split half coefficient technique. Since this reflects the correlations between two halves of a set of items, the coefficients obtained vary depending on how scale is split. Sometimes split-half reliability is obtained to test for consistency when more than one scale, dimension, or factor, is assessed. The items across each of the dimensions or factors are split, based on some predetermined logic. In almost every

case, Cronbach's alpha is an adequate test of internal consistency reliability. Cronbach's alpha is computed in terms of the average inter-correlations among the items measuring the concept. The closer Cronbach's alpha is to 1, the higher the internal consistency reliability.

### **3.10 Data Collection Procedure**

The researcher requests the institution administration to allow him to administer questionnaires to the students in the five faculties. Questionnaires and interview guide designed were used to collect primary data for the study. All questionnaires and interview guide were printed and administered by the researcher and research assistants to the respective respondents to obtain immediate feedback. Data collected were assembled and stored in both hard copies and soft copies for further analysis. The data collection process was estimated to take approximately four to five weeks.

The questionnaire was structured into 5 sections via:

**Section A:** This was made up of socio -demographic data

**Section B:** This was made up of questions identifying the common substance used as study aid by students.

**Section C:** This section was made up of questions assessing the perceived effects of substance use on academic performance.

**Section D:** This section was made up of questions assessing the causes of substance use among students.

**Section E:** This section was made up of questions assessing the perceived effects of sleep on academic performance of students.

### **3.11 Data Analysis**

Once the data was collected after field work the researcher edited and counter checked completion of questions in order to identify items which were not appropriately responded to. Quantitative data were coded manually, organized, and analysed using percentages and frequencies. The results were presented in tabulated form for easy interpretation. From the interviews, data were sifted through, sorted and coded. Qualitative data generated from questions were organized into themes, categories and patterns pertinent to the study. This was intended to help identify information that will be relevant to the research questions and objectives.

After data was obtained through questionnaire, interviews and review of records, editing was done. The blank responses were handled in some way, the data coded, and categorizing scheme has to be set up. The data was then keyed in, and a software program used to analyse. According to Abey (2012) data has to be edited, especially when they relate to responses to open-ended questions of interviews and questionnaires, or unstructured observations. In other words, information that may have been noted down by the, observer, or researcher in a hurry must be clearly deciphered so that it may be coded systematically in its entirety. Lack of clarity at this stage will result later in confusion.

The researcher is also aware that not all respondents answer every item in the questionnaire. Answers may have been left blank because the respondent did not understand the question, did not know the answer, was not willing to answer, or was simply indifferent to the need to respond the entire questionnaire. According to Abay (2012), if 25% of the items in the questionnaire have been left unanswered, it may be a good idea to throw out the questionnaire and not include it in the data set for analysis. In this event, the researcher will mention the number of returned but unused responses. If, however, only two or three items are left blank in a questionnaire with, say, 30 or more items, the researcher will allow the computer to ignore the blank responses when the analyses are done. The data will be directly coded from the questionnaires onto a code sheet where at least 10% of the coded questionnaires will be checked for coding accuracy. A systematic sampling procedure will be followed that is, every fifth form coded will be verified for accuracy. If many errors are found in the sample, all items will have to be checked. It is also easy to compute the new variables that have been categorized earlier, using the Compute dialog box, which opens when the Transform icon is chosen. Once the missing values, the recodes, and the computing of new variables are taken care of, the data are ready for analysis.

According to (Madhu, 2005) there are in fact, a number of software packages available that facilitate data analysis. These include statistical packages like SPSS, SAS, and Microsoft Excel etc. Similarly tools like spreadsheets and word processing software are multipurpose and very useful for data analysis. Microsoft excel, Bar Charts and Tables will be used to analyze the data. The raw data was manually keyed into the computer. All missing values will appear with a period dot in the cell. It is possible to add, change, or delete values after the data have been entered. The findings was

tabulated and presented in frequency tables. After the data has been completely analyzed, its results have to be properly interpreted. That interpretation of results is the most meaningful to the organization.

### **1.12 Limitations of the Study**

One limitation that was encountered during the course of this study was unwillingness of some respondents to participate in the study due to preparation for examination. The study lacks objective measures of sleep problems and effortful control by substance use. Examining sleep problems via actigraphy and polysomnography provides valuable information about sleep that is otherwise unavailable from self-report and even though student GPAs were obtained from the registrars' office, the other information collected from participants was self-reported and therefore might be superficial or biased. Besides, substance abuse is sensitive and many respondents may have withheld vital information.

### **3.13 Ethical Considerations**

According to (Gakuu, 2010) ethical issues are an integral part of the research planning and implementation process. Ethics in research refers to a code of conduct or expected social norm of behaviour while conducting research. Researcher in this case treated people with respect and ensures that the procedures are reasonable and fairly administered. Full informed consent was obtained and privacy and confidentiality of the research participants was guarded. The researcher explained the real purpose and the use of the research to participants. Silenced voices was included to ensure that the groups marginalized in the society were considered and a mechanism was identified which is publishing the research to enable the linking of research results to social action. The information gathered from the subjects was made confidential.

## **CHAPTER FOUR**

### **DATA ANALYSIS, PRESENTATION AND INTERPRETATION**

#### **4.1 Introduction**

This chapter presents analysis of the data on the Prevalence of Substance Use and its Effects on Sleep and Academic Performance among Students of The Polytechnic Ibadan. The chapter also provides the major findings and results of the study and discusses those findings and results against the literature reviewed and study objectives. The data is mainly presented in frequency tables, means and standard deviation.

The above sections correspond with the research objectives and questions in chapter 1 section 1.3. Both qualitative and quantitative analysis approaches have been used in data analysis, thus reflecting the mixed model research design approach followed in the analysis. Data for the study was sampled and collected from students in The Polytechnic Ibadan main campus. Table 4.1 below shows the response rate in the faculty.

**Table 4.1 Response rate of sampled respondents in the faculty**

<b>Description</b>	<b>Expected No. Of Respondents</b>	<b>No. Of Respondents Interviewed</b>	<b>Percentage Response rate (%)</b>
Faculty of Sciences	60	60	100%
Faculty of Engineering	74	74	100%
Faculty of Environmental Study	40	40	100%
Faculty of Business and Communication Study	56	56	100%
Faculty of Finance and Management Study	65	65	100%
Total	295	295	100%



## 4.2 Scio-Demographic Information of the Respondents

In this section, results of the respondents' socio-demographic characteristics are presented. Information presented in this section intends to facilitate the interpretation of key variables on the effects of substance use on sleep and academic performance among students.

The socio-demographic characteristics are presented in Table 4.1. A total of 295 students of the polytechnic participated in the study. The mean age of the student was  $30.30 \pm 25.38$  and ranges from 15.0 years to 33.0 years. The respondents were majorly from the faculty of Engineering (75; 25.40%). They were mostly ND2 (133; 45.1%) students with HND1 (83; 48.0%) been the most represented. The participants were majorly male with a frequency of 180 (61.0%) while 155 (39.0%) form the female participants. Overall, they were majorly Christians (216; 73.2%) in religion denomination and Yoruba (245; 83.1%) in ethnicity. Only 6.4% (N=19) of the students were physically challenged. See table 4.2 below for details on socio-demographic characteristics.

**Table 4.2: Respondent Socio demographic characteristics**

<b>Socio – demography</b>	<b>Variables</b>	<b>No</b>	<b>%</b>
Departments	Faculty of Sciences	64	21.7
	Faculty of Engineering	75	25.4
	Faculty of Environmental Study	40	13.6
	Faculty of Business and Communication Study	60	20.3
	Faculty of Finance and Management Study	56	19.0
Level of Study	ND 1	57	19.3
	ND 2	133	45.1
	HND 1	83	28.1
	HND 2	22	7.5
Gender	Male	180	61.0
	Female	115	39.0
Religion	Christianity	216	73.2
	Islam	76	25.8
	Traditional	1	0.3
	Others	2	0.7
Ethnicity	Yoruba	245	83.1
	Igbo	31	10.5
	Hausa	9	3.1
	Other	10	3.4
Physically challenge	Yes	19	6.4
	No	276	93.6

N = 295

Mean age = 30.30 ± 25.38 years; Minimum age = 15.0years; Maximum age = 33years

### 4.3 The Common Substance Used as Study Aid by Students

Table 4.3 shows the substances ingested by students as study aids. It was observed that majority of the students reported to ingest coffee (82.0%). This was followed by the ingestion of tea (51.9%), energy drink (51.5%) as well as tea + energy drink (45.1%). However, coffee + cigarette (23.4%) was the least reported substance ingested by the students to study. Other substance ingested by respondents are shown in the table below;

Respondents were asked a series of questions regarding other substances which they had used but not represented. Table 4.4 presents the report of other substance used by students as study aid. More than a quarter (N=17; 5.8%) reported to have used lipton, chocolate or glucose to aid study. Most of the students (N58; 19.7%) reported to use Nescafe, tramadol, codeine, kolanut or robb as study aid. It was observed that a few (N= 4; 1.4%) reported that wine, juice or herb was used as study aid. Other substance reported by the students to have been used is shown in the Table 4.4 below;

Fig 4.1 indicates the prevalence of substance use among the students. It was observed that (82.03%) of the students used substance while only (17.97%) reported not to have use substance for study.

**Table 4.3 The commonly used substance by students as a study aid**

<b>Substances</b>	<b>*No</b>	<b>%</b>
Coffee	242	82.0
Tea	153	51.9
Energy drink	152	51.5
Soft drink	117	39.7
Milk	119	40.3
Paracetamol + Caffeine	116	39.3
Alcohol	88	29.8
Coffee + Soft drink	105	35.6
Coffee + Cigarette	69	23.4
Tea and Energy drink	133	45.1
Total	*1294	441.3

\* = Multiple response applicable

N = 295

**Table 4.4 Other Reported Substance used by Students as Study Aid**

<b>Substances</b>	<b>*No</b>	<b>%</b>
Lipton, chocolate or glucose	17	5.8
Wine, juice or herbs	4	1.4
Fruits, light food, nuts or gum	27	9.2
Nescafe, tramadol, codeine, kolanut or robb	58	19.7
Tobacco, cigarette, cocaine, weed or snuff	25	8.5
Cool music	9	3.1
Nothing	155	52.5
Total	*140	100

\* Multiple responses applicable

N = 295

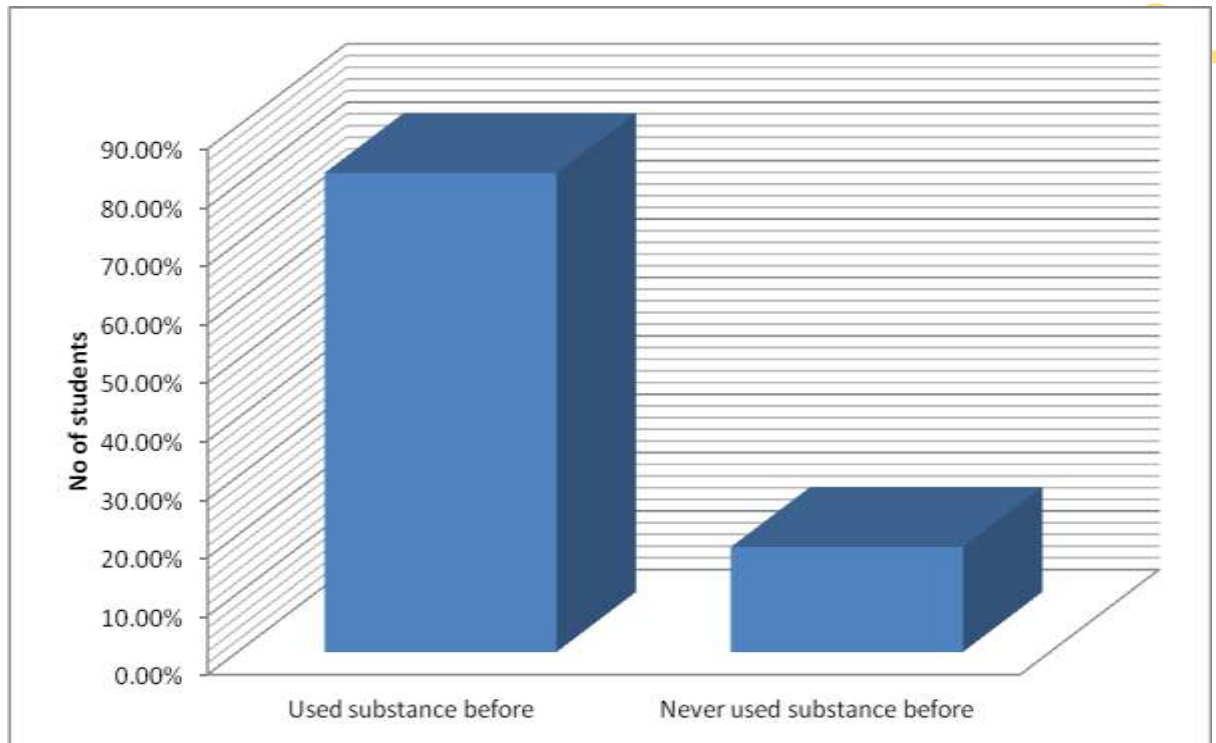


Fig 4.1. Prevalence of substance use among the students.

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Table 4.5 indicates drug prescription or over the counter sleeping pills. It was reported majorly 77.6% (N=229) respondents engaged in drug use without any prescription. It was observed that only 1.0% (3) were prescribed for folic drug. About 8.8% (N=26) had cenpain night prescription. 1.7% (N=5) had coffee prescription and 4.4% had tramadol prescription. The rate at which students use prescription drugs or over the counter sleeping pills is shown in table 4.5 below:

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**Table 4.5 Showing drug prescription or over the counter sleeping pills**

<b>Variable</b>	<b>N</b>	<b>%</b>
Folic drug	3	1.0
Cenpain night	26	8.8
Coffee	5	1.7
Tramadol	13	4.4
Paracetamol	5	1.7
Valium-5	3	1.0
Nescafe	10	3.4
No	229	77.6
Non Response	1	0.3
Total	295	100.0



#### 4.4 The Perceived Effects of Substance Use on Academic Performance of Students

Table 4.6 shows perceived effects of substance use on academic performance of students. Majority of the respondents (N=195; 66.1%) were of the view that substance use has never help them to understand what they study by increasing their attention ability in class. Only (N=14; 4.7%) had a contrary perception. Most of the respondents (N=128; 43.4%) were of the view that substance use do not cause anxiety and mental imbalance which can lead to declining grade. Only (N=14; 4.7%) were of contrary perception. A small proportion (N=14; 4.7%) were of the view that studying at has improved their grade which is never possible without the use of drugs and majority (N=180; 61.0%) reasoned otherwise. Some of the respondents (N=17; 5.8%) were of the view that substance use is the safest means to boost academic performance while majority of the respondents (N=128; 43.4%) did not share such perception. Other perceived effects are shown in Table 4.6.

Table 4.7 shows the effects/reasons why students ingest substances as study aid. It was observed that (N=16; 5.4%) of the respondents was of the view that substance use helped them to achieve long hours of study. This was followed by a respondents of about (N=9; 3.1%) who were of the view that substance use has helped them to achieve highest level of concentration. Some of the respondents also were of the view that they gained strength for a whole day with of substance use. About (N=8; 2.7%) were of the view that substance use aid high grade at the end of an examination. Other reasons for substance use on students are shown in Table 4.7 below;

**Table 4.6: Perceived effects of substance use on academic performance of students**

Statement perceived effects	Never	Rarely	Sometimes	Usually	Always
a. Drug use has enabled me to understand my courses by increasing my focus and alertness in class.	195 (66.1%)	27 (9.3%)	44 (14.1%)	15 (5.1)	14 (4.7)
b. Substances use causes fatigue, anxiety and mental imbalance which can lead to declining grades.	128 (43.4%)	57 (19.3%)	79 (26.8%)	17 (5.8%)	14 (4.7%)
c. Substance use is the safest means to boost academic performance.	128 (43.4%)	59 (20.0%)	72 (24.4%)	19 (6.4%)	17 (5.8%)
d. I feel very cold and have weak muscle whenever I use drug to study which made me have low grades.	119 (40.3%)	33 (11.2%)	76 (25.8%)	32 (10.8%)	35 (11.9%)
e. I often experience pain for a whole day or week and cannot study whenever I involved in substance use.	128 (43.4%)	62 (21.0%)	64 (21.7%)	23 (7.8%)	18 (6.1%)
f. I experience sleepiness and poor daytime alertness which make me concentrate less whenever I study using drug.	116 (39.3%)	35 (11.9%)	68 (23.1%)	35 (11.9%)	41 (13.9%)
g. Studying at night has improve my grade which is not possible without the use of any substance.	180 (61.0%)	43 (14.6%)	55 (18.6%)	7 (2.4%)	10 (3.4%)
h. Tea or coffee has enabled me to prevent low concentration span when studying.	116 (39.3%)	68 (23.1%)	77 (26.1%)	24 (8.1%)	10 (3.4%)
i. Daytime sleepiness has no relationship with the use of drugs to study during examination periods.	109 (36.9%)	39 (13.2%)	71 (24.1%)	40 (13.6%)	36 (12.2%)

**Table4.7: Other effects/reasons why students ingest drugs for study**

Effects	N	%
1. Achieve highest level of concentration	9	3.1
2. Long hours of study	16	5.4
3. Meditation	1	0.3
4. Wake up and feel good	2	0.7
5. Enable brain to rest	4	1.4
6. Gain strength for a whole day	9	3.1
7. Achieve mental balance	3	1.0
8. Keep body system fit	6	2.0
9. Recall all that is learnt	4	1.4
10. To feel high and quick assimilation	5	1.7
11. Help to think straight	2	0.7
12. Reduce fatigue and stress	3	1.0
13. Cause pain, body aches and muscle weakness	3	1.0
14. Prevent frequent headache	5	1.7
15. To stay focus, alert and be sure of oneself	5	1.7
16. Improve study during preparation for examination and understanding	5	1.7
17. Achieve high grade at the end of an examination	8	2.7

N = 295

Figure 4.2 indicates the percentage of students who believed ingestion of substance has no effect on them. It was observed that only 23.39% (N=69) were of the view that substance use had no effect on their academic performance while majority 76.61% (N=226) were of the view that substance use had effects on their academic performance. This is shown in Fig 4.2 below;

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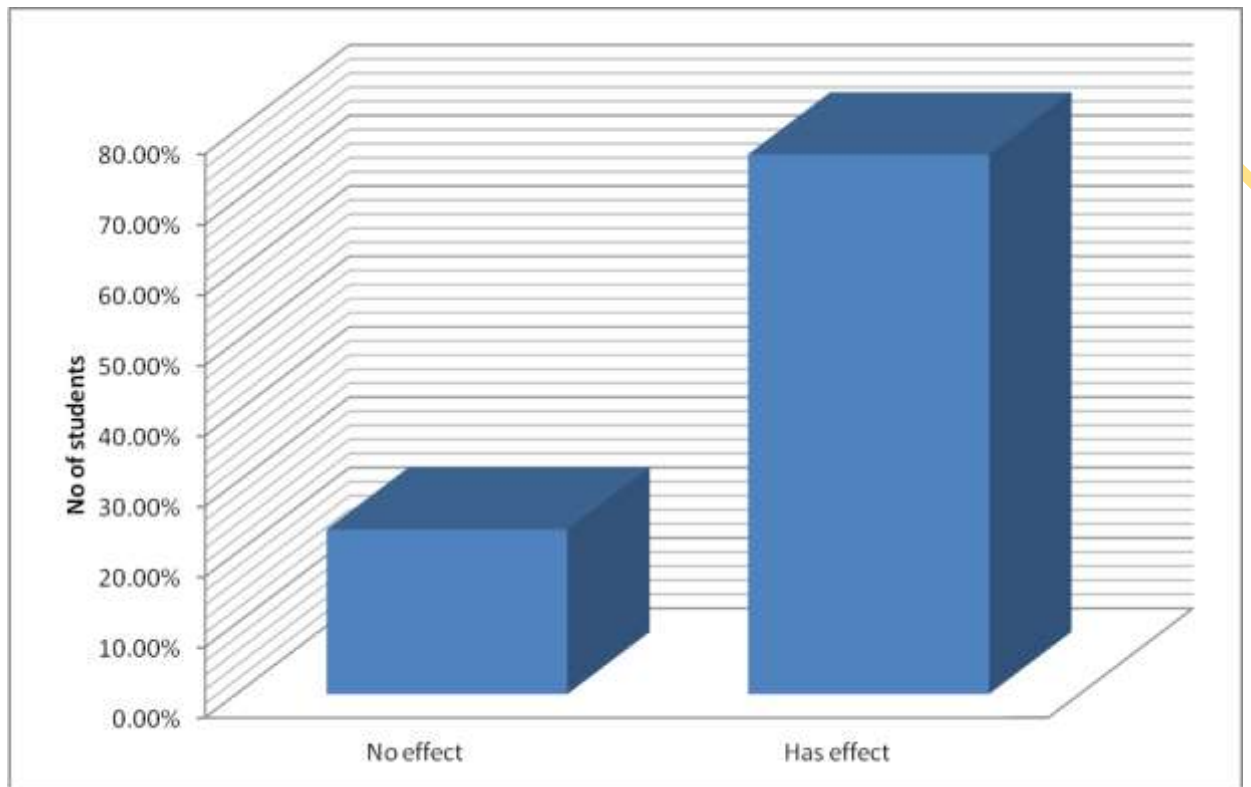


Figure 4.2. Percentage of students who believed ingestion of substance has no effect on them.

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Table 4.8 shows substances used by students which alters sleep pattern. Majority (N=33; 11.2%) reported that they use coffee which has altered their sleep pattern. Those students who reported that tramadol altered sleep pattern were (N=24; 8.1%). About (N=16; 5.4%) were of the view that Nescafe has affected their sleep pattern. Only (N=5; 1.7%) were of the view that alcohol altered their sleep pattern. Other substance used which has altered the sleep of the respondents are shown in Table 4.8 below;

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**Table 4.8: Substance used that altered sleep**

Substances/ drugs	No	%
Coffee	33	11.2
Nescafe	16	5.4
Paracetamol	7	2.4
Panadol	2	0.7
Lipton	3	1.0
Chlorempheniol	1	0.3
Tramadol	24	8.1
Cigarette	4	1.4
Cenpain night	3	1.0
Procold	2	0.7
Tatolin	5	1.7
Alcohol	5	1.7
Codeine	5	1.7

Respondents were asked a series of questions regarding the effects they experienced after ingesting any substance to influence sleep. Table 4.9 highlights the various effects experienced after ingestion of substance to influence sleep. Most (N=104; 35.3%) experienced sleepiness after ingestion of substance. This was followed by respondents (N=82; 27.8%) reported to experience tiredness after ingestion of substance to influence sleep. Some respondents (N=78; 26.4%) reported to experience loss of appetite and another (N=78; 26.4%) experienced red eyes after ingestion of substances to influence sleep. The least experienced effect was vomiting (N=27; 9.2%) as reported by the respondents. Other effects experienced after ingestion of substances by students are shown in Table 4.9 below;



**Table 4.9: Adverse effects of ingestion of substance to influence sleep**

<b>Effects</b>	<b>*No</b>	<b>%</b>
Anxiety	75	25.4
Vomiting	27	9.2
Headache	74	25.1
Nervousness	58	19.1
Red eyes	78	26.4
Sleepy	104	35.3
Tired	82	27.8
Confused	40	13.6
Lack of coordination	58	19.7
Loss of appetite	78	26.4
Total	*674	228

\* = multiple response applicable

N= 295

#### 4.5 The Causes of Substance Use on Sleep Among Students

List of questions were asked the respondents on causes of substance use among students. Table 4.10 shows the causes of substance use among students. Most of the respondents (N=107; 34.2%) strongly agreed that substance use was caused on campus due to peer influence, about (N=117; 39.7%) agreed while (N=27; 9.2%) and (N=19; 6.4%) disagreed and strongly disagreed respectively. Few (N=24; 8.1%) strongly agreed and (N=47; 15.9%) agreed that increasing academic performance depend on the amount of substance use while others were of contrary opinion. Some respondents (N=66; 22.4%) strongly agreed and many (N=119; 40.3%) agreed that the students use substance mostly to stay awake and read long hours for examination. Only (N=41; 13.9%) respondents disagreed and (N=22; 7.5%) strong disagreed. Other causes are shown in Table4.10 below;

**Table 4.10: Causes of substance use among students**

<b>Variables</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Undecided</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1. Students involve in substance use on campus due to peer pressure.	107 (34.2%)	117 (39.7%)	31 (10.5%)	27 (9.2%)	19 (6.4%)
2. Increasing academic performance depend on the amount of substance use.	24 (8.1%)	47 (15.9%)	51 (17.3%)	89 (30.2%)	84 (28.5%)
3. Students involve in various substance use to stay mostly awake and read long hours for examination.	66 (22.4%)	119 (40.3%)	47 (15.9%)	41 (13.9%)	22 (7.5%)
4. Substance use is avoided completely after examination by students on campus.	52 (17.6%)	77 (26.1%)	73 (24.7%)	66 (22.4%)	27 (9.2%)
5. Students fail examinations without frequent substance use.	33 (11.2%)	36 (12.2%)	47 (15.9%)	78 (26.4%)	101 (34.2%)
6. Substance use enables students to avoid anxiety and pressure from course work.	41 (13.9%)	63 (21.4%)	86 (29.2%)	65 (22.0%)	40 (13.6%)
7. Drinking and smoking is a way of life on campus that cannot be avoided?	47 (15.9%)	65 (22.0%)	37 (12.5%)	56 (19.0%)	90 (30.5%)
8. Drug use has no relationship with academic performance of students?	122 (41.4%)	71 (24.1%)	45 (15.3%)	31 (10.5%)	26 (8.8%)

Table 4.11 indicates the bed-time sleep of students during the week/school days and weekends. It was noticed that there is no significant difference between the bed-time of students during school days and week ends. It was observed that between the hours of 7:00 – 8:00pm, about 19.0% (N=56) went to bed during school days while 20.3% (N=60) went to bed at the same during weekends. Between the hours of 8:01 – 9:00pm, 24.7% (N=73) went to bed during schools days while 28.1% (N= 83) did during weekends. The bed-time for the respondents for schools and weekends is shown in the table 4.11 below:

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Table 4.11: Bed-time sleep of students during school days and weekends

Variable	Week days/ school days		Weekends	
	N	%	N	%
7:00pm – 8:00pm	56	19.0	60	20.3
8:01pm – 9:00pm	73	24.7	83	28.1
9:01pm – 10:00pm	51	7.3	44	14.9
10:01pm – 11:00pm	37	12.5	29	9.8
11:01pm – 12:00am	45	15.3	43	14.6
12:01am – 1:00am	10	3.4	3	1.0
1:01am - 2:00am	5	1.7	7	2.4
2:01am – 3:00am+	2	0.7	1	0.3
Anytime	3	1.0	13	4.4
Non response	13	4.4	12	4.1
Total	295	100.0	295	100.0

Table 4.12 reveals the estimated total time of night sleep among the respondents especially during examination. It was reported that more than half of the respondents (N=131; 44.4%) had less than 6hours of sleep. Majority (N=144; 48.8%) reported to had 6 – 8hours sleep time while (N=20; 6.8) reported to had above 8hours sleep during examination period.

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**Table 4.12: Estimated total time of night sleep**

<b>Sleep time</b>	<b>N</b>	<b>%</b>
<6hrs	131	44.4
6-8hrs	144	48.8
>8	20	6.8

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Table 4.13 shows actions of cognitive perspective of the respondents after ingestion of drugs to sleep. Many of the respondents (N=196; 66.4%) reported that they wake up full of energy after ingestion drug sleep. Some respondents (N=92; 31.2%) reported that they wake up somewhat rested. About (N=107; 36.3%) reported to wake up still tired or sleepy and many respondents (N=178; 60.3%) reported sleepiness during the day. However, (N=99; 33.4%) reported to fall asleep unintentionally during the day. Only (N=83; 28.1%) reported to experience anxiety about sleep.

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**Table 4.13: Cognitive perspective after drug use on sleep**

<b>Variables</b>	<b>N</b>	<b>%</b>
Wake up full of energy	196	66.4
Wake up somewhat rested	92	31.2
Wake up still tired or sleepy	107	36.3
Sleepiness during the day	178	60.3
Fall asleep unintentionally during the day	99	33.4
Experience anxiety about sleep	83	28.1

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#### **4.6: The Effects of Sleep on Academic Performance Among Students**

Table 4.14 highlights the perceived effects of sleep on academic performance of the students. Many respondents 50.9% (N=150) were of the view that sleep is very essential for the proper functioning of the brain as it helps in memory consolidation. Those respondents who were of the view that students who always have less sleep perform better after examinations were 45.1% (N=133). Some respondents 47.8% (N=141) were of the view that high GPA is directly associated with hours spent without sleep by students. 60.7%(N179) were of the view that 7 – 8 hours sleep per day enable the body to function at its best while 50.2% (N=148) were of the view that sleep is an enemy to high academic performance of students and must be controlled. Other perceived effects of sleep on academic performance of students are shown in Table 4.14 below;

**Table 4.14: The Perceived Effects of sleep on academic performance of students**

Statements Perceived Effects	N	%
1. Sleep is very essential for the proper functioning of the brain as it helps in memory consolidation.	150	50.9
2. Students who always have less sleep perform better after examinations.	133	45.1
3. High GPA is directly associated with hours spent without sleep by students.		
4. Sleeping regularly at night and daytime increases a student chances of acquiring high GPA.	141	47.8
5. Sleepiness during lectures due to all night study is the safest means to increase academic performance.	86	29.2
6. Sleeping for 7 – 8 hours per day enable the body to function at its best.	209	70.8
7. Sleep is an enemy to high academic performance of students and must be controlled.	179	60.7
8. The family doctor does not encourage that sleep is required for academic performance.	148	50.2
9. My friends do not sleep but have high academic performance.	148	50.2
10. Sleep has nothing to do with my academic performance.	192	65.1

Table 4.15 reveals the average academic performance of students previous semester. Few (N=28; 9.5%) had distinction as average performance in the result of previous semester. Many of the respondents (N=112; 38.0%) had upper credit as average performance. Most of the respondents (N=129; 43.7%) had lower credit as their average performance. Less than a quarter respondents (N=22; 7.5%) reported to had pass as the average performance. Only (N=4; 1.4) reported to had fail as average performance in the last semester examination.

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#### 4.15: Average academic performances of the students last semester

Academic performance	N	%
Distinction	36	12.2
Upper credit	96	32.5
Lower credit	113	38.3
Pass	33	11.2
Fail	17	5.8

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Table 4.16 shows the reviewed records of the result for first semester 2012/2013 academic session of some departments. The record shows that most students in the faculty of Sciences had 11% maximum and 2% minimum number of Distinctions respectively. The maximum upper credit and minimum upper credit grades of the students was 51% and 15% respectively. Maximum and minimum Lower credit grades was 55% and 41% respectively. About 23% were recorded to have the highest number of passes while 8% students were recorded to have had highest number of failure in the faculty of Sciences in the first semester results.

Similarly, the faculty of Engineering recorded only 5% maximum distinctions from the Department of Electrical Engineering while Computer Engineering recorded 0% Distinction in the faculty. The department of Mechanical Engineering recorded the highest 21% upper credit while Computer Engineering recorded the lowest 12% upper credit in the faculty. The Department of Computer Science recorded the highest 38% lower credit and Electrical Engineering had lowest 22% lower credit. The highest passes recorded was 45% and 26% failure from Computer Engineering and Electrical Engineering respectively. The details of the review of the records for other faculties are shown in Table 4.16 below;

**4.16: Reviewed Records of First Semester 2012/2013 Academic Session Of Some Departments**

Faculty	Departments	No. of respondents' grades in percentage				
		Distinction	Upper credit	Lower credit	Pass	Fail
Faculty of Sciences	Computer Science	2	31	42	23	2
	Science Laboratory Technology	6	51	41	5	3
	Biochemistry	4	15	55	18	8
	Microbiology	11	21	52	12	4
Faculty of Engineering	Electrical Engineering	5	16	22	31	26
	Mechanical Engineering	2	21	35	31	11
	Computer Engineering	0	12	38	45	5
	Civil Engineering	4	15	37	36	8
Faculty of Environmental Sciences	Architecture	8	28	46	8	10
	Building Technology	13	28	42	14	3
	Quantity Survey Management	6	19	50	16	9
	Geo-informatics	4	49	28	14	5
Faculty of Business and Communication Studies	Business Administration	17	42	32	6	2
	Mass communication	12	63	22	10	3
	Public administration	11	50	31	6	2
	Marketing	14	68	11	7	0
Faculty of Finance and Management Studies	Banking and Financing	8	54	26	8	4
	Insurance	5	62	29	4	0
	Local Government Studies	16	62	13	9	0

#### **4.7. The Association Between Substance Use and Academic Performance**

On the association between substance use and academic performance, it was observed that substance use has a negative correlation (-0.055) with academic performance. Student who used substance are more likely to have poor academic performance compare to students not using substance. However, the association between substance use and academic performance was statistically not significant ( $\chi^2 = 2.824$ ;  $df = 4$ ;  $P$  value = 0.588). Thus, the null hypothesis that there is no significant relationship between substance use and academic performance is accepted.



**Table 4.17 Chi-square test showing association between substance use and academic performance**

Substance use	Academic performance					Total
	Distinction	Upper credit	Lower credit	Pass	Fail	
Yes	30	75	94	27	16	242
No	6	21	19	6	1	53
Total	36	96	113	33	17	295

$X^2 = 2.824$ ;  $df = 4$ ;  $P \text{ value} = 0.588$   $P > 0.05$   $R = 0.055$

#### **4.8 The Association Between Sleep and Academic Performance**

On the association between duration of sleep and academic performance. It was observed that students who had 6 – 8hours sleep duration are more likely to have better academic performance compared to students with less than 6hours of sleep or greater than 8hours of sleep. Comparatively, students who get 6-8hours of sleep are 0.215 times more likely to have better academic performance compare to those getting less than 6hours of sleep. Statistically, a significant association ( $X^2 = 24.923$ ;  $df = 8$ ;  $p = 002$ ) was observed between duration of sleep and academic performance. Thus, the hypothesis that there is no significant relationship between sleep and academic performance is rejected.

**Table 4.18 Chi-square test showing the association between sleep and academic performance**

Duration of sleep	Academic performance					
	Distinction	Upper credit	Lower credit	Pass	Fail	Total
<6hrs	12	43	46	22	8	144
6 – 8hrs	24	50	56	9	5	131
>8hrs	0	3	11	2	4	20
Total	36	96	113	33	17	295

$X^2 = 24.923$ ;  $df = 8$ ; P value = 0.02 P < 0.05 Correlation = 0.215

## CHAPTER FIVE

### SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1. Introduction

The focus of this study was to propose a programme for prevention of and intervention in substance abuse and insufficient sleep among students in The Polytechnic Ibadan. The findings of this empirical study will, among other things, contribute to knowledge in this area and help both administrators and policy makers to develop more efficient educational programmes to address substance use and effects on sleep among students in schools.

#### 5.2 The Common Substance Used as Study Aid by Students

The findings from the study show that majority of the respondents had used one or more substance to aid study. The most used substance by students to aid study being coffee. The study found that students were of the view that coffee wakes them up, keep them awake during the day and then keeps them up all night to read and finish assignment and most available on campus. This is similar to the findings of a study carried out by Eichhammer, Busch et al (2008) which revealed that majority 70% of the study subjects used coffee during examination as study aid. It was also noted in the study that some respondents preferred energy drinks to aid study. Few were reported to had used alcohol as study aid. A study conducted by Eichhammer, Busch et al (2008) revealed that few respondents ingested alcohol and cigarette during examination periods. Most intuitively, alcohol and drug consumption may have some detrimental effects on students' cognitive abilities, for instance, by decreasing their ability to concentrate.

Eneh and Stanley (2004) also outlined signs that come with different drugs Marijuana use has the following signs; Glassy, red eyes; loud talking, inappropriate laughter followed by sleepiness; loss of interest, motivation; weight gain or loss while Depressants(including Xanax, Valium, GHB) had Contracted pupils; drunk-like; difficulty concentrating; clumsiness; poor judgment; slurred speech and sleepiness. Stimulants (including amphetamines, cocaine, and crystal meth): Dilated pupils; hyperactivity; euphoria; irritability; anxiety; excessive talking followed by depression

or excessive sleeping at odd times; may go long periods of time without eating or sleeping; weight loss; dry mouth and nose.

The link between school achievement and smoking behaviour is well studied (Bryant et al., 2000; Ellison et al., 2001). The better students do academically, the less likely they are to smoke (Bryant et al., 2000; Young et al., 1986). Poor grades early on in life predicts strongly increased tobacco use at a later date (Bryant et al., 2000) and difficulties in quitting smoking.

Carroll (2004) found that college students were using stimulant drugs as study aids as well as for recreational purposes. Of those surveyed 96.8% were using stimulants to study longer, 96.8% to stay awake, 83.9% to study better, and 27.6% to improve memory. Teter et al (2002) revealed that 65.2% of their survey population used prescription stimulants to help with concentration, 59.8% to help study, and 47.5% to increase alertness. Teter (2002) also found that students who started using prescription stimulants during college were more likely to use them to improve concentration (70.0%) as compared to those who started before college (55.0%).

Many of the respondents also reported to have used paracetamol and caffeine as study aid. Many other substances like Nescafe, codeine, tramadol, and Lipton were abused by students especially during examination because of the desire for high grades.

### **5.3 The Perceived Effects of Substance Use on Sleep Among Students**

The study reveals that most students experience sleepiness and poor daytime alertness whenever they study using drug. Based on reviews from other studies, it could be inferred that day time sleepiness degrades an individual's "acuity" (speed/sharpness) to make complex decisions (Roehrs, Greenwald, Roth 2004). Roehrs and Greenwald explained that sleep and drug such as alcohol and caffeine interact to increase risk taking behaviours and decrease cognitive and physical performance, especially in situations where speed of response is integral to risk taking. A study of 3871 11<sup>th</sup> graders in Korea showed that those with excessive daytime sleepiness were more likely than other students to report insufficient sleep and low school performance (Joo et al., 2005). Another study of 1629 Chinese adolescents aged 12 – 19 years found that students with poorer grades reported more daytime sleepiness, late bedtime,

shorter sleep during school nights and more delayed bedtime on weekends than students with better grades (Chung and Cheung, 2008)

#### **5.4 The Perceived Effects of Substance Use on Academic Performance of Students**

A key finding in this study is that many of the respondents were aware that substance abuse has no positive effect in increasing concentration ability in class or during study. This was similarly reported by Khattak, Iqbal and Ullah, (2012) that drug abuse leads to lack of concentration on studies, missing classes, physical weakness, lack of sleep, lack of appetite and lack of coordination which can lead to low academic performance. Additionally, it may undermine students' progress by making them less likely to attend classes or keep up with their studies. Finally, psychologists argue that heavy drinking may lower individuals' expectations about their academic performance Deasetal, (2000).

The result of this study also show that majority of the respondents were of the view that studying at night has improve their grade which is not possible without the use of any substance. Wattenmaker (2013) mentioned that with increasing academic demand, students find new ways to enhance their academic performance which include the use of drug as a form of 'academic steroids' to improve performance during classes and examination. On the one hand, some studies provide evidence that heavy drinking and drug consumption lead to a lower schooling performance. DeSimone and Wolver (2005) find that by introducing a large vector of covariates which control for heterogeneity between alcohol consumers and non-consumers, the negative causal relation between alcohol use and academic performance re-mains significant for heavy drinking. In line with these results, Williamset al (2003), report that heavy drinking has a negative impact on schooling achievements by reducing the time spent studying.

A common and comprehensive measure of students' learning is Grade Point Average (GPA). GPA is an important outcome because it is a key determinant of college admissions decisions and of job quality for those who do not attend college. Only a few studies have explored the association between alcohol use and GPA. Wolaver (2002) and Williams, Powell, and Wechsler (2003) have studied this association among college students, while DeSimone and Wolaver (2005) have investigated the effects of underage drinking on GPA during high school. The latter study found a

negative association between drinking and grades, although it is not clear whether the effects are causal or the result of unobserved heterogeneity. Medications were used predominantly for the more serious pursuit of getting good grades.

### **5.5 The Association Between Substance Use and Academic Performance**

Prescriptive piriton use two or more times in a typical two week period is linked to significantly lower semester grades (Pascarella et al., 2007). The probability of getting a high grades significantly decreases as the frequency of heavy episodic drinking or smoking increases this is because the heaviest drinkers or smokers obtain the lowest grades (Preseley,1993). Heavy dosage of any substance to alter sleep predicts a reduction in the probability of having an A average cumulative GPA (Wolaver, 2002). Of the students interviewed, 58 percent who altered sleep through substance use reported a mean grade of C or below in their past academic year. Those with higher grades of B and above consumed little or no substance per week or even a month. Therefore, there is a significant decline in mean grade when comparing abstainers to heavier drug user categories (Rau & Durand, 2000).

### **5.6 The Perceived Effects of Sleep on Academic Performance of Students**

The result of this study reveals that most students were of the view that students who always have less sleep perform better after examinations. The students opined that sleep is one of the major obstacle to effect study among students. Other studies also showed that most students sleep less mostly during examinations with the hope of increasing academic performance. Weitzman et al. (1981) identified a person who sleeps late and wakes up late on weekends with difficulty staying asleep as having delayed sleep phase syndrome (DSPS). Lack (1986) investigated the prevalence of delayed sleep and sleep loss in college students in a study involving 211 student volunteers in a psychology class at Flinders University in South Australia. After completing a 37-item questionnaire, 35 of 211 participants (17%) were defined as the DSPS group. Lack (1986) discovered that the DSPS group slept less than their estimated needs on weekdays and slept longer than their estimated needs on weekends. The DSPS group also woke up an average of 2 hours later on weekends than the non-DSPS group (at 10:54 a.m. vs. at 8:45 a.m.). As a result, the DSPS group experienced

sleepiness on weekdays more often than the non-DSPS group during the study. In addition, based on course grades, members of the DSPS group performed at a lower level academically when compared with the non-DSPS group. The relationship between sleep and academic performance was reviewed in a previous study. Curcio, Ferrara, and Gennaro (2006) reviewed approximately 103 studies related to sleep loss, learning capacity, and academic performance; samples included students of different education levels, from elementary school to university. Most (31 out of 37) studies involved elementary or high school students. The researchers concluded that sleep loss was negatively correlated with academic performance. They found that sleep-deprived students performed poorly on learning capacity skills such as attention, memory, and problem-solving tasks, and that the lack of sleep therefore affected their academic performance. Moreover, sleep loss resulted in daytime sleepiness that was also correlated with poor academic performance. Sleep studies with college students have examined cognitive performance and GPA. In an experimental study involving 44 college student volunteers (68% response rate) from five psychology courses, Pilcher and Walters (1997) concluded that sleep-deprived participants had lower scores on cognitive tasks than non-sleep-deprived participants.

However, Pilcher, Vander Wood, and O'Connell (2011) found no significant effects of sleep deprivation on cognitive performance when sleep deprived individuals worked on tasks in pairs rather than individually. Two studies showed a significant relationship between lower GPA and lack of sleep among college students (Kelly, Kelly, & Clanton, 2001; Trockel et al., 2000). Trockel et al. (2000) studied the correlation between health-related variables and academic performance among 243 randomly selected first-year college students. From this findings, the more time a student skimped on sleep in order to study, the worse he or she did on the assignment or test. Although night of extra studying may seem necessary, they can come at a cost.

### **5.7 The Association Between Sleep and Academic Performance of Students**

Sleep variables showed evidence of both insufficient and ill-timed sleep. On weekday nights, only 24% of the sample reported getting the recommended 8.4 hours of sleep for this age group (Wehr, 1991). An unexpected finding was the weak negative association between sleep duration and academic performance. This seems counterintuitive because sleep deprivation has been shown to diminish cognitive functioning. However, even relatively short nocturnal sleep in the present sample, as



measured by average sleep time during the course of the week, would not constitute deprivation. Other research has found, moreover, that quality rather than quantity of students' sleep is more strongly associated with sleepiness and with a variety of health indicators (Pilcher et al., 1997). In fact, sleep quality may account for why the lateness of a student's sleep is associated with daytime sleepiness. Students who tend to go to bed later drink more alcohol, and alcohol use has been shown to disrupt nighttime sleep (Roehrs and Roth, 2001). That students who reported more daytime sleepiness tended to get lower grades is contrary to one prior study showing no association between sleepiness and grades (Howell et al., 2004). However, several differences between these studies could account for this disparity, and the current finding is consistent with other research indicating that sleepy students were less able to solve mathematical problems (Campos-Morales et al., 2005). Overall, the results suggest the need to further clarify how sleep schedules, quantity, and quality affect excessive sleepiness and academic performance.

### **5.8 The Causes of Substance Use on Sleep Among Students**

This study shows that most students involve in substance use on campus due to peer influence. According to Tyas et al (2001), interest in social influence on adolescent drug use has conventionally included family influence and peers. Social influences can be described as the processes whereby people directly or indirectly influence the thoughts, feelings and actions of others. Social influence constitutes social norms, modelling and perceived pressure (Markham et al., 2004). Social norms are adolescents' expectations of people's reactions to specific behaviour and the support that they experience from others in carrying out a certain type of behaviour De Vries (2000). Modelling as a term denotes perceiving a prevalence of smoking among influential people and 'pressure' denotes an experience of direct pressure to smoke. Social influence can be direct social norm and perceived pressure or indirect modelling Markham (2004).

This study also reveals that substance use enable students to avoid anxiety and pressure of course work and examinations. Similarly Renna (2006) found that Individuals may begin abusing drugs due to anxiety and fears of failure. These substances may temporarily mask these fears by creating a feeling of indifference towards the high expectations of society. For healthcare students, tension and stress are especially high due to intense competition, challenging curricula, and dealing with

patient interactions. Many students were of the view that high academic performance depend on the amount of substance use and also to stay awake to read for examination

### **5.9 The Implications of the Findings for Health Promotion and Education**

Critically, the findings from this study will no doubt, have influence on programme planning, development, implementation and evaluations of health promotion and education intervention concerning substance use on sleep for academic performance. Health Education is the part of health care that is concerned with promoting healthy behaviours. Health Education is the combination of learning experiences designed to facilitate voluntary adaption of behaviour conducive to health (Green and Kreuter, 1991). It is concerned with reinforcing or changing knowledge, attitudes and behaviours of people through effective time-tested strategies, with the aim of helping them to ensure an optimum well-being. Health Education can therefore be used to bridge the gap between the health information acquired and health practices within the context of substance use and sleep management among undergraduate students.

From the reviewed literature, it is now an established fact, that academic demand is increasing especially in Nigeria. Emphasis is on certificate and therefore students go any length to ensure they meet up with academic performance. Sleep has been seen by most students as irrelevant and could possibly hinder the chances of an excellent academic performance. Students therefore engage in various substance use to delay and alter sleep. This means that there will be increase in incidence of chronic or non communicable diseases that are commonly associated with sleep problem (Insomnia) and drug abuse. The population of students in tertiary institution has increased significantly which means there will be increase social and health implication. With the limited resources in health centres for health care in Nigeria, there is need to employ health promotion and education strategies to tackle the different challenges identified by this study, with specific reference to the adoption of healthy self-management behaviour and the role of family, the institution, policy makers and community on sleep management and substance abuse.

One of the key implications of the study is for health professionals and caregivers to implements programmes that would target sleep management and substance abuse among students in tertiary institutions. Health Education on related sleep problems, substance abuse and effects on academic performance and health related challenges

needed to be promoted. Guidance and counseling unit, health professionals and other caregivers have pivotal roles to play during orientation and matriculation of first year students and they constitute the most authoritative sources of information about health matters to these students. Guidance and counseling units, health professionals and other caregivers need to be trained and motivated on how to provide friendly and supportive care services routinely for both first year students and old students. Guidance and counseling unit, health professionals and other Non-governmental organization (NGOs) that deal with students' health and welfare can design and develop educational materials such as posters, leaflets or booklets on sleep management and substance use. The materials can be shared among health workers and caregivers to give to the students.

Public enlightenment through the use of the mass media is a useful health education strategy. Educational materials and resources including the use of radio and television programmes are needed to reduce western lifestyles and values and embrace the moral training of students in our communities. It has been widely used to disseminate information successfully to raise people's awareness on health issues (Michau, 2007). The principles could be harnessed to improve issues relating to sleep management and substance abuse and health related challenges. Family members and various institutions need to be aware of the right ways to handle issues relating to academic needs of students. Health professionals and non-governmental organisation (NGOs) need to understand student's view on substance use, its effects on sleep and health related challenges faced so that they can be better prepared to address the issues appropriately.

Substance abuse can be prevented through primary, secondary and tertiary level of prevention. Primary prevention of substance abuse is preventing the initiation of psychoactive substance use or delaying the age at which use begins (WHO, 2000:12). This is aimed at ensuring that drug abuse will not occur. It aims at teaching the skills for dealing with inter and intra-personal influences such as stress and peer pressure. The objective of primary prevention is broadly to deter experimentation, encourage or provide risk minimization within a population. Primary prevention aims at emphasizing on the realistic risks associated with drug and alcohol abuse. In order to formulate a realistic primary prevention program the following should be considered. The program's must provide knowledge on effects of drug abuse, life skills like

communication, assertiveness, decision making and coping social skills. Secondary prevention is the intervention aimed at individuals in the early stages of psychoactive substance use. The aim is to prevent substance abuse from becoming a problem thereby limiting the degree of damage to the individual (World Drug Report, 2000:109). It's aimed at identifying a determination or modifying for the better drug abuse at the earliest moment possible. It aims at discontinuation of infrequent drug abuse, increasing opportunities for intervention to prevent progression of the problem and individual at risk rather than the entire society. This prevention can be done by instituting early detection programs in schools, workplace and other areas where drug abuse takes place. Tertiary prevention aims at ending dependence and minimizing problems resulting from use/abuse. This type of prevention strives to enable the individual to achieve and maintain improved levels of functioning and health. Sometimes tertiary prevention is called rehabilitation and relapse prevention (WHO, 2000:12). It's aimed at preventing drug abuse related to death; reduce the negative impact of an already established problem by restoring and reducing other related complications. It also aims at relapse withdrawal of symptoms and preventing the retaking of substances after achieving abstinence.

Generally, College students are notorious for their sleep deprivation in Nigeria. Sleep is a very important component of a person's life, and its potential effects should not be overlooked. El-Sheikh, Buckhalt, Cummings, and Keller (2007) found many disruptions and sleep problems in third graders using a biological test. This situation needs to be reversed through health promotion strategies which include social support, community involvement, resources-linking and counseling.

Sleep health education and promotion strategies are needed to address disparities in sleep health across age, race, education, and socioeconomic groups. Health education and promotion programs can increase awareness of common sleep disorders, such as insomnia, restless leg syndrome, and Sleep Disorder Breathing. Sleep health education programs should discourage substance use on alteration of sleep and emphasize the negative effects of substance abuse in school to promote better work schedule patterns and motivate school administrators and students to adopt strategies that reduce risks to health and safety. Without sleep health education, individuals often prioritize other activities over sleep and accept constant sleepiness and sleep disruption as inevitable.

Although limited, private foundations and professional societies, and to a lesser extent patient advocacy organizations, have developed a number of public education programs. A highly successful example is the National Sleep Foundation's (NSF) National Sleep Awareness Week campaign. This campaign coincides annually with the start of daylight savings time and brings together over 750 sleep centers and 100 government agencies and other nonprofit organizations to plan and implement several public awareness and education projects. Activities have included sleep health fairs, lectures, and a public policy and sleep leadership forum.

Although the Sleep Research Society (SRS) and the American Academy of Sleep Medicine (AASM) are primarily professional societies, they also have contributed to increasing the awareness among researchers, health care providers, and the general public. For example the SRS is a cosponsor of the Trainee Day at annual meeting of Associated Professional Sleep Societies, recently published the Basics of Sleep Research guide, and established the Sleep Research Society Foundation, which annually supports up to six \$20,000 grants. The AASM professional initiatives and public education efforts include among others, the CPAP (continuous positive airway pressure) Compliance Campaign, establishing accreditation programs for sleep technologists and behavioural sleep medicine training programs, and assisting in the development of new clinical practice guidelines. Other private organizations such as the American Sleep Apnea Association, Restless Legs Syndrome Foundation, and Academy of Dental Sleep Medicine have also created smaller public education tools such as patient education brochures, support groups, and online videos.

## 5.10 Conclusion

The data in this study underscore the importance of understanding the effects of sleep on academic performance. Consistent with national data (National Sleep Foundation, 2006), this study showed that insufficient sleep are very common among adolescents. Substance use of heavy drug-using students alters sleep which may directly impair academic abilities and limits their academic performance. For most students who use drugs at a lower level, however, drug use may serve as a maturational ‘snare’ that keeps some students engaged in deviant peer groups as others move on to more normative groups, thus having a long-term direct effect on educational attainment. Other studies have discussed similar processes, in which differential pathways to problematic outcomes are determined, in part, by the level of multiple risk behaviours.

If we believe that multiple mechanisms are operating, then it follows that preventive interventions aimed at improving academic engagement should broaden their focus beyond drug use in adolescence. Community and family risk factors should also be targets of intervention. Findings showed that drug use in students partially mediated the effect of their externalizing behaviours on college completion; students externalizing also had direct effects on both students reading achievement and on degree completion. This implies that a powerful target of intervention would be externalizing behaviours, especially for those who have not yet developed heavy or problematic levels of any substance and or drug use.

### 5.11 Recommendations

Based upon the literature review and the empirical investigation various recommendations for a prevention and intervention programme are proposed to help address substance use to influence sleep among students in The Polytechnic Ibadan. The following are recommendations for effective programming to prevent and reduce illicit substance use, insufficient sleep and poor academic performance among students.

1. Increasing public awareness of the significance of sufficient sleep, and of the potential danger of effortful control through substance use. Parents, educators, and counsellors are encouraged to help students deal with sleep deprivation and poor sleep. Seeking help from health care professionals may also be necessary to deal with persistent substance use to influence sleep.
2. An appropriate prevention and intervention program should target to educate youth about the potentially serious consequences substance abuse. Skills related to developing better sleep hygiene and self-control could also be taught. Issues such as following a consistent sleep schedule (i.e., going to bed and waking up at the same time every day), avoiding caffeine and overly arousing activities before sleep, and learning to relax before sleep may be discussed.
3. Pre-enrolment messages for first-year students who typically have exaggerated ideas about drug abuse and campus life during their time of orientation and matriculation.
4. Polytechnics should set up guidance and counselling offices facilitated by professionals to counsel students who indulge in substance abuse. This will help take care of the students with emotional needs that they wish to share in confidence but lack the platform to do so and in return end up turning to drug abuse.
5. Restrict availability of stimulants such as Nescafe, codeine, tramadol, valium-5, cenpain night, caffeinated drinks, alcohol and so on. These substances have great influence on sleep and must be restricted on campus
6. Health care providers should become more sensitized to the potential serious ramifications of students sleep problems and provide appropriate treatment or referral when sleep disturbances are clinically indicated. Such treatments would include sleep hygiene, cognitive-behavioural therapy, and/or medication.

7. All the three tiers of Government in Nigeria, the NGOS and concerned individuals must made concerted effort in curbing the spread of the scourge of drug abuse among students and youth through awareness campaign programs.

### **5.12 Suggestion for Future Research**

There are several opportunities for future research in this area. As an initial step, the research topic and the instrument used in this study might be applied to future studies, expanding the understanding of the relationship between sleep and academic performance. If Delayed Sleep Phase Syndrome (DSPS) has an impact on academic performance, then the importance of sleep habits, sleep latency, and sleepiness should be called to the attention of both students and faculty as part of their educational program. If sleep habits and sleep latency have an impact on sleep quality, it might affect students' academic performance as well. Future research should examine the impact of Delayed Sleep Phase Syndrome on academic performance and the use of prescription stimulants among college-age adults to enhance academic performance.



## REFERENCES

- Alexander, C., Piazza, M., Mekos, D. and Valente, T. (2001) Peers, schools and adolescent cigarette smoking, *Journal of Adolescent Health*, 29 (1), 2-30.
- Aloba OO, Adewuya AO, Ola BA, Mapayi BM. Validity of the Pittsburgh sleep quality index (PSQI) among Nigerian university students. *Sleep Medicine* 2007;8:266e70.
- Agrawal, A., Neale, M., Prescott, C., & Kendler, K. (2004). A twin study of early cannabis use and subsequent use and abuse/dependence of other illicit drugs. *Psychological Medicine*, 34, 1227-1237.
- Allen, J. P., Porter, M. R., & McFarland, F. C. (2006). Leaders and followers in adolescent close friendships: Susceptibility to peer influence as a predictor of risky behaviour, friendship, instability, and depression. *Development and Psychopathology*, 18, 155-172.
- American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders* 4 edition: Washington DC.
- Angrist, J., Pischke, J. (2011) *Mostly Harmless Econometrics: An Empiricist's Companion*, Princeton University Press
- Asumi, J. (1996). Socio-Psychiatric Problems of Cannabis in Nigeria. *Bulletin on Narcotics*, 16(2): 17
- Austin, A., Macgowan, M., & Wagner, E. (2005). Effective family-based interventions for adolescents with substance use problems: A systematic review. *Research on Social Work Practice*, 15, 67-83.
- Bachman, J., O'Malley, P., Schulenberg, J., Johnston, L., Freedman-Doan, P., & Messersmith, E. (2008). *The education-drug use connection*. New York, NY: Lawrence Erlbaum Associates.
- Backhaus J, Junghanns K, Broocks A, Riemann D, Hohagen F. Test-retest reliability and validity of the Pittsburgh sleep quality index in primary insomnia. *Journal of Psychosomatic Research* 2002;53:737e40.
- Beebe D, Rose D, Amin R. Attention, learning, and arousal of experimentally sleeprestricted adolescents in a simulated classroom. *Journal of Adolescent Health* 2010;47:523e5.
- Bettinger, E., Slonim, R. (2007) Patience among children, *Journal of Public Economics*, Elsevier, vol. 91(1-2), pages 343-363.

- Bauman, K.E. and Ennett, S.T. (1996) On the importance of peer influence for adolescent drug use: commonly neglected considerations *Addiction*, 91 (2), 185-198.
- Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence*, 11, 56-95.
- Buysse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh sleep quality index: a new instrument for psychiatric practice and research. *Psychiatry Research* 1989;28:193e213.
- Blum, R. (1972). *Horatio Algers Children: The Role of the Family in the Origin and Prevention of Drug Risk*. San Francisco, Jossey.
- Bastien, C. H., Vallieres, A., & Morin, C. M. (2001). Validation of the Insomnia Severity Index as an outcome measure for insomnia research. *Sleep Medicine*, 2, 297-307.
- Beck, A. T., Steer, R. A., & Garbin, M. (1988). Psychometric properties of the Beck Depression Inventory. *Clinical Psychology Review*, 8, 77-100.
- Bentler, P. M. (1990). Fit indexes, Lagrange multipliers, constraint changes and incomplete data in structural models. *Multivariate Behavioral Research*, 25(2), 169-172.
- Block, J., Block, J. H., & Keyes, S. (1988). Longitudinally foretelling drug usage in adolescence: Early childhood personality and environmental precursors. *Child Development*, 59, 336-355.
- Baron, R.M. and Kenny, D.A. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *J. Pers. Social Psychol.* **51**: 1173-1182, 1986.
- Buboltz, W.C., Loveland, J., Jenkins, S.M., Brown, F., Soper, B., and Hodges, J. College student sleep: Relationship to health and academic performance. In: Landaw, M.V. (Ed.) *College Students: Mental Health and Coping Strategies*, Hauppauge, NY: Nova Science, 2006, pp. 1-39.
- Campos-Morales, R.M., Valencia-Flores, M., Castano-Meneses, A., Castaneda-Figueiras, S., and Martinez-Guerrero, J. Sleepiness, performance and mood state in a group of Mexican undergraduate students. *Biol. Rhythm Res.* **36** (1-2): 9-13, 2005.

- Carskadon, M.A. and Dement, W.C. Normal human sleep: An overview. In: Kryger, M.H., ROTH, T., and Dement, W.C. (Eds.) *Principles and Practice of Sleep Medicine*, 4th Edition, Philadelphia, PA: Saunders, 2005, pp. 13-23.
- Carskadon, M.A., Seifer, R., and acebo, C. Reliability of six scales in a sleep questionnaire for adolescents. *Sleep Res.* **20**: 421A, 1991.
- Carskadon, M.A., Harvey, K., and Dement, W.C. (1981) Sleep loss in young adolescents. *Sleep* 4: 299-312.
- Carskadon, M.A., Harvey, K., Duke, P., Anders, T.F., Litt, I.F. and Dement, W.C (1980). Puberty changes in daytime sleepiness. *Sleep* 2(4) p. 453-460
- Centers for Disease Control and Prevention, Epidemiology Program Office. Perceived insufficient rest or sleep among adults: United States, 2008. *MMWR*. 2009 Oct 30;58(42):1175-9.
- Chang, P. P., Ford, D. E., Mead, L. A., Cooper-Patrick, L., & Klag, M. J. (1997). Insomnia in young men and subsequent depression. The Johns Hopkins Precursors Study. *American Journal of Epidemiology*, 146(2), 105-114.
- Chung, K.-F., & Cheung, M.-M. (2008). Sleep-wake patterns and sleep disturbance among Hong Kong Chinese adolescents. *Sleep: Journal of Sleep and Sleep Disorders Research*, 31(2), 185-194.
- Core Institute. Data from 2005 Core Alcohol and Drug Survey, December 2006, Carondale, IL: Core Institute, Southern Illinois University, 2006.
- Crowley, S.; Acebo, C and Carskadon, M.A. (2007). Circadian rhythms and circadian rhythm disorders in adolescents. *Sleep Medicine Review*.8(6): 602- 612
- Curcio G, Ferrara M, and De Gennaro L (2006). Sleep loss, learning capacity and academic performance. *Sleep Medicine Reviews* 10(5), 323-337.
- Curcio, G., Ferrara, M., and De Gennaro, L. Sleep loss, learning capacity and academic performance. *Sleep Med. Rev.* **10**: 323-337, 2006.
- Dahl, R. E. (1996). The regulation of sleep and arousal: Development and psychopathology. *Development and Psychopathology*, 8(1), 3-27.
- Dahl, R. E. (2004). Adolescent brain development: A period of vulnerabilities and opportunities. In R. E. Dahl & L. P. Spear (Eds.), *Adolescent brain development: Vulnerabilities and opportunities*. (pp. 1-22). New York, NY, US: New York Academy of Sciences.

- Dahl, R. E., & Lewin, D. S. (2002). Pathways to adolescent health sleep regulation and behaviour. [Review]. *Journal of Adolescent Health, 31*(6 Suppl), 175-184.
- Douglass, A. B., Bornstein, R. F., Nino-Murcia, G., & Keenan, S. (1994). The Sleep Disorders Questionnaire: I. Creation and multivariate structure of SDQ. *Sleep: Journal of Sleep Research & Sleep Medicine, 17*(2), 160-167.
- Durmer, J. S., & Dinges, D. W. (2005). Neurocognitive consequences of sleep deprivation. *Seminars in Neurology, 25*(1), 117-129.
- Eaton, W. W., Badawi, M., & Melton, B. (1995). Prodromes and precursors: epidemiologic data for primary prevention of disorders with slow onset. [Research Support, U S Gov't, P H S]. *Am J Psychiatry, 152*(7), 967-972.
- El-Sheikh, M., Buckhalt, J. A., Keller, P. S., Cummings, E. M., & Acebo, C. (2007). Child emotional insecurity and academic achievement: The role of sleep disruptions. *Journal of Family Psychology, 21*, 29-38.
- Ellis, L. K., & Rothbart, M. K. (2001). *Revision of the Early Adolescent Temperament Questionnaire*. Paper presented at the Biennial Meeting of the Society for Research in Child Development, Minneapolis, MN.
- Gray, E.K. and Watson, D. General and specific traits of personality and their relation to sleep and academic performance. *J. Pers. 70*: 177-206, 2002.
- Greenfield, T.K., Nayak, M.B., Bond, J., YE, Y., and Midanik, L.T. Maximum quantity consumed and alcohol-related problems: Assessing the most alcohol drunk with two measures. *Alcsm Clin. Exp. Res. 30*: 1576-1582, 2006.
- Gromov, I., & Gromov, D. (2009). Sleep and substance use and abuse in adolescents. *Child and Adolescent Psychiatric Clinics of North America, 18*, 929–946.
- Gujarati, D. (2003). *Basic econometrics* (4th ed.). Boston, MA: McGraw-Hill.
- Hamilton, M. (1969). Standardised assessment and recording of depressive symptoms. *Psychiatria, Neurologia, Neurochirurgia, 72*, 201-205.
- Henry, K. L., Knight, K. E., & Thornberry, T. P. (2012). School disengagement as a predictor of dropout, delinquency, and problem substance use during adolescence and early adulthood. *Journal of Youth and Adolescence, 41*(2), 156-166.
- Howell, A.J., Jahrig, J.C., and Powell, R.A. Sleep quality, sleep propensity and academic performance. *Percept. Motor Skills 99*: 525-535, 2004.
- Hoyle, R. H. (1995). *Structural equation modeling*. Thousand Oaks, CA: Sage. Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure

- analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55.
- H. R. Colten, B. M. Altevogt, Institute of Medicine, and Committee on Sleep M, *Research: Sleep Disorders and Sleep Deprivation: An Unmet Public Health Problem*, Institute of Medicine: National Academies Press, Washington, DC, USA, 2006.
- Institute of Medicine, Committee on Sleep Medicine and Research. Sleep disorders and sleep deprivation: An unmet public health problem. Washington: National Academies Press; 2006.
- James, J. E., & Keane, M. A. (2007). Caffeine, sleep and wakefulness: implications of new understanding about withdrawal reversal. *Human Psychopharmacology: Clinical & Experimental*, 22, 549–558.
- James, J. E., Paull, I., Cameron-Traub, E., Miners, J. O., Lelo, A., & Birkett, D. J. (1988). Biochemical validation of self-reported caffeine consumption during caffeine fading. *Journal of Behavioral Medicine*, 11, 15–30.
- Jenkins, C. D., Stanton, B. A., Niemcryk, S. J., & Rose, R. M. (1988). A scale for the estimation of sleep problems in clinical research. *Journal of Clinical Epidemiology*, 41, 313-321.
- Johnson, E. O., & Breslau, N. (2001). Sleep problems and substance use in adolescence. *Drug and Alcohol Dependence*, 64, 1-7.
- Joo, S., Shin, C., Kim, J., Yi, H., Ahn, Y., Park, M., . . . Lee, S. (2005). Prevalence and correlates of excessive daytime sleepiness in high school students in Korea. *Psychiatry and Clinical Neurosciences*, 59(433-440).
- Joreskog, K. G. (1978). Structural analysis of covariance and correlation matrices. *Psychometrika*, 43, 443-477.
- J. P. Chaput, J. P. Despr es, C. Bouchard, and A. Tremblay, "Short sleep duration is associated with reduced leptin levels and increased adiposity: results from the Qu'ebec family study," *Obesity*, vol. 15, no. 1, pp. 253–261, 2007.
- Kato M, Adachi T, Koshino Y, et al. Obstructive sleep apnea and cardiovascular disease. *Circ J*. 2009 Aug;73(8):1363-70.
- Kelly, W.E., Kelly, K.E., and Clanton, R.C. The relationship between sleep length and grade-point average among college students. *Coll. Student J*. 35: 84-86, 2001.

- Kline, R.B. Principles and Practice of Structural Equation Modeling, New York: Guilford Press, 1998.
- Knutson KL, Van Cauter E, Rathouz PJ, et al. Trends in the prevalence of short sleepers in the USA: 1975–2006. *Sleep*. 2010 Jan 1;33(1):37-45.
- Lack, L.C. Delayed sleep and sleep loss in university students. *J. Amer. Coll. Hlth* **35**: 105-110, 1986.
- L. M. Forquer, A. E. Camden, K. M. Gabriela, and C. M. Johnson, “Sleep patterns of college students at a public university,” *Journal of American College Health*, vol. 56, no. 5, pp. 563–565, 2008.
- Mackinnon, D.P., Fairchild, A.J., and Fritz, M.S. Mediation analysis. *Annual Rev. Psychol.* **58**: 593-614, 2007.
- Manber, R., Bootzin, R.R., Acebo, C., and Carskadon, M.A. The effects of regularizing sleep-wake schedules on daytime sleepiness. *Sleep* **19**: 432-441, 1996.
- Mâsse, L. C., & Tremblay, R. E. (1997). Behavior of boys in kindergarten and the onset of substance use during adolescence. *Archives of General Psychiatry*, *54*(1), 62-68.
- Masten, A. S., Cutuli, J. J., Herbers, J. E., & Reed, M.-G. J. (2009). Resilience in development. In S. J. Lopez & C. R. Snyder (Eds.), *Oxford handbook of positive psychology (2nd ed.)*. (pp. 117-131). New York, NY, US: Oxford University Press.
- Midgley, C., Maehr, M. L., Hruda, L. Z., Anderman, E., Anderman, L., Freeman, K. E., . . . Urdan, T. (2000). *Manual for the Patterns of Adaptive Learning Scales*. Ann Arbor, MI: University of Michigan.
- Miserandino, M. (1996). Children who do well in school: Individual differences in perceived competence and autonomy in above-average children. *Journal of Educational Psychology*, *88*, 203-214.
- Morrison, D., McGee, R., & Stanton, W. (1992). Sleep problems in adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry*, *31*, 94-99.
- National Institute of Health. (2006). Research on sleep and sleep disorders (R21). *PA-06-238*.

- National Sleep Foundation. (2006). Sleep in America Poll: Teens and Sleep. Retrieved 8-7-2014, from <http://www.sleepfoundation.org/press/index.php?secid=&id=290>
- National Drug Law Enforcement Agency.(2009). Drug Free Club. Retrived from <http://www.ndlea.gov.ng/v1/?q=content/drug-free-club>
- Nigg, J. T. (2000). On inhibition/disinhibition in developmental psychopathology: Views from cognitive and personality psychology and a working inhibition taxonomy. *Psychological Bulletin*, 126, 220-246.
- Oluremi, D. F. (2012). Drug Abuse among Nigerian Adolescents strategies for counselling. *Journal of International Social Research*. 5(20), 342 – 347.
- Oshodi, O. Y., Aina, O. F., and Onajole, A. T. (2010). Substance use among secondary school students in an urban setting in Nigeria: prevalence and associated factors. *African journal of psychiatry*, 13(1), 52 – 57.
- Oshikoya, K. A., Alli, A. (2006). Perception of Drug Abuse Amongst Nigerian Undergraduates. *World Journal of Medical Sciences*, 1(2), 133-139.
- Paschall, M.J. and Freisthler, B. Does heavy drinking affect academic performance in college? Findings from a prospective study of high achievers. *J. Stud. Alcohol* **64**: 515-519, 2003.
- Perkins, H.W. Surveying the damage: A review of research on consequences of alcohol misuse in college populations. *J. Stud. Alcohol*, Supplement No. 14, pp. 91-100, 2002.
- Pilcher, J.J., Ginter, D.R., and Sadowsky, B. Sleep quality versus sleep quantity: Relationships between sleep and measures of health, wellbeing and sleepiness in college students. *J. Psychosomat. Res.* **42**: 583-596, 1997.
- Pilcher, J.J. and Walters, A.S. How sleep deprivation affects psychological variables related to college students' cognitive performance. *J. Amer. Coll. Hlth* **46**: 121-126, 1997.
- Presley, C.A. and Pimentel, E.R. The introduction of the heavy and frequent drinker: A proposed classification to increase accuracy of alcohol assessment in postsecondary educational settings. *J. Stud. Alcohol* **67**: 324-331, 2006.
- Read, J.P., Beattie, M., Chamberlain, R., and Merrill, J.E. Beyond the “binge” threshold: Heavy drinking patterns and their association with alcohol involvement indices in college students. *Addict. Behav.* **33**: 225-234, 2008.



- Roehrs, T., Carskadon, M.A., Dement, W.C., and Roth, T. Daytime sleepiness and alertness. In: Kryger, M.H., Roth, T., and Dement, W.C. (Eds.) *Principles and Practice of Sleep Medicine*, 4th Edition, Philadelphia, PA: Saunders, 2005, pp. 39-50.
- Roehrs, T. and Roth, T. Sleep, sleepiness, and alcohol use. *Alcohol Res. Hlth* **25**: 101-109, 2001.
- Roenneberg, T., Kuehne, T., Pramstaller, P., Ricken, J., Havel, M., Guth, A., and Merrow, M. A marker for the end of adolescence. *Curr. Bio.* **14**: R1038-R1039, 2004.
- Sadeh, A., Gruber, R., & Raviv, A. (2003). The effects of sleep restriction and extension on school-age children: What a difference an hour makes. *Child Development*, *74*, 444-455.
- Sadeh, A., Sharkey, K. M., & Carskadon, M. A. (1994). Activity-based sleep-wake identification: An empirical test of methodological issues. *Sleep*, *17*, 201-207.
- Schlesinger, A., Redfern, M. S., Dahl, R. E., & Jennings, J. R. (1998). Postural control, attention and sleep deprivation. *NeuroReport*, *9*, 49-52.
- Schoenborn, C.A. and Adams, P.F. *Sleep Duration as a Correlate of Smoking, Alcohol Use, Leisure-Time Physical Inactivity, and Obesity Among Adults: United States, 2004-2006*, NCHS Health E-Stats, Hyattsville, MD: National Center for Health Statistics, Centers for Disease Control and Prevention, 2008.
- Science and Nutrition 2009. Drip-drip coffee consumption to stay awake. <http://www.foodnavigatorusa.com/science-nutrition/drip-drip-coffee-consumption-to-st>. Retrieved on 15th December, 2011.
- Singleton, R.A., JR. Collegiate alcohol consumption and academic performance J. *Stud. Alcohol Drugs* **68**: 548-555, 2007.
- Sobel, M.E. Asymptotic confidence intervals for indirect effects in structural equations models. *Sociol. Methodol.* **13**: 290-312, 1982.
- Segalowitz, S. J. & Davies, P. L. (2004). Charting the maturation of the frontal lobe: An electrophysiological strategy. *Brain and Cognition* *55*, 116-133.
- Shin, C., Kim, J., Lee, S., Ahn, Y., & Joo, S. (2003). Sleep habits, excessive daytime sleepiness and school performance in high school students. *Psychiatry Clinical Neuroscience*, *57*, 451-453.



- Shinkoda, H., Matsumoto, K., Park, Y. M., & Nagashima, H. (2000). Sleep-wake habits of schoolchildren according to grade. *Psychiatry and Clinical Neurosciences*, *54*, 287-289.
- Smaldone, A., Honig, J. C., & Byrne, M. W. (2007). Sleepless in America: Inadequate sleep and relationships to health and well-being of our Nation's children. *Pediatrics*, *119*(1), S29-S37.
- Smith, M. E., McEvoy, L. K., & Gevins, A. (2002). The impact of moderate sleep loss on neurophysiologic signals during working-memory task performance. *Sleep*, *25*(7), 56-66.
- Span, M. M., Ridderinkhof, K. R., & van der Molen, M. W. (2004). Age-related changes in the efficiency of cognitive processing across the life span. *Acta Psychologica* *117*, 155-183.
- Spear, L. P. (2000). The adolescent brain and age-related behavioral manifestations. *Neuroscience and Biobehavioral Reviews*, *24*, 417-463.
- Spielberger, C. D., Gorsuch, R.L., Lushene, R., Vagg, P. R., & Jacobs, G. A. Manual for the State-Trait Anxiety Inventory, Consulting Psychologists Press, Palo Alto, CA (1983).
- Spruyt, K., O'Brien, L. M., Cluydts, R., Verleye, G. B., & Ferri, R. (2005). Odds, prevalence and predictors of sleep problems in school-aged normal children. *Journal of Sleep Research*, *14*, 163-176.
- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Science*, *9*(2), 69-74.
- Taylor, A.B., Mackinnon, D.P., and Te in, J-Y. Tests of the three-path mediated effect. *Organ. Res. Meth.* **11**: 241-269, 2008.
- Trockel, M.T., Barnes, M.D., and Egget, D.L. Health-related variables and academic performance among first-year college students: Implications for sleep and other behaviors. *J. Amer. Coll. Hlth* **49**: 125-131, 2000.
- United Nations Office on Drugs and Crime. (2007). Drug Abuse and Drug Dependence Treatment Situation, in Nigeria. According to UNODC data for the year 2007.
- United Nations Office on Drugs and Crimes. (2011). World Drug Report. Austria. No.: ISBN 978-92-1-148262-1, 272. Retrieved from [http://www.unodc.org/documents/data-and-analysis/WDR2011/World\\_Drug\\_Report\\_2011\\_ebook.pdf](http://www.unodc.org/documents/data-and-analysis/WDR2011/World_Drug_Report_2011_ebook.pdf).

- UNODC (2011): Drug Prevention and Care. <http://www.unodc.org/nigeria/en/drug-prevention.html>.
- Valiente, C., Lemery-Chalfant, K., Swanson, J., & Reiser, M. (2008). Prediction of children's academic competence from their effortful control, relationships, and classroom participation. *Journal of Educational Psychology, 100*(1), 67- 77.
- Vaughn, M. G., Wexler, J., Beaver, K. M., Perron, B. E., Roberts, G., & Fu, Q. (2011). Psychiatric correlates of behavioral indicators of school disengagement in the United States. *Psychiatric Quarterly, 82*(3), 191-206.
- Vignau, J., Bailly, D., Duhamel, A., Vervaecke, P., Beuscart, R., & Collinet, C. (1997). Epidemiologic study of sleep quality and troubles in French secondary school adolescents. *Journal of Adolescent Health, 21*, 343-350.
- Vohs, K. D., & Baumeister, R. F. (2004). Understanding self-regulation. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of Self-Regulation: Research, Theory, and Applications* (pp. 1-9). New York: The Guilford Press.
- Wechsler, H., Lee, J.E., Kuo, M., and Lee, H. College binge drinking in the 1990s: A continuing problem. Results of the Harvard School of Public Health 1999 College Alcohol Study. *J. Amer. Coll. Hlth* **48**: 199-210, 2000.
- Wechsler, H. and Nelson, T.F. Binge drinking and the American college student: What's fi ve drinks? *Psychol. Addict. Behav.* **1**: 287-291, 2001.
- Wechsler, H. and Wuethrich, B. *Dying to Drink: Confronting Binge Drinking on College Campuses*, Emmaus, PA: Rodale, 2002.
- Wehr, T.A. The durations of human melatonin secretion and sleep respond to changes in daylength (photoperiod). *J. Clin. Endocrinol. Metab.* **73**: 1276-1280, 1991.
- West, L. & Graham, C. 2005.A survey of substance prevention efforts at Virginia's colleges and universities. *Journal of American College Health, 54*(3): 185.
- White, A.M., Kraus, C.L., and Swartzwelder, H.S. Many college freshmen drink at levels far beyond the binge threshold. *Alcsm Clin. Exp. Res.* **30**: 1006-1010, 2006.
- WHO, (2004): Neuroscience of psychoactive substance use and dependence, Switzerland, Tushita Graphic Vision.
- Wolaver, A.M. Effects of heavy drinking in college on study effort, grade point average, and major choice. *Contemp. Econ. Policy* **20**: 415-428, 2002.
- Wolfson, A.R. and Carskadon, M.A. Sleep schedules and daytime functioning in adolescents. *Child Devel.* **69**: 875-887, 1998.

- Wolfson, A.R. and Carskadon, M.A. Understanding adolescents' sleep patterns and school performance: A critical appraisal. *Sleep Med. Rev.* **7**: 491-506, 2003.
- Wolfson, A.R., Carskadon, M.A., Acebo, C., Seifer, R., Fallone, G., Lubyak, S.E., and Martin, J.L. Evidence for the validity of a sleep habits survey of adolescents. *Sleep* **26**: 213-216, 2003.
- Wong, M. M., Brower, K. J., & Zucker, R. A. (2009). Childhood sleep problems, early onset of substance use and behavioral problems in adolescence. *Sleep Medicine*, *10*(7), 787-796. doi: 10.1016/j.sleep.2008.06.015
- Wong, M. M., Nigg, J. T., Zucker, R. A., Puttler, L. I., Fitzgerald, H. E., Jester, J. M., . . . Adams, K. (2006). Behavioral Control and Resiliency in the Onset of Alcohol and Illicit Drug Use: A Prospective Study From Preschool to Adolescence. *Child Development*, *77*(4), 1016-1033. doi: 10.1111/j.1467-8624.2006.00916.x
- Wood, P.K., Sher, K.J., Erickson, D.J., and Debord, K.A. Predicting academic problems in college from freshman alcohol involvement. *J. Stud. Alcohol* **58**: 200-210, 1997.
- World Health Organisation Report 2009. Management of substance abuse: Alcohol Geneva 2009 [<http://www.who.org>]. Retrieved, December 15, 2011.
- Yasmin L. H., Michael, M., Michael, L. M. & Didier, J. (2013): Trajectory of adolescent cannabis use on addiction vulnerability. *Neuropharmacology*, DOI: 10.1016/j.neuropharm. 2013.07.028
- Yusuf, F.A. (2010): Factors influencing substance abuse among undergraduate students in Osun State. *African Research Review*. *4*(17); 330-340
- Zeigler, D.W., Wang, C.C., Yoast, R.A., Dickinson, B.D., McCaffree, M.A., Robinowitz, C.B., and Sterling, M.L., for the council on scientific affairs, American Medical Association. The neurocognitive effects of alcohol on adolescents and college students. *Prev. Med.* **40**: 23-32, 2005.
- Zuckerman, B., Stevenson, J., & Bailey, V. (1987). Sleep problems in early childhood: Continuities, predictive factors, and behavioural correlates. *Pediatrics*, *80*(5), 664-671.

**QUESTIONNAIRE**  
**THE PREVALENCE OF SUBSTANCE USE AND ITS EFFECTS ON SLEEP**  
**AND ACADEMIC PERFORMANCE AMONG STUDENTS OF THE**  
**POLYTECHNIC IBADAN**

**Dear Respondents,**

My name is **AGUN IFOMESHO JAMES**, a Postgraduate Student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. The purpose of this study is to investigate the Prevalence of Substance Use and its Effects on Sleep and Academic Performance among Students of The Polytechnic Ibadan. The findings from this study will help in the design of programmes and formulation of policies aimed at preventing sleep problems and illicit substance use among undergraduate students of The Polytechnic Ibadan. Your identity, responses and opinion will be kept strictly confidential and will be used for the purpose of this research only. Please note that you do not have to write your name on this questionnaire, also try and please give honest answers to the questions asked as much as your maximum co-operation will assist in making this research a success.

**Would you want to participate in the study? (1) YES { } (2) NO { }**

**Thank you very much.**

**Important Instruction(s):** Please Do Not Write or Supply Your Name

**Section A: Socio-demographic characteristic**

**Instructions:** In this sections please tick (✓) in the appropriate boxes that correspond to your answers or complete the spaces provided below:

- v) Name of Department .....
- vi) Level.....
- vii) Age .....
- viii) Gender: 1. Male { } 2. Female { }
- ix) Religion 1.Christianity { } 2. Islam { } 3.Traditional { } 4.others ...
- x) Ethnic group 1. Yoruba { } 2.Igbo { } 3.Hausa { } 4.Others (specify)...
- xi) Physical Disability 1. Yes { } 2. No { }

**SECTION B: Commonly Substance Use to Influence Sleep among Students.**

**Instructions:** Which of the following substance are commonly use by students especially in staying awake to prepare for examinations.

S/N		YES	NO
8	Coffee		
9	Tea		
10	Energy drink		
11	Soft drink		
12	Milk		
13	Paracetamol + caffeine		
14	Alcohol		
15	Coffee and soft drink		
16	Coffee and cigarette		
17	Tea and energy drink		

18. What other substance do you think is most often use as study aid among students beside the ones mention above? 1..... 2.....  
3 ..... 4..... 5 .....

**SECTION C: Short and long term effect of substance use**

19. **Instruction:** Specify the extent to which you have noticed the effects of substance use on academic performance among students in your campus from the list given below.

S/N		Never	Rarely	Sometimes	Usually	Always
a	Drug use enable me to understand my courses by increasing attention ability in the class.					
b	Substance use lead to declining grades					
c	Substance use is the safest means to increase academic performance.					
d	I feel very cold and have weak muscle whenever I use drug to study.					
e	I often experience pain for a whole day or					

	weeks whenever I involve in substance use.					
f	I experience sleepiness and poor daytime alertness whenever I study using drug.					
g	Studying at night is never possible without the use of drug.					
h	Tea or coffee prevent low concentration span when studying.					
I	Day time sleepiness has no relationship with the use of drugs to study.					

20. Apart from those listed in Q19 above, what do you think drug help you to achieve in your studies? .....

21. What are the major drugs you enjoy using that you think can affect your sleep pattern? .....

22. Which of the following do you experience after taking drug? Anxiety Yes { } No { }, Vomiting Yes { } No { }, Headache Yes { } No { }, Nervousness Yes { } No { }, Red eyes Yes { } No { }, Sleepy Yes { } No { }, Tired Yes { } No { }, Confused Yes { } No { }, Lack of co-ordination Yes { } No { }, Loss of appetite Yes { } No { }

**Substance Use and Sleep Assessment**

23. What time do you usually go to bed?

(a) Weekdays or school days .....

(b) Weekends .....

24. Do you use or have you tried any prescription or over-the-counter sleeping pills which is not . mention? Name it .....

25. How much total sleep do you think you get most nights? .....

26. I wake up:

(a) Full of energy and wide awake .....

(b) Somewhat rested .....

(c) Still tired or sleepy .....

27. Do you experience sleepiness during the day time? Yes { } No { }

28. Do you drink 3 or more cups of coffee per day on average? Yes { } No { }

29. Do you smoke 2 or more sticks of cigarette or any related substance per day?  
Yes { } No { }
30. Do you fall asleep unintentionally during the day? Yes { } No { }
31. Do you worry or experience anxiety about your sleep? Yes { } No { }

**SECTION D: Causes of Substance Use among Students**

**DIRECTIONS:** Below are statements that relate to perceived causes of substance use among students. Please indicate the degree to which you agree or disagree with the statements by ticking SA for strongly agree, A for agree, UD for Undecided, D for disagree, or SD for strongly disagree.

S/N		SA	A	UD	D	SD
32	Students involve in substance use on campus due to peer pressure.					
33	Increasing academic performance depend on the amount of substance use.					
34	Students involve in various substance use to stay mostly awake and read for examination.					
35	Substance use is avoided completely after examination by students on campus.					
36	Students fail examinations without frequent substance use.					
37	Substance use enables students to avoid anxiety and pressure from course work.					
38	Drinking and smoking is a way of life on campus that cannot be avoided?					
39	Drug use has no relationship with academic performance of students?					

**SECTION E: The Effects of Sleep on Academic Performance**

S\N		Yes	No
40	Sleep is very essential for the proper functioning of the brain as it helps in memory consolidation.		
41	Students who always have less sleep perform better after examinations.		
42	High GPA is directly associated with hours spent without sleep by students.		
43	Sleeping regularly at night and daytime increases a student chances of acquiring high GPA.		
44	Sleepiness during lectures due to all night study is the safest means to increase academic performance.		
45	Sleeping for 7 – 8 hours per day enable the body to function at its best.		
46	Sleep is an enemy to high academic performance of students and must be controlled.		
47	The family doctor does not encourage that sleep is required for academic performance.		
48	My friends do not sleep but have high academic performance.		
49	Sleep has nothing to do with my academic performance.		

50. What was your average grade from the result of your previous semester examination? Tick one only

Distinction { } Upper credit { } Lower Credit { } Pass { } Fail { }

*Thank you for your co-operation and assistance*