

**KNOWLEDGE, PERCEPTION, PREVALENCE AND CONTRIBUTING
FACTORS TO ABUSE OF OPIOIDS AMONG STUDENTS OF
POLYTECHNIC OF IBADAN, IBADAN, OYO STATE**

BY

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CERTIFICATION

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DEDICATION

This work is dedicated to God Almighty for the grace to begin and complete this project.

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ABSTRACT

Opioids crisis is a growing public health concern globally. While several studies have been carried out on drug abuse in general, little has been done to assess the increase in opioid crisis in Nigeria. This study aims to investigate the pattern of opioid abuse among students of Polytechnic of Ibadan, Oyo state.

A cross-sectional design was employed using self-administered questionnaires, which comprised of five sections, adapted from the WHO student drug-use survey tool. The sample size (361) was calculated using Leslie Kish formula and a four-stage sampling technique was used to select the respondents. A 20-point knowledge scale and 7-point perception scale, categorised into poor (0–7), fair (>7–14), and good (>14) knowledge and negative (0–3) and positive (4–7) perception, respectively, were used in the study. Data were analysed using descriptive and inferential statistics at 5% level of significance using SPSS version 20.

The mean age of the respondents was 21.1 ± 2.7 years. There were more male (57.3%) respondents and the predominant religion and ethnicity were Christianity (62.6%) and Yoruba (79.5%), respectively. Most of the respondents had fair knowledge (78.4%) while 56.5% had negative perception of opioid abuse. The lifetime use of any drug was 16.9%. The lifetime nonmedical use of codeine syrup, dihydrocodeine, and cocodamol was 14.4%, 13.5%, and 13.0%, respectively while the past-year was 13.6%, 10.0%, and 12.7%, respectively. The lifetime, past-year, and past-month use of tramadol was 11.4%, 10.0%, and 9.4%, respectively. The most common reasons for lifetime use of codeine syrup was to feel good (28.8%). Others include to gain energy (15.4%), to have fun (9.6%), to gain confidence (7.7%), and to have sex (5.4%). Enhancement of sexual performance was the most common reason for the lifetime use of tramadol (31.7%). Other reasons include curiosity (12.2%), for fun (9.8%), to feel good/high (9.8%), for sport activities (7.3%), for strength/energy (4.9%), and so on. The age of onset of opioid abuse was 15–19 years (codeine) and >20 years (tramadol). Most of the respondents involved in opioid abuse were introduced to it by friends/peers (codeine [42.5%]; tramadol [56.1%]) and 47.5% of the opioid users have used other drugs. Parental marital status ($p=0.005$) and ethnicity ($p=0.008$) had a statistically significant association with the respondent's perception of opioid abuse. Perception of opioid abuse and exposure to the promotion of opioid

abuse in songs/videos were significantly associated with nonmedical use of opioids. Other factors that contributed significantly to lifetime use of codeine syrup include curiosity, family influence, peer pressure, and socioeconomic status of respondent's parents ($p < 0.05$), while sexual satisfaction, curiosity, illegal importation, and ignorance of the dangers of opioids ($p < 0.05$) contributed significantly to tramadol abuse. Logistic regression model indicated that the coefficient of perception of opioid abuse is a significant predictor of nonmedical use of codeine and tramadol ($p < 0.05$).

Respondents had fair knowledge and negative perception of opioid abuse; hence, public enlightenment is needed as a strategy to curb the menace of opioid crisis, as well as enforcement of policies regulating promotion of opioids in songs/videos.

Keywords: Opioids, knowledge, perception, nonmedical use, polytechnic students

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GLOSSARY OF ABBREVIATIONS

WHO	–	World Health Organisation
UNODC	–	United Nations Office on Drugs and Crime
NBS	–	National Bureau of Statistics
WDR	–	World Drug Report
UNICEF	–	United Nations International Children’s Emergency Funds
BBC	–	British Broadcasting Corporation

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Drug abuse is a major public health challenge globally. The World Drug Report (WDR) revealed that in 2012, about 243 million people (corresponding to approximately 5.2% of the world population aged 15–64 years) had used drugs at least once in the previous year – and the most commonly abused drugs were cannabis, opioids, cocaine, or amphetamine (WDR, 2014). The Nigeria Drug Use Survey published in 2018 by the National Bureau of Statistics (NBS) in collaboration with the United Nations and European Union, estimated the past-year prevalence of drug use in Nigeria to be 14.4%, equivalent to about 14.3 million people aged between 15 and 64 years who have used any drug in the past year – an indicator of the current drug use pattern in the country. About 4.6 million of these people were involved in the nonmedical use of prescription opioids, especially tramadol and codeine (NBS, 2018). Opioids are derived from the opium poppy plant. When ingested, they activate the brain’s opioid receptors that influence perceptions of pain and euphoria and are involved in the regulation of breathing. Some of the more commonly known and used opioids are morphine, heroin, methadone, buprenorphine, codeine, tramadol, oxycodone and hydrocodone (UNODC/WHO, 2013).

The media has reported the upsurge of opioid drug abuse in Nigeria, especially among young people and these two drugs – codeine and tramadol – appear to be the most sought after (Adebayo, 2017; Asiedu, 2018; British Broadcasting Corporation [BBC] Africa, 2018). The recent Nigerian drug use survey report revealed that the nonmedical use of prescription opioids and cough syrup is highest among the young people (NBS, 2018). A documentary by the BBC Africa tagged ‘Sweet Sweet Codeine’ brought to the fore the alarming trend of codeine abuse by young people in Nigeria, which informed the decision of the Federal Government of Nigeria to place a ban on the importation, sales and promotion of preparations containing codeine (BBC Africa, 2018). The National Agency for Food and Drug Administration and Control in Nigeria responded to the opioid crisis by tightening the regulatory control, temporarily closed three pharmaceutical companies and closely monitored

all companies that manufacture codeine-containing syrup (Adeyeye, 2018). Despite all these efforts, unauthorized importation and distribution of these products through illicit channels persisted. Over half a billion tablets of tramadol were uncovered and seized by the National Drug Law Enforcement Agency (NDLEA) in the year 2018 alone (Odunsi, 2018).

A nationwide survey revealed that 91% of Nigerians believe there is a high level of drug/substance abuse in the country, especially among teenagers and young adults (Ngozi Okonjo Iweala Polls, 2018). Increasing female participation in drug abuse has also been documented (Egbonu, Ezechukwu, Chukwuka, and Unakwe, 2004) and the concept of poly-drug use has been discovered to be rampant among young people (Chia, Awopetu, Ugese, and Apaa, 2015). According to the recent NBS drug use survey report, 75% of drug users in Nigeria are poly-drug users (NBS, 2018). The young age, especially the adolescent stage is characterized by increased adventurous tendencies and peer influences. Young people form gangs and experiment with new things, including drugs (United Nations Population Fund, 2003; Greydanus and Patel, 2003). The impact of drug use on health and well-being cannot be overemphasised, thus the need to strengthen the prevention and treatment of substance abuse as spelt out in the 5th target of Goal 3 of Sustainable Development Goals (International Council for Science, 2015).

1.2 Statement of the Problem

Drug abuse is a global public health challenge and almost every country of the world is affected (WDR, 2014; UNODC, 2007). The NBS report revealed that 14.4% of Nigeria's population abuse drugs, corresponding to 14.3 million people aged 15-64 years who had used a psychoactive substance in the past year for nonmedical purposes, and the highest past-year prevalence of drug use were found to be in the southern geopolitical zones (NBS, 2018). The report also revealed that opioids were the second most abused drugs in Nigeria, mainly the nonmedical use of prescription opioids and cough syrup (NBS, 2018). Of recent, the trend of abuse of tramadol and cough syrups containing codeine among the young population has become alarming in the country and has contributed to increased crime rates according to reports published in the national newspapers (Adebayo, 2017; Asiedu, 2018). There is an increasing trend of multiple drug use among young people (Chia *et al.*, 2015), which calls for

concern as this increases the dangers associated with drug abuse, and can also negatively impact the academic performance and productivity of young people. Loss of consciousness and sometimes death due to the use of a combination of codeine, tramadol, Rohypnol, and alcohol popularly referred to as ‘gutter water’ among young drug abusers in Nigeria has also been reported in the national newspaper (Asiedu, 2018).

Studies have reported drug abuse practices among adolescents and youths in Nigeria over the years. School-based research carried out in Lagos revealed that 20% of the school population had taken a psychoactive drug once in their lives (Alemika, 1998). The general prevalence of substance use among the young people in a study carried out in Kagoro district Kaduna state was found to be 21% and the most vulnerable age group involved was 15–19 years of age (Bassi, Ogundeko, Ramyil, Abisoye-Ogunniyan, Ogbole *et al.*, 2017). Abuse of prescription drugs that are classified as controlled substances such as synthetic pain medicines (e.g., tramadol), sedative-hypnotics, or psychostimulants has been identified as the most recent trends in drug abuse in Nigeria (Chia, 2016). It has become expedient to assess the knowledge and perception of young people on the prescription opioid drug abuse and also establish the prevalence and the contributing factors to the practice of opioid abuse. The Polytechnic has been producing majorly middle-level manpower that has been making valuable contributions to the social and economic development of the country. The Polytechnic of Ibadan is one of the top 10 polytechnics in Nigeria and the one and only government polytechnic in the city of Ibadan. As such, results from the study will be a good representation of opioid use among young people, mostly adolescents and young adults who are students of the polytechnic.

1.3 Justification for the Study

According to the Director-General of National Agency for Food and Drug Administration and Control, tramadol and codeine have become the most commonly abused drugs in Nigeria (Adeyeye, 2018) but little has been done to document the recent widespread use of these drugs. Thus, the study will help to fill the gap in knowledge by establishing the prevalence of opioid use among young people who are most prone to drug use (WDR, 2018) and constitute more than half of the population of Nigeria (National Population Commission, 2016).

1.4 Broad Objective of the Study

The broad objective of the study was to investigate the knowledge, perception, practice, and contributing factors to abuse of opioids among the students of the Polytechnic of Ibadan.

1.5 Specific Objectives

The specific objectives are to

- i. assess the knowledge of the students of the Polytechnic of Ibadan about the abuse of codeine and tramadol,
- ii. document the perception of the students of the Polytechnic of Ibadan towards the abuse of codeine and tramadol,
- iii. determine the prevalence of codeine and tramadol abuse among the students of the Polytechnic of Ibadan and
- iv. identify the contributing factors to abuse of codeine and tramadol among the students of the Polytechnic of Ibadan.

1.6 Hypotheses

Ho1: There is no significant association between socio-demographic and perception of abuse of opioids.

Ho2: There is no significant association between the perception and practice of opioid abuse.

Ho3: There is no significant relationship between the practice of opioid abuse and factors contributing to opioid abuse.

1.7 Operational Definition of Terms

Opioids: Class of drugs that is used medically to relieve pain. Opioids in this study refer to codeine and tramadol only.

Opioid abuse: Use of opioids such as codeine and tramadol for other purposes besides from the medically approved purposes. Also referred to as nonmedical use of opioids or opioid drug abuse in this study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Drug Abuse

World Health Organization (WHO) Expert Committee on Drug Dependence in 1969 defined drug abuse as persistent or sporadic excessive drug use inconsistent with or unrelated to acceptable medical practice. Ajayi and Ekundayo (2010) described drug abuse as over-dependence and misuse of one particular drug with or without a prior medical diagnosis from qualified health practitioners. WHO substance abuse department further defined drug abuse as self-medication or self-administration of drugs in chronically excessive quantities resulting in psychic and dependency, function impairment and the deviation from approved, moral and social norms (WHO, 1999). In all the definitions of drug abuse by different authors, two descriptions have been consistent – nonmedical and excessive use of drugs.

2.2 Prevalence of Drug Abuse

A 2016 report by UNODC and WHO revealed that 246 million people between the ages of 15 and 65 years have used an illicit/psychoactive substance in the year 2013. Data showed that the peak levels of drug use are seen among those aged 18–25 years and this is the situation observed in countries and most regions and for most drug types (WDR, 2018). According to the National Institute on Drug Abuse, almost 50% of young people would have taken an illegal drug, and more than 20% would have used a prescription drug for nonmedical purposes by their senior years in high school (National Institute on Drug Abuse, 2014).

In Nigeria, one in seven persons aged 15–64 years had used a drug (other than tobacco and alcohol) in the past year. The past-year prevalence of any drug use was estimated as 14.4 % (range 14.0%–14.8%), corresponding to 14.3 million people aged 15–64 years who had used a psychoactive substance in the past year for nonmedical purposes (NBS, 2018). Many of the youths brought as patients to the psychiatric unit of the Federal Medical Centre, Makurdi, were found to have abused a number of drugs, including tramadol, and codeine (Chia *et al.*, 2015). Geographically, the highest past-year prevalence of drug use was found in the southern geopolitical zones (past-year prevalence ranging between 13.8% and 22.4%)

(UNODC, 2018). School-Based research carried out in Lagos revealed 20% of the school population had taken a psychoactive drug once in their lives (Alemika, 1998). Age of initiation of drug use has been reported to be mostly at a young age (Chia, et. al. 2015). A study on drug abuse among senior secondary school students in Kagoro district Kaduna state identified the most vulnerable age group involved in substance use to be 15–19 years of age (Bassi *et al.*, 2017). A study done among undergraduate students in Benin City revealed that 46.6% of the sample respondents have taken drugs for nonmedical purposes at least once. The majority of the respondents were young people and a higher proportion of respondents were male students (Adeyemo, Ohaeri, Okpala, and Oghale, 2016).

2.3 Opioid Drug Abuse

Prescribed opioid analgesics are dispensed legally to patients for treatment of symptoms such as pain, cough, and diarrhoea, and are also widely available and accessible to the public in over the counter preparations. Increased purchases of over-the-counter analgesics without medical consultation have resulted in increased use of potentially habit-forming substances (Peterson, 2005). Opioid drug abuse also referred to as opioid drug misuse or nonmedical use, generally indicates the use of an opioid analgesic in a manner that is inconsistent with what it is prescribed or used for and/or using a prescription opioid for which an individual does not have a legal prescription. Abuse of opioids is a global burden and global misuse of pharmaceutical opioid analgesics has no doubt become a serious public health concern (WDR, 2014).

2.4 Global Prevalence and Patterns of Opioid Drug Abuse

Opioid drug abuse also referred to as nonmedical use of opioids or prescription opioid misuse is a global problem affecting many nations of the world. According to the UNODC, there are about 35 million users of opioids globally (WDR, 2017). In the United States, nonmedical use of prescription opioids, including tramadol, has increased over the last years (Zacny, 2005) – the number of admitted opioid abusers increased from 628,000 to 2.4 million between 1990 and 2001, and in a 2002 survey, 4.7% of the United States residents older than 12 years of age acknowledged having abused an opioid (Compton and Volkow, 2006). In a study among college students in the Capital District of New York, the lifetime nonmedical use of prescription drugs was found to be 36.8% while the past-month and past-year use of

prescription drugs, including opioids was found to be 11.8% and 28.9%, respectively. Among the students who reported lifetime nonmedical prescription drug use, 48.0% reported using prescription pain relievers and the third most commonly used drugs among the respondents was codeine (Brandta, Tavernab, and Hallock, 2014). According to the 2010 United States National Survey on Drug Use and Health, the lifetime, past-year and past-month misuse of prescription opioid drugs among young adults 18–25 years of age was 23.8%, 11.1%, and 4.5%, respectively (Substance Abuse and Mental Health Services Administration, 2011). Also, a study carried out in the UK reported that 5.0% of the respondents were involved in the past-year use of tramadol (Winstock, Borschmann, and Jell, 2014). The menace of opioid crisis has also been on the increase in Asia. Nazarzadeh, Bidel, and Carson (2104) found that the prevalence of lifetime tramadol misuse among Iranian adolescents was 4.8% (7.6% for males and 1.8% for females). However, a study carried out in China reported a low prevalence of codeine syrups (2.1%) among high school students (Wang, Deng, Zhou, Lu, Huang, Huang, *et al.*, 2014).

Opioid abuse has also become a significant problem in the African region in recent times, nonmedical use of tramadol has been reported across African countries (Asiedu, 2018). In Egypt, Bassiony, Salah El-Deen, Yousef, Raya, Abdel-Ghani *et al.* (2015) reported an 8.8% prevalence of tramadol use among in-school adolescents. In a study that investigated the misuse of codeine or codeine dependence in South Africa, 63.1% of the respondents reported daily use of products containing codeine, 14.3% reported using codeine 2–6 days per week and 11.4% once per week or less often (Dada, Burnhams, van Hout, and Parry, 2015). Opioid users in Ghana have nicknamed tramadol ‘Tramore’ while in Gabon, it is popularly known as ‘Kobolo’. It is often dropped in a cup of tea by roadside tea sellers upon request and it is reported used not only for pain relief but also for sexual activity (Asiedu, 2018).

Multiple drug use has also been documented among nonmedical users of opioids. In Brandta *et al.* (2014) study, 31.3% of the respondents reported mixing prescription pain relievers with other drugs: marijuana (80%), alcohol (76.7%), and cocaine (16.7%). Chikezie and Ebuenyi’s (2019) also found that 60% of their study participants used tramadol in addition to other substances such as alcohol and codeine.

2.5 Opioid Drug Abuse in Nigeria

Abuse of prescription drugs that are classified as controlled substances such as synthetic pain medicines (e.g., tramadol), sedative-hypnotics, or psychostimulants has been identified as the most recent trends in drug abuse in Nigeria (Chia, 2016). About 4.6 million drug users in Nigeria were involved in the nonmedical use of prescription opioids in the past year, especially tramadol and codeine (NBS, 2018). The upsurge of opioid drug abuse especially among young people has been extensively reported in the print and mass media (Adebayo, 2017; BBC Africa, 2018). The recent Nigerian drug use survey report also revealed the nonmedical use of prescription opioids and cough syrup is highest among the youth (NBS, 2018). A retrospective cross-sectional study among drug users attending the addiction clinic of Federal Neuropsychiatric Hospital, Maiduguri, North-eastern Nigeria reported the prevalence of tramadol abuse as 54.4% with over 93% of the tramadol abusers being males (Ibrahim, Yerima, Pindar, Onyencho, Ahmed *et al.*, 2017). Another cross-sectional study among street children in Borno state, Northern Nigeria, reported a 7.0% prevalence of tramadol misuse (Abdulmalik, Omigbodun, Beida, and Adedokun, 2009). In southeast Nigeria, 53.4% of the respondents in a survey of the use of psychoactive substances amongst university students in Owerri admitted that they use tramadol (Duru, Oluoha, Okafor, Diwe, and Iwu, 2017).

Porous border and chaotic drug distribution network in the country has been a major driver of opioid drug abuse. Report from NAFDAC's Ports Inspection Directorate revealed that between January and June 2018, containers were intercepted at the Apapa Port all containing unregulated 200/225 mg Tramadol capsules. In another development in May 2018, the Nigeria Customs Service at the Murtala Mohammed Airport, Lagos, also intercepted 180 cartons of Tramadol 225 mg (Adeyeye, 2018). Chikezie and Ebuenyi (2019) reported that in all the cases presented in their clinical review of tramadol abuse, the patient used between 800 and 1400 mg of tramadol, which is far higher than the clinically approved dose of 100 mg (Zacny, 2005).

Table 1: Drug use in Nigeria – 2018 Key findings

- 1 in 7 persons aged 15-64 years had used a drug (other than tobacco and alcohol) in the past year.
- An estimated 4.7% of the population – that is, 4.6 million people had used opioids (such as tramadol, codeine, or morphine) for nonmedical purposes in the past year.
- The nonmedical use of cough syrups containing codeine and dextromethorphan is estimated at 2.4% of the adult population (nearly 2.4 million people). The misuse of cough syrups is almost comparable among men (2.3%) and women (2.5%)
- Among every 4 drug users in Nigeria 1 is a woman
- Overall, an estimated 376,000 were estimated to be high-risk drug users. The majority of high-risk drug users were regular users of opioids
- 1 in 5 high risk drug users inject drugs. The most common drugs injected in the past year were pharmaceutical opioids (such as tramadol, codeine, or morphine)
- Poly-drug use was very common - among high-risk drug users, nearly all (95%) as compared to nearly half of the drug users in the general population reported using either simultaneously or concurrently more than one drug in the past year
- The highest past-year prevalence of drug use was found in the southern geopolitical zones (past-year prevalence ranging between 13.8% and 22.4%) compared to the northern geopolitical zones (past-year prevalence ranging between 10.0% and 13.6 %)
- Oyo state has the third-highest prevalence of drug use in the country (930,000), behind only Lagos and Kano
- 1 in 5 persons who had used drugs in the past year is suffering from drug use disorders.
- Nearly 1 in 8 persons (12.0% of the adult population) in Nigeria has suffered some kind of consequence due to another person's drug use

Source: National Bureau of Statistics (2018)

2.6 Commonly Abused Opioids

1. Codeine

Codeine is the most commonly consumed opiate worldwide, widely used for its analgesic, antitussive and anti-diarrhoeal properties (Derry, Karlin, and Moore, 2013). The name codeine is derived from the Greek word *kodeia*, which stands for ‘poppy head’, and it is found naturally in the poppy plant *Papaver somniferum var. album*. The main pharmaceutical form is the tablet (60%) but codeine is also available as a capsule, effervescent tablet, syrup, suppository and solution (European Medicine Agency, 2013).

Previously in Nigeria, codeine can be obtained as an over-the-counter painkiller and cough medicines. Currently, in many countries, including Nigeria, consumers are now required to have prescriptions for all opioid-based medications because of the upsurge in abuse (Adeyeye, 2018). Abuse of codeine products carries a great risk of addiction and also contributes to severe health outcomes including liver damage, stomach ulceration, respiratory depression, coma, and death (McAvoy *et al.*, 2011; Zamparutti *et al.*, 2010). In Nigeria, despite the fact that all codeine-containing products are locally manufactured and are prescription-only-medicines since 2012, some products are smuggled into the country as unregistered products; as such reclassification as prescription-only-medicines did not stem the trend of abuse (Adeyeye, 2018).

2. Tramadol

Tramadol is a centrally-acting analgesic with weak μ -opioid agonist properties as well as inhibitory effects on the reuptake of noradrenaline and serotonin (Minami, Uezono, and Ueta, 2007). Tramadol is used to treat moderate to severe pain. Nigeria is one of the countries in the world with the highest use of tramadol relative to our population according to NAFDAC (Adeyeye, 2018). In a study carried out among students in Kaduna, tramadol was identified as the second most abused drug (Bassi *et al.*, 2017). Tramadol abuse is popular especially among young adults who reportedly use it mostly to prevent premature ejaculation and increase sexual pleasure (Salem, Wilson, Bissada, Delk, Hellstrom, and Cleves, 2008). The Nigerian drug control agency has also reported an increase in smuggling of tramadol capsules in the country, including very high dosage forms of 200 and 225 mg, which are

beyond the regulated and medically approved 50 and 100 mg dosage strengths (Adeyeye, 2018). Fawz (2011) found that the prevalence of tramadol can be attributed to the wide availability, cheap price, illegal smuggling, and the indirect promotion of the drugs through the mass media. Side effects of tramadol abuse include dizziness, confusion, drowsiness, seizures, and respiratory depression (Clarot, Goulle', Vaz, 2003). Being an opioid, excessive use of tramadol can lead to addiction or dependence. Tramadol use disorder is associated with physical withdrawal symptoms and compulsive behaviour. Overdose of tramadol can lead to arrhythmias, cramps, coma, and death (National Institute of Drug Abuse, 2018).

2.7 Age of Onset of Opioid Drug Abuse

The age of onset of opioid abuse has been found to be a young age, mostly during the adolescence stage. The 2017 UNODC report indicates that Tramadol use was common among younger people and peaks in childhood before 15 years. Bassiony *et al.* (2015) found that the mean age of onset of tramadol use was 16.5 ± 1.098 years. Kenne, Hamilton, Birmingham, Oglesby, Fischbein *et al.* (2017) reported that the age of the first misuse of a prescription opioid drug ranged from as young as 18.0 years ($SD=3.65$). Gopiram and Kishore (2014) reported 15–18 years as the age of onset of use of psychoactive drugs among adolescents and young adults in India while in Brazil, Jordan-Jinez, Souza, and Pillon (2009) reported the age of onset of drug use as 13.03 years.

2.8 Motives for Opioid Abuse

The motives of young people for the nonmedical use of prescription drugs have been documented by several studies. College students have reported using pain relievers, stimulants, and tranquilizers for various nonmedical purposes, including codeine (Wu, Pilowsky, and Patkar, 2008). Teter, McCabe, Cranford, Boyd, and Guthrie (2005) carried out a web-based survey of university students and found that the most commonly reported motives for using prescription stimulants among the students were to help with concentration, to increase alertness, and provide a high feeling. Another study carried out among college students reported improved concentration, improved alertness, getting high, and experimentation as the motives for prescription drug abuse among the students (Garnier *et al.*, 2010). McCabe, Boyd, Cranford, and Teter (2007) further identified reasons such as to

relieve physical pain, to get high, and to experiment as the three most common motives for nonmedical use of prescription opioids. Ibrahim *et al.* (2017) also found that the commonest primary reasons for continuous usage of tramadol among drug abusers in northern Nigeria were to relieve tiredness and to prolong the time of sexual intercourse.

The reasons for using tramadol stated by participants in Chikezie and Ebuenyi's (2019) study include to relieve pain, to relax and relieve anxiety, to boost confidence, and to aid memory. In a study carried out among undergraduate in Port Harcourt city, Nigeria, the predictors of tramadol abuse identified include peer group influence, improve mood and mental alertness, to relief pains, depression and anxiety, parental factor and academic activities (Jonathan and Samuel, 2018). Brandta *et al.* (2014) reported a lack of interest, fear of damaging their physical health, fear of damaging their mental health, and inability to acquire the drugs as factors that influenced the choice of college students not to abuse prescription drugs.

2.9 Perception of Opioid drug abuse

People's perception of opioid abuse may determine if they will use opioids nonmedically. Several studies have identified the perception of drug abuse as a major contributing factor to the practice of drug abuse, especially among young people. In a study carried out by Arria, O'Grady, Caldeira, Vincent, and Wish (2008), it was reported that individuals with low perceived harmfulness of prescription analgesics were 9.6 times (95% CI=2.1–44.0) more likely to use prescription analgesics nonmedically compared to those with high perceived harmfulness. A study carried out among teenagers in the US also revealed young people who hold favourable attitude towards illicit drugs are at high risk of nonmedical use of prescription opioids (Sung, Richter, Vaughan, Johnson, and Thom, 2015). In another study carried out among in-school adolescents in Nigeria, Ekpenyong (2012) also found that the perception of students towards drugs affects their behaviour in terms of drug use.

2.10 Factors Contributing to Opioid Abuse

Students use drugs, including opioids for different and diverse reasons. In a study among university students, the predictors of use of psychoactive substances were found to include gender (males 5 times more than females), living away from parents, parental marital status, and staying in a hostel (Duru *et al.*, 2017). Abdulmalik *et al.* (2009) further identified

poverty, unstable family structure, and being born in a polygamous family as correlates of the use of psychoactive substances. A nationwide survey of high school students reported that 65% used drugs to have a good time with their friends, 54% wanted to experiment, 20%–40% used it to alter their moods, to feel good, to relax, and to overcome boredom and problems (Abudu, 2008).

The following factors have been identified by several studies as the possible causes of drug abuse among young people in Nigeria (Idowu, 1987; Oshodi, Aina and Onajole, 2010; Abudu, 2008; Oluremi, 2012, Foo, Tam and Lee, 2012, Bassi *et al.*, 2017):

1. Curiosity: Youths like experimenting, the first experience may produce a state of arousal such as happiness and pleasure which in turn motivates them to continue. Continuous and excessive use can lead to dependence or addiction to the drug. In that regard, the person will not be able to carry out daily activities without using the drug.

2. Peer Group Influence: Students use drugs at the instance of friends/peers. Many young people start to use drugs through the influence of their friends, and such persons may continue to use drugs in order to fit into the group. These practices are particularly common among students, interaction with a member of peer group who engages in drug influences all the group members because of the socio-cultural process, in which experienced users essentially teach new users what to anticipate, how to interpret the effects, what effects to enjoy, and what effects to reinforce (Oshodi *et al.*, 2010; Abudu, 2008; Oluremi, 2012, Bassi *et al.*, 2017).

3. Easy access to drugs: If drugs are readily available, youth will have easy access to them and will invariably use and abuse them. In Nigeria, this is a major issue which is attributable to porous borders and unregulated distributed network also known as the open drug market. In a study carried out in Lafia, Northern Nigeria, easy access to drugs was identified as one of the three major factors contributing to drug abuse among the youths (Ikoh, Smah, Okwanya, Clement, and Aposhi, 2019). Availability of drugs or accessibility of drugs is one of the factors contributing to the increasing drug abuse during recent decades, easy access to drugs increases the chances that people will try them out and consequently become addicted to the drugs (Tam and Foo, 2012).

4. Environmental influence: Students who live where drug abuse is predominant are likely to get be involved in opioid abuse. The role of mass media in the abuse of drugs such as alcohol, tobacco, and prescription medications (e.g., tramadol and codeine), especially among adolescents, has generated a lot of interest (Strasburger and Donnerstein, 1999). The media have also become an important source of drug information for both patients and drug consumers (Montagne, 2001). Imagery and subtle advertisement of drugs in mass media have been on the increase, which is a major concern because of its possible influence on the youths. For instance, Adeosun, Badewo, Adenipekun, Taiwo, and Awogbemi (2018) in their study found that music videos containing male smoking imagery increased by 150% between 2014 and 2017 in Nigeria. This implication of this is that, if not regulated, more young people will be exposed to the promotion of drug abuse. This is of great importance because it has been found that exposure to onscreen smoking in movies increases the probability that young people will start smoking (Centers for Disease Control and Prevention, 2010). In other words, exposure to the promotion of opioid abuse in mass media can also increase the probability that young people will get involved in such practices. In 2018, a song titled ‘Science student’ (a hit song by Afrobeat rapper Olamide Adedeji), which made reference to tramadol, was banned by the Nigerian Broadcasting Commission because of the immoderate mention and subtle promotion of illegal drugs, even though the rapper later argued his intention was to create awareness about the tramadol crisis that was spreading fast among youths in the country (Asiedu, 2018).

5. Family Influence: Family patterns, parenting, and socioeconomic status tend to influence the culture of drug abuse among youth. Studies have shown that poor parental control contributes significantly to drug abuse among young people (Ikoh et al., 2019). In other words, families that witnessed excessive punishment, brutality, incessant harassment, matrimonial divorce/conflict, lack of adequate parental care and love may drive youths to seek refuge in drugs. Ikoh et al. (2019) noted in their study that drug abuse was being significantly practiced in families where parents and siblings use drugs. Parents, peers, and social support play an important role in preventing adolescent drug abuse, parents who were more involved in setting limits (such as where their children went after school) were more likely to have adolescents who did not use drugs (Foo et al., 2012).

6. Advanced Technologies: Technology has contributed immensely to the growth and advancement of mankind. However, the ease of communication and transaction especially through the Internet and Internet-based apps may promote drug abuse. According to Tam and Foo (2012), Internet has eased the transaction of drugs selling and exposure to sales of drugs online increases the accessibility of drugs to nondrug users who might be tempted to later abuse drugs. They further noted that with just a click away, both first-time drug users and chronic drug abusers are able to have drugs delivered to their doorstep, and through the internet, chronic drug abusers get to keep in contact with drug sellers to ensure a continuous source of drugs. The Internet also poses a greater risk of exposure to information about drug abuse for young people, as some drug abusers can share information online regarding their positive experiences with drugs or even some tips about where to get drugs, the different ways of ingesting the drugs in order to obtain different effects, descriptions on the momentary happiness as result of the drug, and so on (Tam and Foo, 2012). Wax (2002) also noted that a google search of the name of drugs will most likely retrieve information about those advocating drug abuse directly or indirectly as compared to the websites advocating anti-drug messages.

2.11 Dangers of Opioid Abuse

The negative effects of drug abuse can have immediate and long-term consequences. Drug abuse is a big threat to the communities and the entire country and not just the immediate family (Oshodi *et al.*, 2010; Giade, 2011). The 2017 WDR estimated the premature death of at least 190,000 persons due to the use of opioids (WDR, 2017). Withdrawal symptoms from prescription opioids such as tramadol cause symptoms such as restlessness, pains, diarrhea, vomiting, insomnia and so on. the symptoms can be severe in which case will require immediate medical attention (National Institute of Drug Abuse, 2018). Opioids (such as morphine, heroin, methadone, buprenorphine, codeine, tramadol, oxycodone, and hydrocodone) are known to cause the greatest negative health impact. Out of the 17 million disability adjust life years attributable to substance use disorders, opioids contribute up to 12 million (WDR, 2017).

Drugs can lead to abnormal functioning of the body especially the central nervous system (Melis, Spigga, and Marco, 2005). Oshikoya and Alli (2006) in their studies on the

perception of drug abuse amongst Nigerian undergraduates also identified dependence and addiction as one of the major consequences of drug abuse, characterized by compulsive drug craving seeking behavior. According to a UNICEF report, young people identified the risk of being arrested or killed by police, the risk of becoming dependent on the drugs (addiction), risk of infections such as HIV/AIDs as possible dangers of drug abuse (UNICEF, 2003). Large doses of cough preparation such as codeine can lead to confusion, dizziness, slurred speech, nausea, irregular heartbeat, high blood pressure, loss of consciousness and brain damage (Shaw, 2017).

In a longitudinal study carried out among first-year university students, it was found that students that used prescription drugs nonmedically were more likely to skip class, engage in more socialising, spend less time studying, and have a lower GPA at the end of their first year compared to nonusers (Arria *et al.*, 2008). In a study by Chikezie and Ebuenyi (2019), which reviewed tramadol misuse in a teaching hospital in Nigeria, it was reported that tramadol abusers presented with common clinical symptoms such as dizziness (100%), altered consciousness (80%), incoherent speech (80%), restlessness (60%). and falls/seizures (40%). Tramadol abuse can also contribute to violence, rage, and increased traffic accidents (Fawz, 2011). Jonathan and Samuel (2018) further reported that seizures, psychic-complication, aggression and violence, lack of concentration in academic work, grade drop, and stay out of classes (absenteeism) as consequences of indulging in drug abuse especially tramadol abuse by students.

2.12 Prevention and Control of Opioid Use in Nigeria

Several efforts have been made to control the opioid crisis in the country but little results have been achieved largely due to the rampant illegal importation practices and the haphazard drug distribution network. Notable among these efforts is the ban placed on the production, importation, and distribution of codeine-containing syrups by the federal government as a strategy to curb the widespread abuse (BBC, 2018). The Director-General of NAFDAC revealed that activities of the unauthorized dealers and distributors have largely sabotaged this approach as thousands of the codeine products enter the country through illicit channels (Adeyeye, 2018). Based on national trends of abuse, harm to public health and social well-being, tramadol was put under national control in 2013 after the 59th National

Council on Health meeting to control supply and manufacturers, importers, distributors and retailers were mandated to document all transactions including disposal of the drug (Adeyeye, 2018). At the 57th Session of the Commission on Narcotic Drugs in 2014, Nigeria supported the call for scheduling of tramadol in order to bring it under the Import/Export Authorization System of the International Narcotics Control Board to effectively control international trade in tramadol (Adeyeye, 2018).

According to a report published by the Daily Post Newspaper on November 18, 2018, the NDLEA uncovered 340 million tramadol tablets in 12 containers at the port and seized another 241 million tramadol tablets in 11 containers making 581 million tramadol tablets uncovered within two days (Odunsi, 2018). The Expert Committee on Drug Dependence of the WHO in 2017 also requested information on the extent of problems associated with tramadol misuse to enable critical review of the dangers associated with the abuse of tramadol worldwide (Adeyeye, 2018).

2.13 Theoretical Framework: Social Learning Theory (Bandura, 2002)

The social learning theory developed by Albert Bandura is the conceptual framework for this study, and it is based on the concept that people can learn by watching, hearing or reading about someone else rather than by doing it by themselves.

The social learning theory operates on three major concepts (Bandura, 2002):

1. Learning: This is the process of gaining knowledge of a behaviour or action.
2. Imitation: Individuals reproduce acquired behaviour.
3. Observation: Individuals can decide to imitate a behaviour or not by observing the consequences of the behaviour in others.

The basic components of the theory include the following:

Environment: These are factors physically external to the person. The environment may be influenced by factors such as available policies on opioid use, hip-hop culture, drug use imagery in mass media especially songs, music videos, and films.

Observational Learning: Behavioural acquisition occurs by watching the actions and outcomes of others' behaviour within the environment. The theory looks at the dynamic interaction of the person, behaviour and the environment in which the behaviour is performed.

Motivational anticipatory outcomes of behaviour and factors that may motivate people to adopt the behaviour. The use of these drugs is often portrayed as exciting and adventurous with little or no consequences.

Self-Efficacy: The person's confidence in performing a particular behaviour. Students may now develop the confidence to participate in opioid use and as such initiate the behavior (see Figure 2.1).

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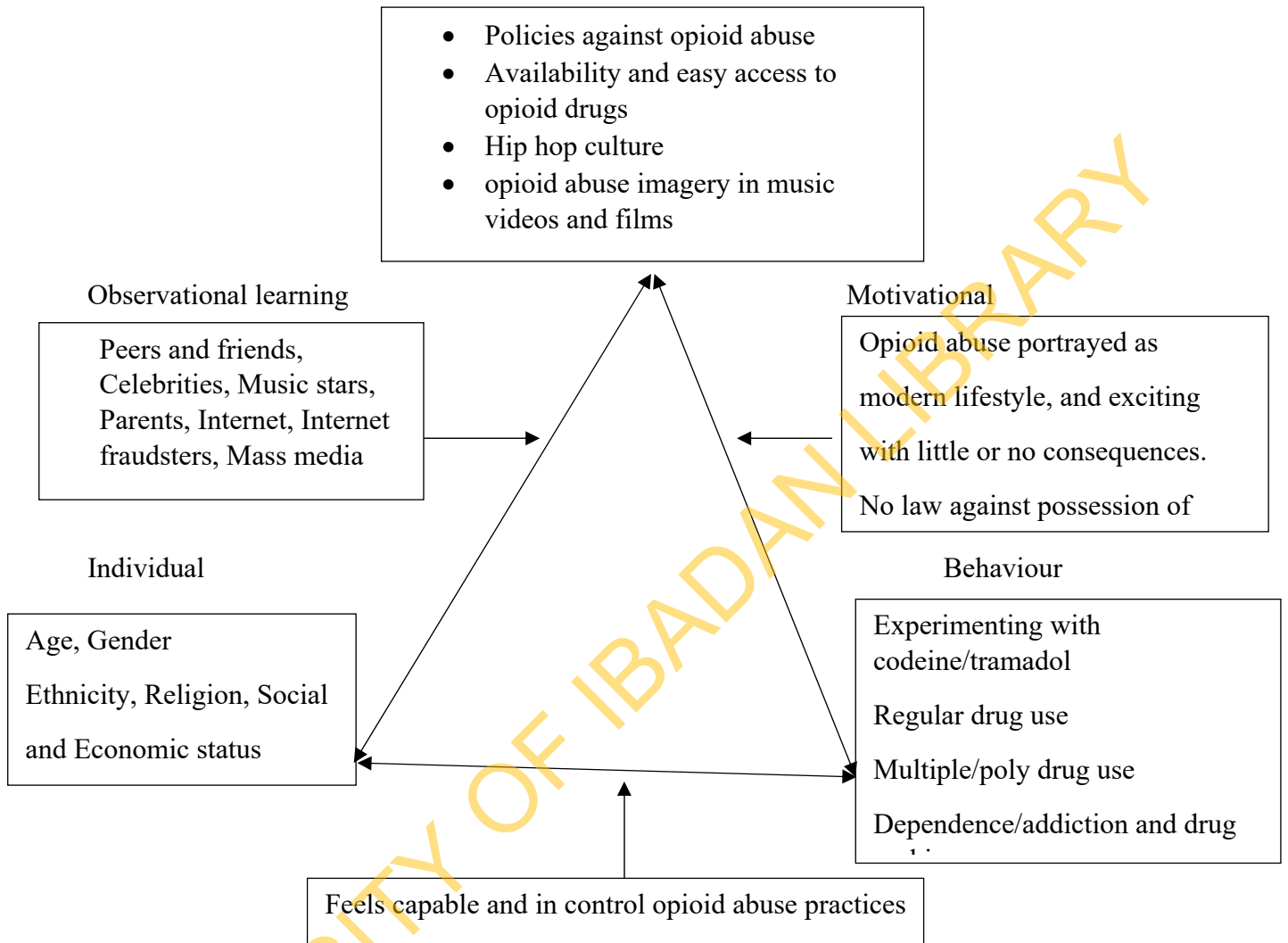


Figure 2.1: Application of the Social Learning Theory to opioid drug abuse

2.13.1 Application of the Variables in the Questionnaire to Social Learning Theory

In regards to this study, the theory was adapted as follows:

1. Environment: This refers to the environmental factors that can influence young people to participate in the nonmedical use of opioids. For example, young people can be exposed to nonmedical use of opioids through the subtle imagery or advertisement of opioid abuse in songs and videos and may be tempted to try it when they have the opportunity. Other factors in the environment that can contribute to opioid abuse include the unregulated drug market largely because of illegal importation, the hip hop culture, the increasing presence of internet fraudsters, and so on. Questions relevant to the construct can be seen in Section E of the questionnaire (Appendix 2).
2. Observational Learning: Students may learn about opioid abuse by observing their peers, parents or other family members. They may also learn from celebrities and music stars, through their songs and videos, or from internet fraudsters popularly called 'yahoo yahoo' who live recklessly, or even from the Internet. Observation plays a role in shaping the things we know and the things we do. Questions relevant to this construct can be seen in Sections B, C, and D of the questionnaire (Appendix 2).
3. Motivational: This describes the outcomes that students expect from using opioids nonmedically, which influence their decision to use the drugs. The use of these drugs is often portrayed as exciting and adventurous with little or no consequences. Also, possession of opioids is not a criminal offense and as such no legal implication for abusing. Furthermore, opioids such as codeine and tramadol are readily available and cheap, compared to other drugs of abuse such as cannabis, heroin, and so on. These factors may motivate students to get involved in opioid abuse. Questions relevant to this construct can be seen in Sections D and E of the questionnaire (Appendix 2).
4. Self-Efficacy: Students may develop the confidence to participate in opioid use and as such initiate the behavior. Questions relevant to this construct can be seen in Sections D of the questionnaire (Appendix 2).

CHAPTER THREE

METHODOLOGY

3.1 Research Design

A cross-sectional survey was carried out using a semi-structured questionnaire. Cross-sectional studies are used to compare different population groups at a single point. It allows researchers to compare different variables at the same time. The WHO student drug-use survey questionnaire (Smart, Hughes, Johnston, Lloyd, Anumonye *et al.*, 1980) was adapted for the study. The questionnaire was designed to assess the knowledge, perception, patterns and practice, and contributing factors to prescription opioid drug abuse among students of Polytechnic of Ibadan, Ibadan, Oyo State.

3.2 Study Area

The study was carried out among the undergraduate students of Polytechnic Ibadan. Polytechnic Ibadan is located in the Sango area, Eleyele, Ibadan, Oyo State, Nigeria. The Polytechnic, Ibadan (typically called 'Poly Ibadan') is an institution of higher learning founded in 1970 and shares similarities with other polytechnics in Nigeria. The institution was established to provide an alternative higher education to universities, particularly in technical skill acquisition. The polytechnic has a large and diverse student body with students from different age brackets, religions and cultural background and offers courses in science and technology, arts, management, and social sciences. There are four halls of residence in the polytechnic, including Ramat and Olori halls (for female students) and Orisun and Unity halls (for the female students).

3.3 Study Population/Target Population

The study population, which in this study is also the target population, consisted of both male and female students of The Polytechnic of Ibadan. A representative sample was chosen from this population according to the sample size.

3.4 Inclusion Criteria

All undergraduate students of Polytechnic of Ibadan, male and female, who consented to participate were included in the study.

3.5 Exclusion Criteria

All undergraduate students of Polytechnic of Ibadan, male and female, who did not consent (those who gave informed dissent) were excluded from this study and those who were absent from school or indisposed during data collection.

3.6 Sample Size Determination

The sample size for this study was estimated from the Leslie Kish formula for single proportion (Kish, 1965) as follows:

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

N = Minimum sample size

Z = Standard normal deviation set at 1.96 normal interval

p = Proportion estimated to be obtained in the target population (69.2% [0.692] lifetime prevalence rate of use of drug use) (Onofa, Adamson, Ighoroje, and Majekodunmi, 2016).

Q = Proportions that does not have the characteristics being investigated, (q=1-p);

$$q = 1 - 0.692 = 0.308$$

d = Degree of accuracy set at 0.05 (precision set at 5% level of significance).

Therefore, the sample size, $N = \frac{1.96^2 \times 0.692 \times 0.308}{0.05^2}$

$$N = 328$$

A non-response rate of 10% (of 328) = 33

Therefore, 33 was added to the sample size calculated to make a total sample size of 361 to cover issues of incomplete response.

3.7 Sampling Technique

A multi-stage sampling technique was used for the study. The population and the sampling frames were developed as shown in Table 3.1.

Stage 1: The four halls of residence of the Polytechnic Ibadan were selected – Ramat, Olori, Orisun, and Unity halls. The number of respondents that were chosen from each hall of residence was calculated proportionately according to the total number of students in each

hall, which was gotten from the registers of the hall warden of the respective halls as authorised by the registrar and the dean of student affairs.

The total population of all students in the halls of residence was 2155 during the 2018/2019 session.

The population of students in Ramat hall (female hostel) = 340

The population of students in Olori hall (female hostel) = 585

The population of students in Orisun hall (male hostel) = 710

The population of students in Unity hall (male hostel) = 520

The number of participants selected for the study in each hall was calculated as follows:

Number of participants in each hall = $\frac{\text{Population of students in the hall} \times \text{Sample size}}{\text{The total population of students in all the halls}}$

(see Table 3.1)

Stage 2: All the blocks in each hall of residence were selected.

Stage 3: Rooms were systematically selected in each block using tables of random numbers. The number of rooms selected in each hall was based on the proportionate number of students calculated for each hall such that the number of rooms selected was equal to the number of participants selected.

Stage 4: A respondent was selected from each room. Simple random sampling was used to select the respondent if there were more than one student in the room at the time of the visit and the questionnaires were administered to the consenting students who met the criteria.

Table 3.1: Estimation of the number of selected respondents

Hall of residence	Hall type	Number of students in the hall	Number of blocks in each hall	Number of rooms in each hall	Number of selected respondents
Ramat	Female	340	7	270	$\frac{340 \times 361}{2155} = 57$
Olori	Female	585	4	192	$\frac{585 \times 361}{2155} = 98$
Orisun	Male	710	5	187	$\frac{710 \times 361}{2155} = 119$
Unity	Male	520	6	288	$\frac{520 \times 361}{2155} = 87$
Total		2155	22	937	361

3.8 Study Instrument: A Questionnaire

The questionnaires were modified in line with the specific objectives of the study and information obtained from the literature. The instrument comprised of five sections:

Section A: Socio-demographics of the respondents.

Section B: Knowledge of opioid drug abuse

Section C: Practice of opioid abuse

Section D: Perception of opioid abuse

Section E: Contributing factors to opioid abuse

3.9 Validation of the Instrument

The validity of a questionnaire refers to the extent to which the questionnaire measures what it claims to measure. To ensure validity, an extensive review of appropriate literature was carried out. The study instrument was reviewed by the project supervisor who is an expert in research. Other experts in the research were consulted and necessary adjustments were made based on their inputs.

3.9.1 Reliability of the Instrument

The reliability of an instrument is a measure of the consistency by which the instrument will measure what it is supposed to measure. An instrument is reliable if it gives similar results after several administrations under similar conditions. The pretest of this study was carried out among students of Ede Polytechnic in Osun state, a similar population group to The Polytechnic of Ibadan. A Cronbach Alpha measurement and reliability co-efficient measure was carried out on the pretested questionnaire and a co-efficient of 0.720 was gotten indicating high reliability of the instrument.

3.9.2 Method of Data Collection

Four experienced research assistants were recruited and trained for a day on the procedure for data collection. During the training, a participatory approach was adopted. Demonstration and return demonstration (role play) were also utilised. The questionnaires were self-administered because respondents were students and they could read and write English language. The questionnaires were administered by the research assistants for about a week under the supervision of the researcher. The purpose of the study was explained to the respondents and their consent was obtained. Adequate information about the study was provided and written informed consent was obtained. After the questionnaires were filled, the researcher checked for completeness and errors on the field.

3.9.3 Data Management and Analysis

The questionnaires were numbered serially for easy sorting. Information gathered was inputted into Statistical Package for Social Science (SPSS version 20) for onward analysis. The results obtained from the descriptive analysis were coded, summarised, and presented in tables and charts. A chi-square test statistic was used to test the relationships between the variables. Fischer exact test was used to evaluate cells with values less than five. Knowledge questions were categorised as poor, fair, and good based on a 20-item knowledge scale. Perception of opioid abuse was categorised as negative or positive, based on a 7-item perception scale, while regression analysis was used to analyse the factors contributing to opioid use.

3.9.4 Ethical Considerations

Before the collection of data, ethical approval was sought and obtained from the Oyo state Ministry of Health research ethics committee. The following ethical considerations were ensured in the conduct of this study:

3.9.4.1 Confidentiality

The data of all the participants were identified by codes. The print data were kept safe in secured lockers during and after the study, and electronic data were stored in a password-protected computer system.

3.9.4.2 Beneficence

The findings of this study would help in developing strategies and approaches to prevent and control opioid abuse among students and its associated dangers.

3.9.4.3 Risk

There was no risk associated with this research.

3.9.4.4 Informed Consent

The purpose of this research was adequately communicated to the respondents and the management of the polytechnic. All the respondents gave verbal and written consent prior to enrolment in the study. The respondents were informed that they reserve full rights to withdraw at any stage of the study.

3.9.4.5 Inducements

It was intended that no fees would be paid to any of the research respondents.

3.9.5 Limitation of the Study

The study focused on nonmedical use/abuse of opioids such as codeine and tramadol only among Polytechnic of Ibadan students, Ibadan North Local Government, Oyo State, Nigeria. Other types of opioid drugs were not included in this study.

CHAPTER FOUR

RESULTS

4.1 Socio-demographics Characteristics of the Respondents

Three hundred and sixty-one respondents residing in the four halls of residence of the Polytechnic of Ibadan were interviewed for this study. The proportion of the respondents in Orisun and Unity halls were 33.0% and 24.1%, respectively, while 27.1% and 15.8% respondent were in Olori and Ramat halls, respectively. The age of the respondents ranged from 16 to 30 years (mean=21.1, SD=2.702), while most of the respondents (49.6%) were within the age of 16–20 years. The predominant religion was Christianity (62.6%), while 33.2% were Muslims and 4.2% were traditionalists. The respondents from the Yoruba ethnic group were 79.5%, and 15.2% and 5% from Igbo and Hausa ethnic group, respectively. A larger percentage of the respondents were in their National Diploma level 1 (47.1%), while 26.0%, 19.4%, and 7.5% were in their National Diploma level 2, Higher National Diploma level 1, and Higher National Diploma level 2, respectively. The percentage of the respondents in the faculty of business and communication studies was 33.5%, while 33.1% in faculty of science, 18.6% in faculty of engineering, 9.1% in faculty of environmental studies, and 6.6% in faculty of financial management studies. The majority of the respondent's parent is married (81.2%), only a few had single (9.1%), widowed (2.5%) or divorced parents (7.2%) (Table 4.1).

Table 4.1: Socio-demographics characteristics of the respondents (N = 361)

Socio-demographics	Frequency	Percent (%)
Age		
16–20	179	49.6
21–25	161	44.6
> 25	21	5.8
Sex		
Male	207	57.3
Female	154	42.7
Faculty		
Faculty of Science	115	31.9
Faculty of Engineering	68	18.8
Faculty of Environmental Studies	33	9.1
Faculty of Financial Management Studies	24	6.6
Faculty of Business and Communication Studies	121	33.5
Halls of Residence		
Ramat hall	57	15.8
Unity hall	87	24.1
Orisun hall	119	33.0
Olori hall	98	27.1
Level		
ND 1	170	47.1
ND 2	94	26.0
HND 1	70	19.4
HND 2	27	7.5
Ethnicity		
Yoruba	286	79.2
Igbo	55	15.2
Hausa	18	5.5
Religion		
Christian	226	62.6
Muslim	120	33.2
Traditional	15	4.2
Parent's marital status		
Married	293	81.2
Divorced	26	7.2
Widowed	9	2.5
Single parent	33	9.1

ND = National Diploma; HND = Higher National Diploma

4.2 Respondents' Knowledge of Opioid Drugs

Among the respondents, 40.4% simply defined opioids as hard drugs, while 28.8% stated that they did not know what opioid drugs are. A few of the respondents, however, correctly described opioid drugs as painkillers (11.4%), drugs such as codeine and tramadol (5.8%), addictive drugs obtained from the dried juice of unripe pods of opium (1.1%), and substances that act on opioid receptors to produce a morphine-like effect (0.6%) (Table 4.2). The use of tramadol and codeine for fun and enjoyment (58.7%), dependence on tramadol or codeine to function normally (64.5%), persistent and excessive self-administration of tramadol or codeine (63.7%), and use of codeine or tramadol to overcome anxiety and stress (56.5%) were not considered as nonmedical use of opioids by most of the respondents.

The proportion of the respondents that identified the use of tramadol for sexual activity and the use of a high dose of tramadol to gain power for hard work as nonmedical use of opioids was 49.3% and 49.6%, respectively (Table 4.2.1). The percentages of the respondents that identified addiction/dependence, damage to internal organs, mental illness, respiratory depression, coma, and death correctly as possible dangers of opioid drug abuse was 64.5%, 72.9%, 70.4%, 67.0%, and 67.0%, respectively (Table 4.2.2). The majority of the respondents have a fair knowledge of the nonmedical use of opioid drugs (78.4%). Only 11.9% have good knowledge of opioid drug abuse while 9.7% had poor knowledge (Table 4.2.3).

Table 4.2: Respondents' definition of opioid drugs

Definition of opioid drugs	Frequency	Percent (%)
Opioids are hard drugs	146	40.4
Opioids are drugs used as painkillers	41	11.4*
Opioids are drugs such as codeine and tramadol	21	5.8*
Drugs that are dangerous to our health	15	4.2
Drugs that are taken without a doctor's prescription	14	3.9
Drugs that contain narcotic substances which stimulates the body more than the normal level	5	1.4
Addictive drugs obtained from the dried juice of unripe pods of opium	4	1.1*
Opioid drugs are drugs that contain intoxicating elements	3	0.8
A substance that is similar to opium	3	0.8
Opioids are substances that act on opioid receptors to produce a morphine-like effect	2	0.6*
Any group of endogenous neural polypeptides that mimic opiate properties	1	0.3
Opioid are drugs used to curb some illness in the body	1	0.3
Class of drugs that include the illegal drug, e.g. morphine, codeine, tramadol, etc.	1	0.3*
I don't know	104	28.8
Total	361	100.0

**Correct responses*

Table 4.2.1: Respondents knowledge of nonmedical use of codeine and tramadol

Knowledge statements	Yes (%)	No (%)
Use of recommended codeine syrups to treat cough	225 (62.3)	136 (37.7) *
Use of tramadol for sexual activity	178 (49.3) *	183 (50.7)
Use of codeine or tramadol for fun and enjoyment	149 (41.3) *	212 (58.7)
Use of codeine or tramadol for medical purpose	180 (49.9)	181 (50.1) *
Dependence on tramadol or codeine to function normally	128 (35.5) *	233 (64.5)
Persistent and excessive self-administration of tramadol or codeine	131 (36.3) *	230 (63.7)
Use of codeine or tramadol to overcome anxiety and stress	157 (43.5) *	204 (56.5)
Use of codeine or tramadol at a normal dose to relieve pains	193 (53.5)	168 (46.5) *
Use of high dose of tramadol to gain power for hard work	179 (49.6) *	182 (50.4)
Use of codeine or tramadol in ways that conform with approved, moral and social norms	170 (47.1)	191 (52.9) *

**Correct responses*

Table 4.2.2: Respondents knowledge of the possible dangers of codeine/tramadol abuse

Statement	Yes (%)	No (%)
Addiction/dependence	233 (64.5) *	128 (35.5)
Good academic performance	122 (33.8)	239 (66.2) *
Increased strength and energy	211 (58.4)	150 (41.6) *
Damage to internal organs	263 (72.9) *	98 (27.1)
Mental illness	254 (70.4) *	107 (29.6)
Respiratory depression	242 (67.0) *	119 (33.0)
Protection from sexually transmitted infections	108 (29.9)	253 (70.1) *
Relieve from pains	185 (51.2)	176 (48.8) *
Reduced violence	112 (31.0)	249 (69.0) *
Coma and Death	242 (67.0) *	119 (33.0)

**Correct responses*

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Table 4.2.3: Overall knowledge score of the respondents

Score range	Frequency	Percent (%)
Poor (0–7)	35	9.7
Fair (>7–14)	283	78.4
Good (>14)	43	11.9
Total	361	100.0

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4.3 Respondent's Perception of Nonmedical Use of Opioids

The majority of the respondents (65.7%) did not agree to the statement 'it is okay to use codeine/tramadol for nonmedical purpose'. However, about half of the respondents (50.1%) agreed that codeine or tramadol use can help the body to relax or feel good. Only 40.2% of the respondents disagreed that the benefit of using codeine/tramadol is more than the harm it can cause while about half also disagreed with the statement 'tramadol and codeine are not dangerous as some people claim' (Table 4.3). More than half of the respondents have a negative perception of nonmedical use of opioid drugs (56.5%), only 43.5% have a positive perception (Table 4.3.1).

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Table 4.3: Respondent’s perception of nonmedical use of opioids

Perception Statements	Agree (%)	Undecided (%)	Disagree (%)
It is okay to use codeine/tramadol for nonmedical purpose	78 (21.6)	46 (12.7)	237 (65.7) *
Use of codeine/tramadol helps the body to relax and feel good	83 (23.0)	97 (26.9)	181 (50.1) *
Codeine boosts confidence and performance	128 (35.5)	85 (23.5)	148 (41.0) *
The benefit of using codeine/tramadol is more than the harm it can cause	128 (35.5)	88 (24.4)	145 (40.2) *
Promotion of codeine/tramadol in music and videos makes drug use attractive	115 (31.9)	94 (26.0)	152 (42.1) *
Tramadol and codeine are not dangerous as some people claim	89 (24.7)	99 (27.4)	173 (47.9) *
Tramadol can help one to enjoy sexual activities	111 (30.7)	119 (33.0)	131 (36.3) *

**Correct responses*

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Table 4.3.1: Overall perception score of the respondents

Perception scale	Frequency	Percent (%)
Negative (0–3)	204	56.5
Positive (4–7)	157	43.5
Total	361	100.0

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4.4 Patterns of Nonmedical Use of Opioid Drug among the Respondents

The lifetime prevalence of any drug use, nonmedical use of codeine syrups, dihydrocodeine and cocodamol tablets among the respondents was 16.9%, 14.4%, 13.5%, and 13.0%, respectively (Figure 4.1). Among those involved in the lifetime nonmedical use of codeine syrups, 28.8% used it to feel good, 15.4% to gain energy, 9.6% to have fun in parties, 7.7% to gain confidence, and 5.4% for sex. The reasons for the lifetime use of dihydrocodeine tablets among the respondents include to feel good (30.6%), to have fun in parties (18.4%), to eat very well (6.1%) and to have sex (6.1%). The reasons for the lifetime use of cocodamol tablets among the respondents include to feel good (31.9%), to have fun in parties (23.4%), and for sex (12.8%) (Table 4.4).

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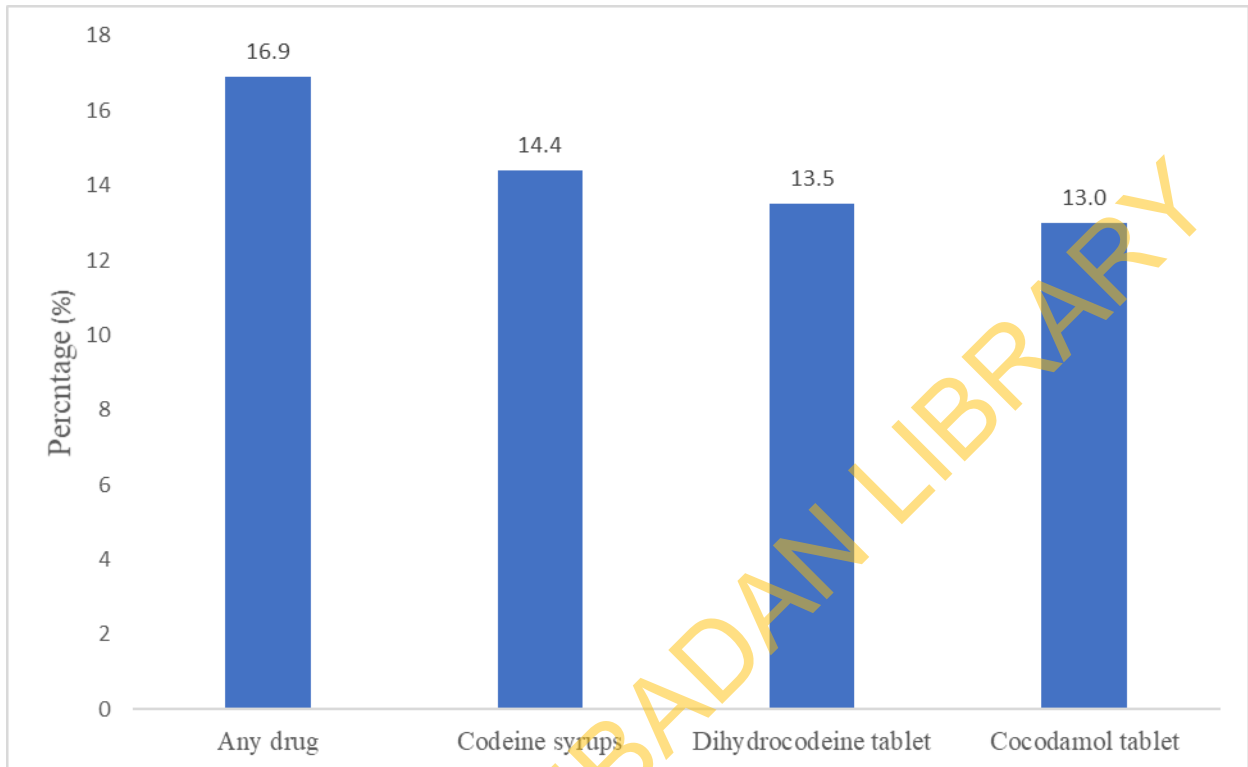


Figure 4.1: The lifetime prevalence of any drug use, nonmedical use of codeine syrups, dihydrocodeine, and cocodamol tablets

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Table 4.4: Reasons for the lifetime nonmedical use of codeine syrups, dihydrocodeine, and cocodamol tablets

Reasons for the lifetime use of	Frequency	Percent (%)
Codeine syrups		
To feel good	15	28.8
For energy	8	15.4
To have fun in parties	5	9.6
For confidence	4	7.7
For sex	3	5.8
No reason was given	17	32.7
Total	52	100.0
Dihydrocodeine tablet		
To feel good	15	30.6
To have fun and party	9	18.4
To eat very well	3	6.1
For sex	3	6.1
No reason was given	19	38.8
Total	49	100.0
Cocodamol tablet		
To feel good	15	31.9
For partying	11	23.4
For sex	6	12.8
No response	15	31.9
Total	47	100.0

The past-year prevalence of codeine syrups, dihydrocodeine, and cocodamol tablets among the respondents was 13.6%, 10.0%, and 12.7%, respectively (Figure 4.2). Most of the respondents that were involved in the nonmedical use of codeine syrups in the last one year stated they used it to feel good or high (34.7%). Others used it for sexual activities (14.3%), to boost confidence (10.2%), for fun (8.2%), to gain energy (4.0%) while 28.6% gave no reason. The respondents that were involved in the nonmedical use of dihydrocodeine in the last one year used it to feel high (29.2%), for sexual activities (18.8%), and to boost confidence (10.4%). The respondents that were involved in past-year nonmedical use of cocodamol tablets also stated they used it to feel good (52.2%), to get high (13.0%), and for sexual activities (10.9%), while 23.9% gave no reasons (Table 4.4.1).

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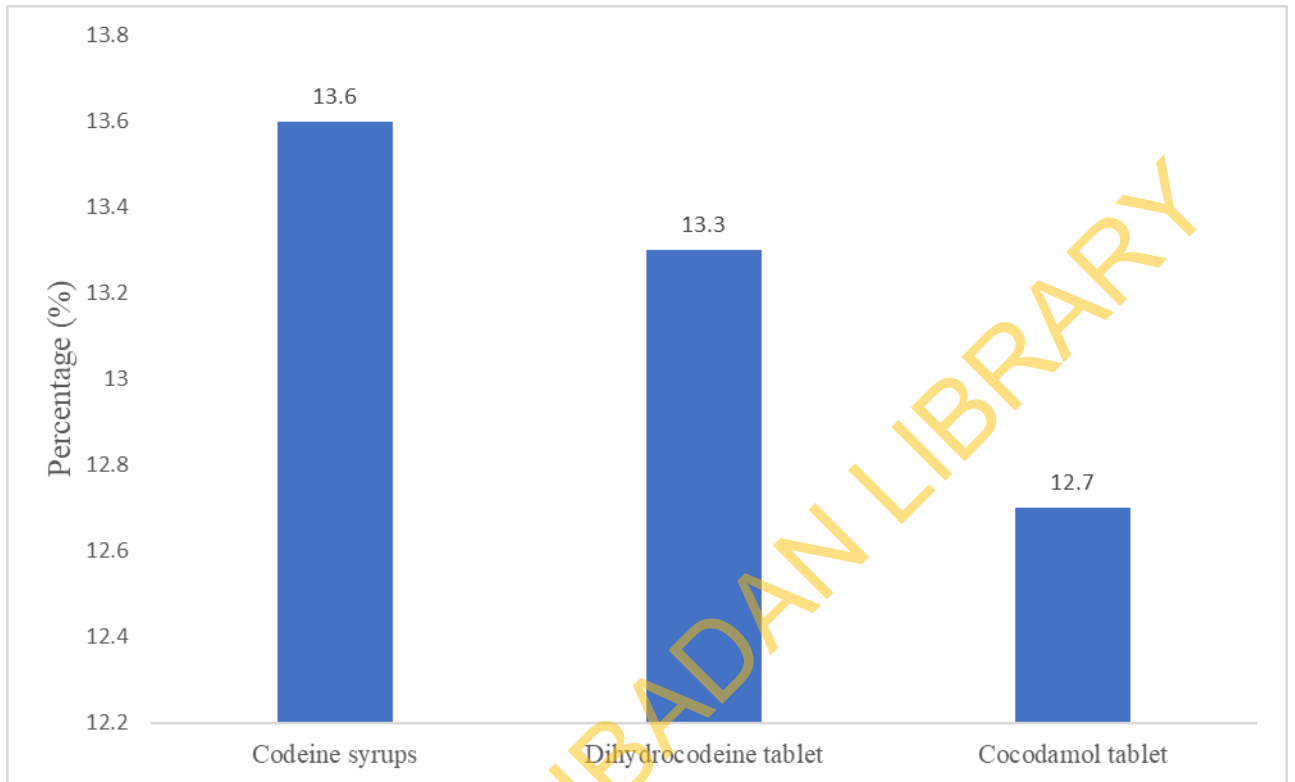


Figure 4.2: Past-year nonmedical use of codeine syrups, dihydrocodeine, and cocodamol

Table 4.4.1: Reasons for past-year nonmedical use of codeine syrups, dihydrocodeine tablets, and cocodamol

Reasons for the past-year use of	Frequency	Percent (%)
Codeine syrups		
To feel good/high	17	34.7
For sexual activity	7	14.3
To boost confidence	5	10.2
For fun	4	8.2
For energy	2	4.0
No response	14	28.6
Total	49	100.0
Dihydrocodeine tablet		
To feel high	14	29.2
For sex	9	18.8
To boost confidence	5	10.4
No response	20	41.7
Total	48	100.0
Cocodamol tablet		
To feel good	24	52.2
To get high	6	13.0
For sex	5	10.9
No response	11	23.9
Total	46	100.0

The past-month prevalence of codeine syrups, dihydrocodeine, and cocodamol tablets among the respondents was 12.5%, 13.0%, and 12.2%, respectively (Figure 4.3a). The majority of those that used codeine syrups, dihydrocodeine and cocodamol tablets in the last 30 days used it within 1–5 days (53.3%), 6–19 days (46.8%), and 6–19 days (40.9%), respectively (Figure 4.3b). The proportion of the respondents that used codeine syrups in 6–19 days and > 20 days were 28.9% and 17.8%. The proportion that used dihydrocodeine within 1–5 days and > 20 days was 40.4% and 12.8% while the proportion that used cocodamol within 1–5 days and > 20 days was 36.4% and 22.7% (Figure 4.3b).

The reasons for the past-month nonmedical use of codeine syrups include to feel good or high (22.2%), to have fun in parties (15.6%), to have sex (13.3%), and to boost confidence (6.7%) while 42.2% gave no reason. The reasons for the past-month nonmedical use of dihydrocodeine include to have sexual energy (10.6%), to boost confidence (4.3%), to have fun in parties (21.3%), and to feel good (23.4%) while 40.4 % gave no response. The reasons for the past-month nonmedical use of cocodamol tablets include to have sexual energy (9.1%), to boost confidence (11.4%), to have fun in parties (18.2%), and to feel good (22.7%) while gave no response (38.6%) (Table 4.4.2).

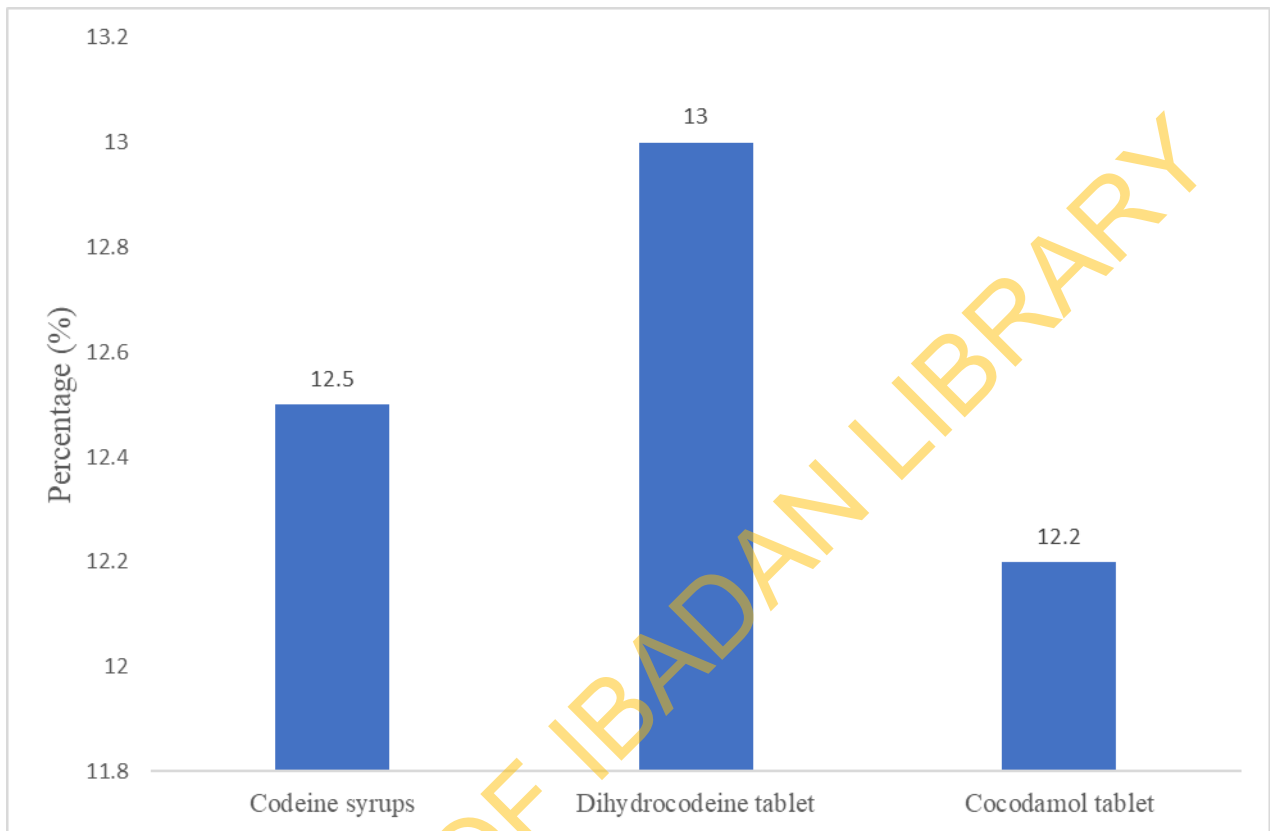


Figure 4.3a: Past-month use of codeine syrups, dihydrocodeine, and cocodamol tablets

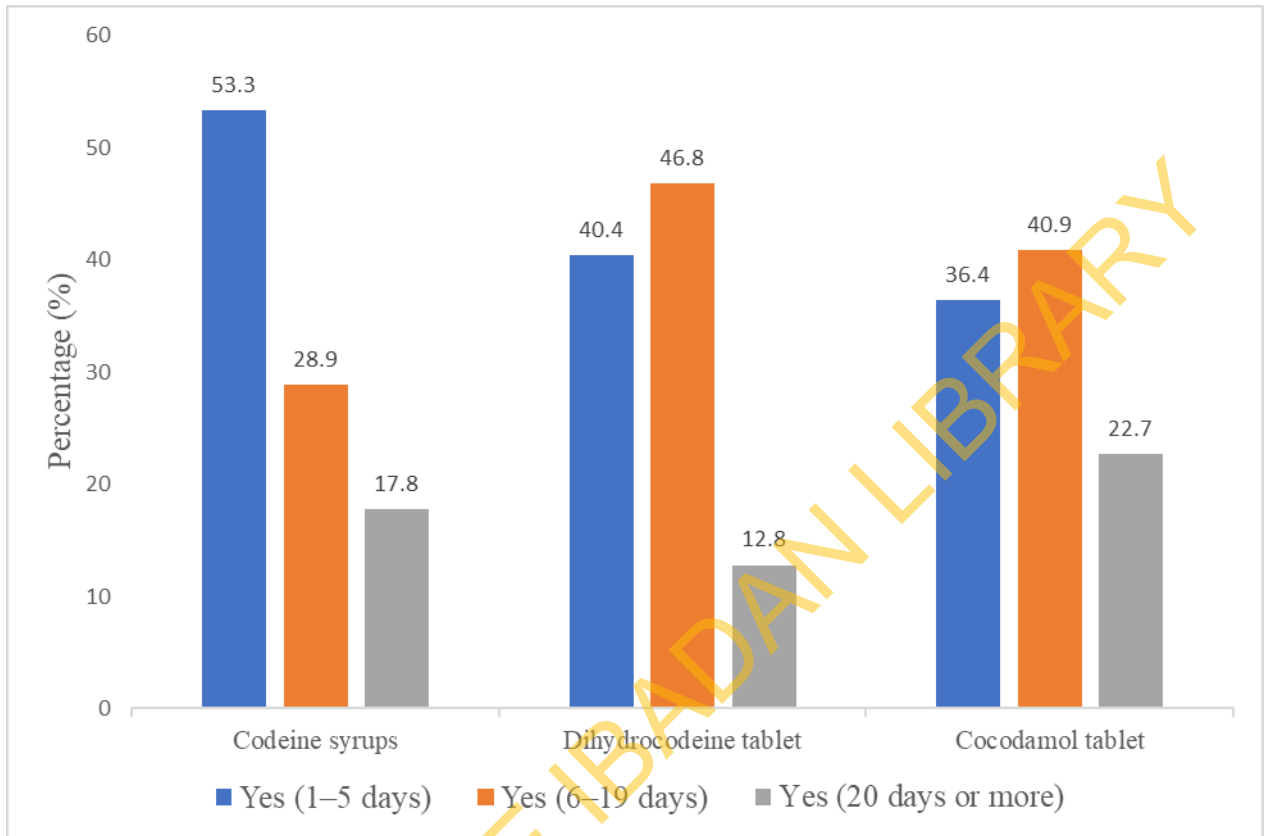


Figure 4.3b: Frequency of codeine syrups, dihydrocodeine, and cocodamol abuse (in days) within the past-month

Table 4.4.2: Reasons for the past-month use of codeine syrups, dihydrocodeine, and cocodamol tablets

Reasons for the past-month use of	Frequency	Percent (%)
Codeine syrups		
To feel good	10	22.2
To have fun in parties	7	15.6
For sexual energy	6	13.3
To boost confidence	3	6.7
No response	19	42.2
Total	45	100.0
Dihydrocodeine		
For sexual energy	5	10.6
To boost confidence	2	4.3
To have fun in parties	10	21.3
To feel good	11	23.4
No response	19	40.4
Total	47	100.0
Cocodamol		
For sexual energy	4	9.1
To boost confidence	5	11.4
To have fun in parties	8	18.2
To feel good	10	22.7
No response	17	38.6
Total	44	100.0

The majority of the respondents first used codeine syrups, dihydrocodeine, and cocodamol tablets when they were 15–19 years (57.7%, 55.1%, 53.2%, respectively) (Figures 4.4, 4.5, and 4.6). The proportions of the respondents that used codeine syrups when they were 10 years or less, 11–14 years, and > 20 years were 5.7%, 26.9%, and 9.6%, respectively (Figure 4.4). Also, 26.5% and 18.4% of those that have used dihydrocodeine stated they used it first when they were > 20 years and 11–14 years, respectively (Figure 4.5). Among those that have been involved in nonmedical use of cocodamol, 27.7% and 19.1% stated they used it when they were > 20 years and 11–14 years, respectively (Figure 4.6).

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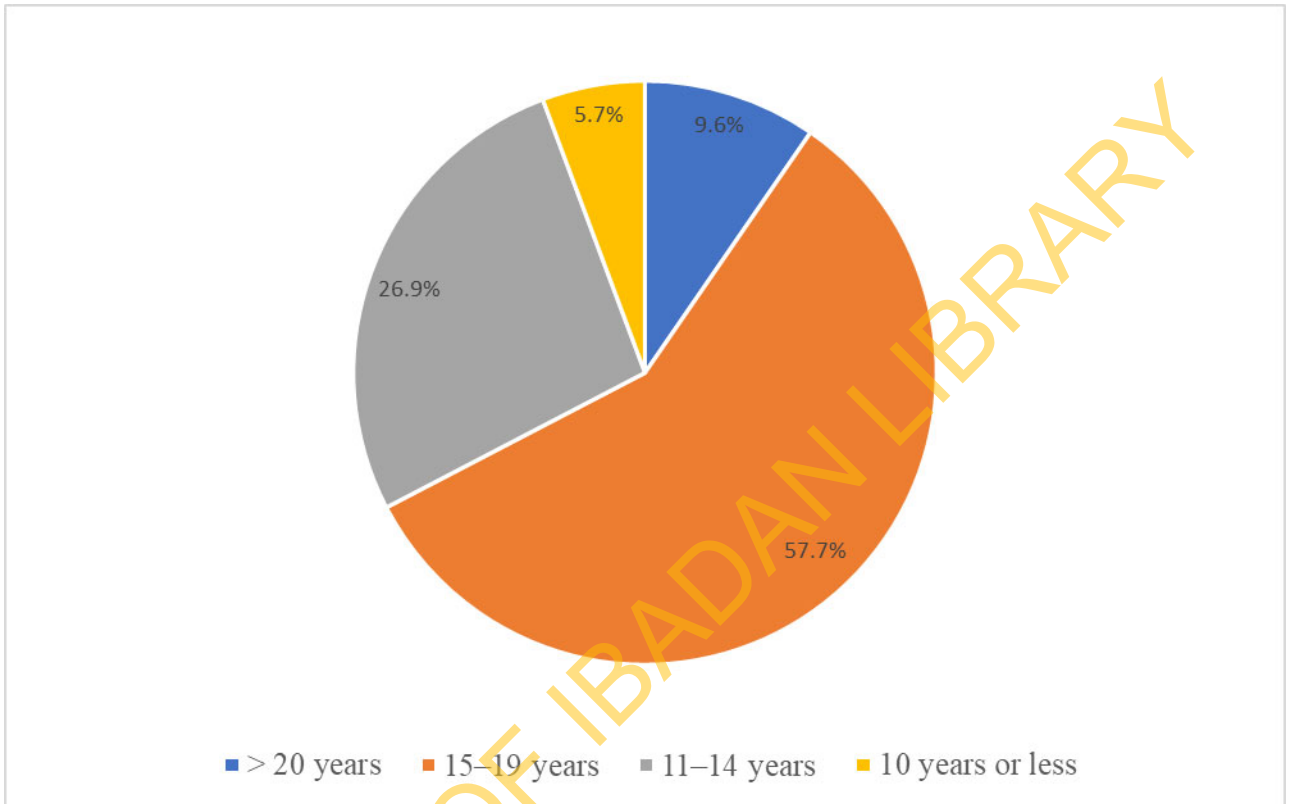


Figure 4.4: Respondents' age at first use of codeine syrups

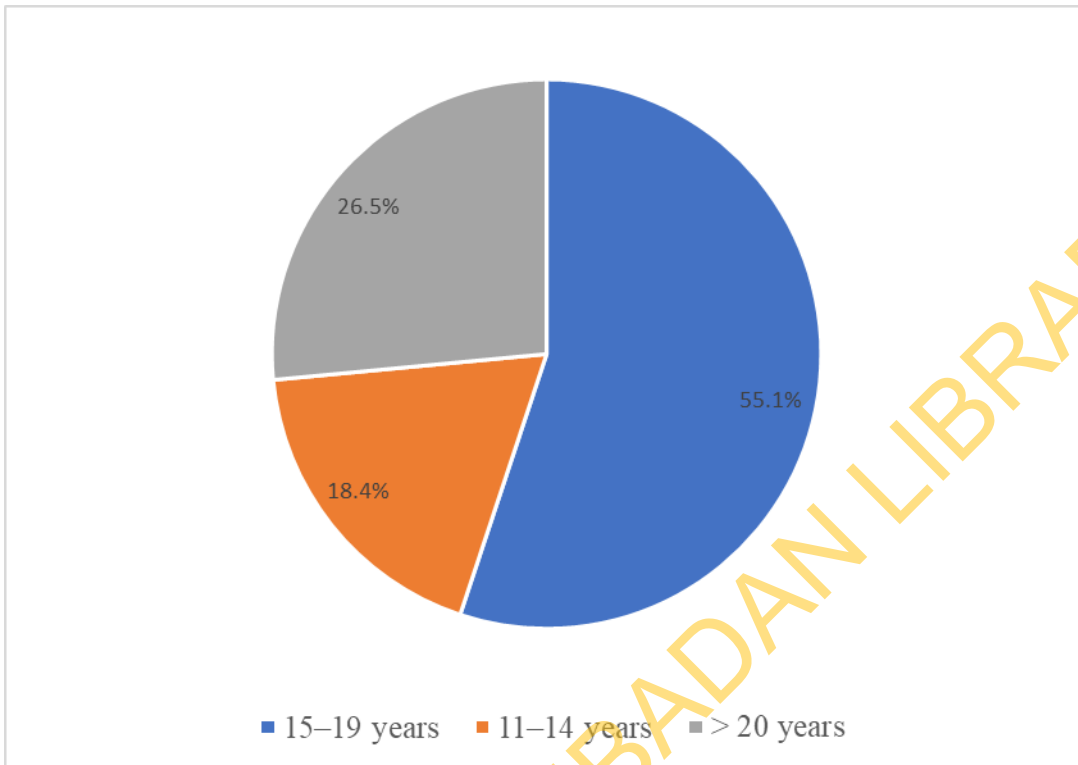


Figure 4.5: Respondents' age at the first use of dihydrocodeine

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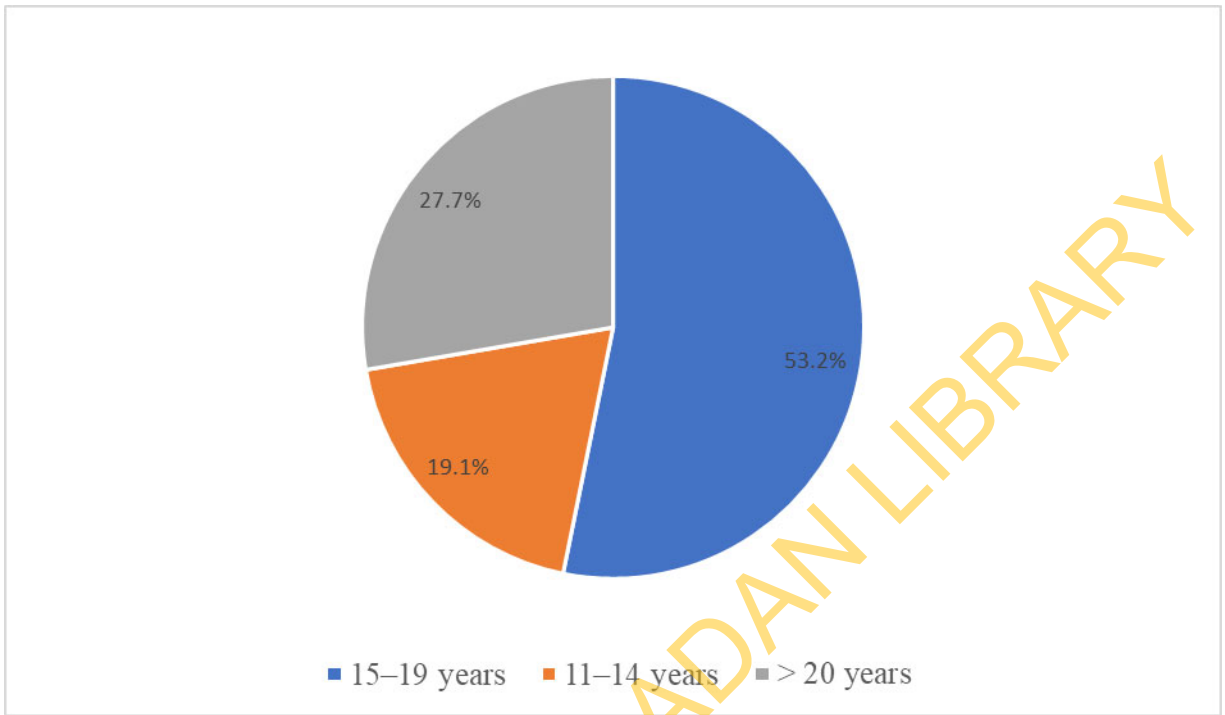


Figure 4.6: Age of respondents at the first use of cocodamol tablets

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The lifetime, past year, and past-month prevalence of tramadol use among the respondents was 11.4%, 10.0%, and 9.4%, respectively (Figure 4.7). Most of the respondents involved in the lifetime use of tramadol used it for sexual activity (31.7%). Other reasons stated by the respondents for the lifetime use of tramadol include curiosity (12.2%), for fun (9.8%), to feel good/high (9.8%), for sport activities (7.3%), for strength and energy (4.9%), to boost confidence (2.4%), and friend's influence (2.9%) (Table 4.4.3). The reasons for the past-year use of tramadol include for sexual activities (50.0%), the influence of friends (19.4%), to boost confidence (5.6%) while 25.0% gave no reason (Table 4.4.3). The reason for the past-month use of tramadol among the respondents was for sexual activity (70.6%), 29.4% did not give any reason (Table 4.4.3).

Among the respondents involved in tramadol use in the past month, 29.4% used it in the last 1–5 days, 47.1% used it 6–19 days ago while 23.5% used it 20 days or more (Figure 4.8). Among the respondents involved in tramadol use, 58.5% used it when they were > 20 years, 31.7% used when they were 15–19 years, and 9.8% when they were 11–14 years (Table 4.4.4). When asked if they have ever used any other drug with codeine and tramadol, 47.5% of the respondents answered 'yes' (Table 4.4.5). These drugs include alcohol (24.1%), tutolin cough syrups (17.2%), Rohypnol (10.3%), pain relieve tablets (6.9%), Arizona (marijuana) (3.4%), and weed (3.4%) (Table 4.4.6).

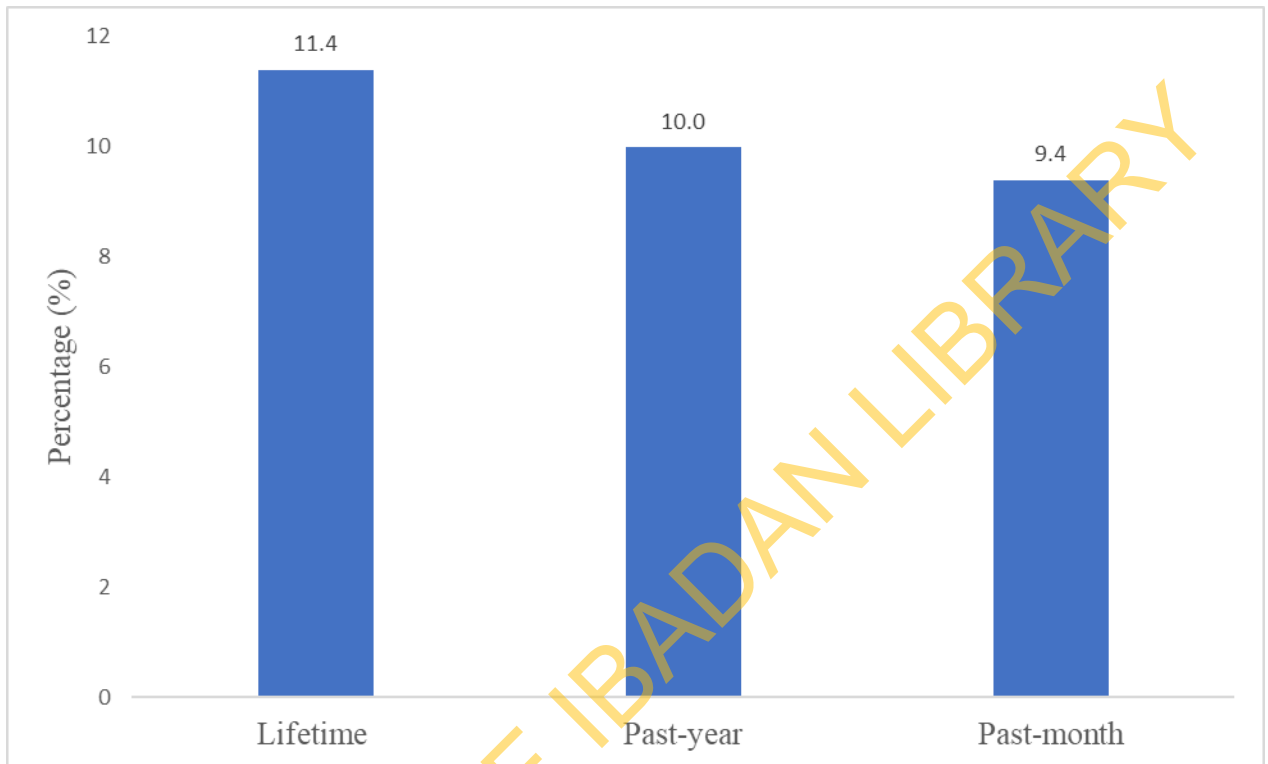


Figure 4.7: Lifetime, past-year, and past-month prevalence of tramadol abuse among the respondents

Table 4.4.3: Reasons for the lifetime, past-year, and past-month nonmedical use of tramadol

Reasons for the lifetime use of tramadol	Frequency	Percent (%)
For sex	13	31.7
Curiosity	5	12.2
For fun	4	9.8
To feel good/high	4	9.8
For sport	3	7.3
To strength and energy	2	4.9
To boost confidence	1	2.4
Because my friends take it	1	2.4
No response	8	19.5
Total	41	100.0
Reasons for the past-year use of tramadol		
For sexual activity	18	50.0
My friends persuaded me to take it	7	19.4
To boost confidence	2	5.6
No reason was given	9	25.0
Total	36	100.0
Reasons for past-month use of tramadol		
For sexual activity	24	70.6
No reason was given	10	29.4
Total	34	100.0

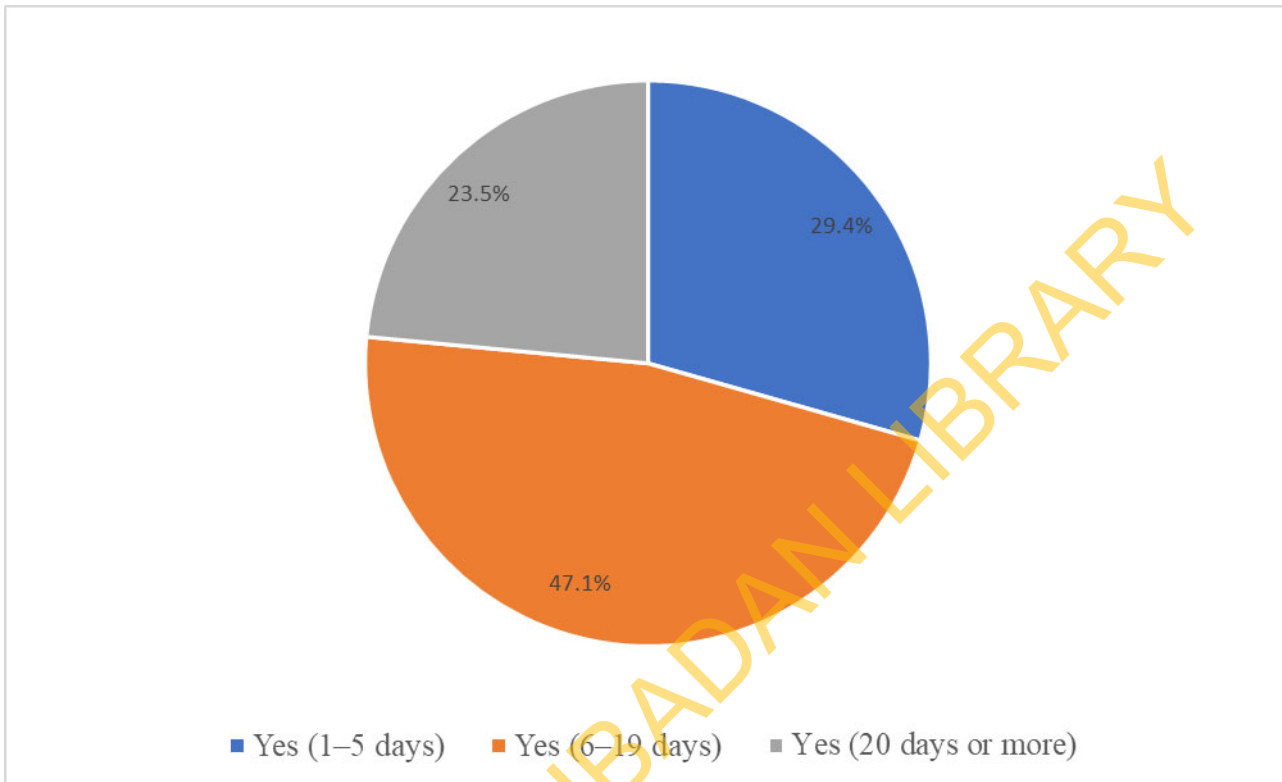


Figure 4.8: Proportion of tramadol abuse (in days) within the past-month

Table 4.4.4: Age of respondent at first use of tramadol for a nonmedical purpose

Age of respondents at first use of tramadol	Frequency	Percent (%)
> 20 years	24	58.5
15–19 years	13	31.7
11–14 years	4	9.8
Total	41	100.0

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Table 4.4.5: Respondents use of other drugs with codeine and tramadol

Ever use other drugs with codeine and tramadol	Frequency	Percent (%)
Yes	29	47.5
No	32	52.5
Total	61	100.0

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Table 4.4.6: Other drugs used by the respondents with codeine and tramadol

Other drugs	Frequency	Percent (%)
Alcohol	7	24.1
Tutolin	5	17.2
Refnol	3	10.3
Pain relievers	2	6.9
Arizona/Marijuana	1	3.4
Weed	1	3.4
Not stated	10	34.8
Total	29	100.0

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4.5 Factors Contributing to Opioid Drug Abuse

Majority of the respondents were introduced to codeine abuse by their friends (42.5%), others were introduced to codeine abuse by club members (17.1%), family (15.1%), drug pushers (8.9%), Internet (8.2%), doctor (3.4%), pharmacist (2.1), and other health workers (1.4), while only 1.4% stated that nobody introduced them to codeine use (Table 4.5). The majority of the respondents (56.1%) were also introduced to abuse of tramadol by their friends/peers. Others stated they were introduced to tramadol by a casual acquaintance (12.2%), Internet (7.3%), pharmacist (7.3%), family (4.9%), drug pushers (4.9%), doctor (3.4%), and other health workers (2.4%) (Table 4.5.1).

Among the 86 respondents that reported that they have watched/listen to songs promoting codeine (Table 4.5.2a), 31.4% revealed that the songs or videos made use of codeine attractive to them (Table 4.5.2b). Among the 75 respondents who reported that they have been exposed to the promotion of tramadol abuse in songs/videos (Table 4.5.3a), only 30.7% stated that it made using tramadol attractive to them (Table 4.5.3b).

Table 4.5: Frequency of people who introduced respondents to nonmedical use of codeine

People who introduced respondents to codeine abuse	Frequency	Percent (%)
Friends/peers	62	42.5
Club members	25	17.1
Family	22	15.1
Drug pushers	13	8.9
Internet	12	8.2
Doctor	5	3.4
Pharmacist	3	2.1
Other health workers	2	1.4
Nobody	2	1.4
Total	146	100.0

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Table 4.5.1: Frequency of people who introduced respondents to nonmedical use of tramadol

People who introduced respondents to tramadol	Frequency	Percent (%)
Friends/peers	23	56.1
Casual acquaintance	5	12.2
Pharmacist	3	7.3
Internet	3	7.3
Family	2	4.9
Drug pusher	2	4.9
Doctor	2	4.9
Other health workers	1	2.4
Total	41	100.0

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Table 4.5.2a: Respondents exposure to videos or songs promoting codeine

Ever exposed to songs/videos promoting codeine	Frequency	Percent (%)
Yes	86	23.8
No	275	76.2
Total	361	100.0

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Table 4.5.2b: Respondents attracted to codeine abuse following exposure in songs/videos

Attracted to codeine abuse after exposure in songs/videos	Frequency	Percent (%)
Yes	27	31.4
No	59	68.6
Total	86	100.0

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Table 4.5.3a: Respondents exposure to videos or songs promoting tramadol

Exposed to tramadol promotion in songs/videos	Frequency	Percent (%)
Yes	75	20.8
No	286	79.2
Total	361	100.0

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Table 4.5.3b: Respondents attracted to tramadol abuse following exposure on mass media

Attracted to tramadol abuse after exposure in songs/videos	Frequency	Percent (%)
Yes	23	30.7
No	52	69.3
Total	75	100.0

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The majority of the respondents (44.3%) believe that it would be very difficult to get codeine products in their community without prescription while 14.7% believe it would be very easy (Table 4.5.4). Most of the respondents (38.9%) believe it would be very difficult to get tramadol without prescription in their community while 9.7% believe it would be very easy. Only 1.9% stated that they do not know (Table 4.5.4).

Most of the respondents identified peer pressure (65.9%), sexual satisfaction (65.1%), social media influence (65.9%), influence of internet fraudsters (59.0%), ignorance of the dangers (58.7%) illegal importation (57.1%), easy access (57.5%) and availability of the drugs (56.5%) as factors that contribute to the menace of opioid abuse. About half of the respondents believe curiosity (49.3%), socioeconomic status of the parent (49.6%), and promotion of opioids in songs/music videos/films (49.3%) contribute to opioid abuse. Less than half of the respondents identified financial challenge (38%) and family influence (43.2%) as factors contributing to opioid abuse (Table 4.5.5).

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Table 4.5.4: Respondents’ perceived access to codeine-containing products and tramadol tablets without prescription

Responses	Access to codeine products		Access to tramadol	
	Frequency	Percent (%)	Frequency	Percent (%)
Impossible	109	30.2	122	33.8
Very difficult	160	44.3	140	38.9
Fairly difficult	22	6.1	37	10.2
Fairly easy	17	4.7	20	5.5
Very easy	53	14.7	35	9.7
Don’t know	-	-	7	1.9
Total	361	100.0	361	100.0

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Table 4.5.5: Factors contributing to nonmedical use of opioids among the respondents

Factors	Yes (%)	No (%)
Sexual satisfaction	235 (65.1)	126 (34.9)
Curiosity	178 (49.3)	183 (50.7)
Financial challenge	137 (38.0)	224 (62.0)
Promotion of the drugs	178 (49.3)	182 (50.4)
Influence of Social media	199 (55.1)	162 (44.9)
Illegal importation	206 (57.1)	155 (42.9)
Family influence	156 (43.2)	205 (56.8)
Internet fraudsters (<i>yahoo-yahoo</i>) influence	213 (59.0)	148 (41.0)
Peer pressure	238 (65.9)	123 (34.1)
Easy access to the drugs	208 (57.6)	153 (42.4)
Socioeconomic status of the parents	179 (49.6)	182 (50.4)
Ignorance of the dangers	212 (58.7)	149 (41.3)
Availability of the drug	204 (56.5)	157 (43.5)
Others	5 (1.4%)	
Others: Bad friends (3 [0.8%]), government policy (1 [0.3%]), Depression (1 [0.3%])		

4.6 Test of Hypotheses

Hypothesis One: There is no association between socio-demographic variables and the respondent's perception of nonmedical use opioid drugs.

Chi-square test (χ^2) was used in testing this hypothesis at a 95% confidence interval ($p < 0.05$). The analysis showed a statistically significant association between the respondent's perception of opioid drug abuse and parental marital status ($p = 0.005$) and ethnicity ($p = 0.008$). However, there was no statistically significant association between the respondent's perception of opioid drug abuse and age ($p = 0.299$), gender ($p = 0.087$), faculty of the respondents ($p = 0.074$), halls of residence ($p = 0.325$), level of study ($p = 0.353$), religion ($p = 0.265$) (Table 4.8).

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Table 4.6: Relationship between sociodemographic and perception of opioid abuse

Variable	Perception of opioid drug abuse		Total (%)	X ²	df	p-value
	Negative (%)	Positive (%)				
Age						
16–20	94 (46.1)	85 (54.1)	179 (49.6)	2.412	2	0.299
21–25	98 (48.0)	63 (40.1)	161 (44.6)			
> 25	12 (5.9)	9 (5.7)	21 (5.8)			
Sex						
Male	109 (53.4)	98 (62.4)	207 (57.3)	2.931	1	0.087
Female	95 (46.6)	59 (37.6)	154 (42.7)			
Faculty						
Faculty of Science	67 (32.8)	48 (30.6)	115 (31.9)	8.529	4	0.074
Engineering	36 (17.6)	32 (20.4)	68 (18.8)			
Environmental Studies	23 (11.3)	10 (6.4)	33 (9.1)			
Financial Management Studies	18 (8.8)	6 (3.8)	24 (6.6)			
Business and Communication Studies	60 (29.4)	61 (38.9)	121 (33.5)			
Halls of Residence						
Ramat hall	36 (17.6)	21 (13.4)	57 (15.8)	3.465	3	0.325
Unity hall	47 (23.0)	40 (25.5)	87 (21.4)			
Orisun hall	61 (29.9)	58 (36.9)	119 (33.0)			
Olori hall	60 (29.4)	38 (24.2)	98 (27.1)			
Level of study						
ND 1	92 (45.1)	78 (49.7)	170 (47.1)	3.264	3	0.353
ND 2	60 (29.4)	34 (21.7)	94 (26.0)			
HND 1	36 (17.6)	34 (21.7)	70 (19.4)			
HND 2	16 (7.8)	11 (7.0)	27 (7.5)			
Ethnicity						
Yoruba	155 (76.0)	131 (83.4)	286 (79.2)	9.751	2	0.008*
Igbo	31 (15.2)	24 (15.3)	55 (15.2)			
Hausa	18 (8.8)	2 (1.3)	20 (5.6)			
Religion						
Christian	122 (59.8)	104 (66.2)	226 (62.6)	2.660	2	0.265
Muslim	71 (34.8)	49 (31.2)	120 (33.2)			
Traditional	11 (5.4)	4 (2.5)	15 (4.2)			
Parent's marital status						
Married	162 (79.4)	131 (83.4)	293 (81.2)	12.706	3	0.005*
Divorced	20 (9.8)	6 (3.8)	26 (7.2)			
Widowed	1 (0.5)	8 (5.1)	9 (2.5)			
Single parent	21 (10.3)	12 (7.6)	33 (9.1)			

**Significant*

Hypothesis two: There is no association between respondent's perception and practice of nonmedical use of opioids.

Chi-square test (χ^2) was used in testing this hypothesis at a 95% confidence interval ($p < 0.05$). The analysis revealed a statistically significant association between the respondent's perception of nonmedical use of opioids use and lifetime use of codeine syrups ($p < 0.001$), lifetime use of dihydrocodeine tablet ($p = 0.004$), and lifetime use of cocodamol tablet ($p = 0.001$). Furthermore, past-year nonmedical use of codeine syrups ($p < 0.001$), dihydrocodeine tablet ($p = 0.002$), and cocodamol tablet ($p = 0.011$), as well as past-month nonmedical use of codeine syrups ($p = 0.001$), dihydrocodeine tablet ($p = 0.008$), and cocodamol tablet ($p = 0.022$), showed a statistically significant association with the respondent's perception of opioid drug abuse. The lifetime ($p < 0.001$), past-year ($p < 0.001$), and past-month ($p < 0.001$) nonmedical use of tramadol tablets also showed a statistically significant association with the respondent's perception of opioid drug abuse (Tables 4.6.1).

Table 4.6.1: Relationship between respondent's perception and lifetime, past-year, and past-month nonmedical use of opioids

Variable	Perception of opioid drug abuse		Total (%)	X ²	df	p-value
	Negative (%)	Positive (%)				
Lifetime use of						
Codeine syrups						
Yes	43 (21.1)	9 (5.7)	52 (14.4)	16.946	1	< 0.001*
No	161 (78.9)	148 (94.3)	309 (85.6)			
Dihydrocodeine tablet						
Yes	37 (18.1)	12 (7.6)	49 (13.6)	8.328	1	0.004*
No	167 (81.9)	145 (92.4)	312 (86.4)			
Cocodamol tablet						
Yes	37 (18.1)	10 (6.4)	47 (13.0)	10.849	1	0.001*
No	167 (81.9)	147 (93.6)	314 (87.0)			
Past-year use of						
Codeine syrups						
Yes	39 (19.1)	10 (6.4)	49 (13.6)	12.291	1	< 0.001*
No	165 (80.9)	147 (93.6)	312 (86.4)			
Dihydrocodeine						
Yes	37 (18.1)	11 (7.0)	48 (13.3)	9.535	1	0.002*
No	167 (81.9)	146 (93.0)	313 (86.7)			
Cocodamol						
Yes	34 (16.7)	12 (7.6)	46 (12.7)	6.497	1	0.011*
No	170 (83.3)	145 (92.4)	315 (87.3)			

***Significant**

Table 4.6.1: (continued) Relationship between respondent's perception and lifetime, past-year, and past-month nonmedical use of opioids

Variable	Perception of opioid drug abuse		Total (%)	X ²	df	p-value
	Negative (%)	Positive (%)				
Past-month use codeine syrups						
Yes (1-5 days)	19 (9.3)	5 (3.2)	24 (6.6)	15.534	3	0.001**
Yes (6-19 days)	10 (4.9)	3 (1.9)	13 (3.6)			
Yes (20 days or more)	8 (3.9)	0 (0.0)	8 (2.2)			
No	167 (81.9)	149 (94.9)	316 (87.5)			
Past-month use dihydrocodeine						
Yes (1-5 days)	14 (6.9)	5 (3.2)	19 (5.3)	11.075	3	0.008**
Yes (6-19 days)	18 (8.8)	4 (2.5)	22 (6.1)			
Yes (20 days or more)	5 (2.5)	1 (0.6)	6 (1.7)			
No	167 (81.9)	147 (93.6)	314 (87.0)			
Past-month use of cocodamol						
Yes (1-5 days)	11 (5.4)	5 (3.2)	16 (4.4)	9.487	3	0.022**
Yes (6-19 days)	15 (7.4)	3 (1.9)	18 (5.0)			
Yes (20 days or more)	8 (3.9)	2 (1.3)	10 (2.8)			
No	170 (83.3)	147 (93.6)	317 (87.8)			
Lifetime use of tramadol						
Yes	34 (16.7)	7 (4.5)	41 (11.4)	13.134	1	<0.001*
No	170 (83.3)	150 (95.5)	320 (88.6)			
Past-year use of tramadol						
Yes	33 (16.2)	3 (1.9)	36 (10.0)	20.111	1	<0.001**
No	171 (83.8)	154 (98.1)	325 (90.0)			
Past-month use of tramadol						
Yes (1-5 days)	10 (4.9)	0 (0.0)	10 (2.8)	21.002	3	<0.001**
Yes (6-19 days)	13 (6.4)	3 (1.9)	16 (4.4)			
Yes (20 days or more)	8 (3.9)	0 (0.0)	8 (2.2)			
No	173 (84.8)	154 (98.1)	327 (90.6)			

**Significant **Significant (Fishers Exact) Fisher test was used for cells that had values less than five)*

Hypothesis three: There is no association between respondent's exposure to the promotion of opioid drugs in songs/videos and the nonmedical use of opioids.

Chi-square analysis revealed that there is a statistically significant association between the respondent's exposure to the promotion of tramadol in the mass media and lifetime ($p = 0.002$), past-year ($p=0.001$) and past-month ($p=0.018$) nonmedical use of tramadol (Table 4.6.2). Moreover, the lifetime-use of codeine syrups showed a statistically significant relationship with the respondent's exposure to codeine promotion in the mass media (p -value = 0.048) (Table 4.6.2).

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Table 4.6.2: Relationship between respondent's exposure to the promotion of opioid drugs in songs/videos and the nonmedical use of opioids

Variable	Exposure to tramadol promotion in mass media		Total	X ²	df	p-value
	Yes (%)	No (%)				
Lifetime use of tramadol						
Yes	16 (39.0)	25 (70.0)	41 (11.4)	9.358	1	0.002*
No	59(39.0)	261(39.0)	320 (88.6)			
Past-year use of tramadol						
Yes	15 (41.7)	21 (58.3)	36 (10.0)	10.603	1	0.001*
No	60 (18.5)	265 (81.5)	325 (90.0)			
Past-month use of tramadol						
Yes (1-5 days)	5 (0.5)	5 (0.5)	10 (2.8)	9.145 ^a	3	0.018**
Yes (6-19 days)	2 (12.5)	14 (87.5)	16 (4.4)			
Yes (20 days or more)	4 (0.5)	4 (0.5)	8 (2.2)			
No	64 (19.6)	263 (80.4)	327 (90.6)			
Variable	Exposure to codeine promotion in mass media		Total	X ²	df	p-value
	Yes (%)	No (%)				
Lifetime use of codeine syrups						
Yes	18 (34.6)	34 (65.4)	52 (14.4)	3.899	1	0.048*
No	68 (22.0)	241 (78.0)	309 (85.6)			

**Significant ** Significant (Fishers Exact) Fisher test was used for cells that had values less than five)*

Hypothesis Four: There is no association between the contributory factors and the practice of tramadol/codeine abuse.

Chi-square analysis revealed that there is a statistically significant association between lifetime use of codeine syrups and factors such as curiosity ($p=0.002$), family influence ($p=0.001$), peer pressure ($p=0.034$), and socioeconomic status of respondent's parents ($p=0.031$) (Table 4.6.3a).

Also, Chi-square analysis revealed that there is a statistically significant association between lifetime use of tramadol tablets and factors such as sexual satisfaction (0.028), curiosity ($p=0.01$), illegal importation ($p=0.011$), and ignorance of the dangers of opioids ($p=0.02$) (Table 4.6.3a).

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Table 4.6.3a: Relationship between factors contributing to opioid abuse and nonmedical use of codeine

Factors	Lifetime use of codeine		Total (%)	X ²	df	p-value
	Yes (%)	No (%)				
Curiosity						
Yes	36 (69.2)	16 (30.8)	52 (14.4)	9.648	1	0.002*
No	142 (46.0)	167 (54.0)	309 (85.6)			
Family influence						
Yes	33 (63.5)	19 (36.5)	52 (14.4)	10.150	1	0.001*
No	123 (39.8)	186 (60.2)	309 (85.6)			
Peer pressure						
Yes	41 (78.8)	11 (21.2)	52 (14.4)	4.513	1	0.034*
No	197 (63.8)	112 (36.2)	309 (85.6)			
Socio-economic status of the parents						
Yes	33 (63.5)	19 (36.5)	52 (14.4)	4.680	1	0.031*
No	146 (47.2)	163 (52.8)	309 (85.6)			

**Significant*

Table 4.6.3b: Relationship between factors contributing to opioid abuse and nonmedical use of tramadol

Variable	Lifetime use of tramadol		Total (%)	X ²	df	p-value
	Yes (%)	No (%)				
Sexual satisfaction						
Yes	33 (80.5)	8 (19.5)	41 (11.4)	4.822	1	0.028*
No	202 (63.1)	118 (36.9)	320 (88.6)			
Curiosity						
Yes	28 (68.3)	13 (31.7)	41 (11.4)	6.670	1	0.010*
No	150 (46.9)	170 (53.1)	320 (88.6)			
Illegal importation						
Yes	31 (75.6)	10 (24.4)	41 (11.4)	6.493	1	0.011*
No	175 (54.7)	145 (45.3)	320 (88.6)			
Ignorance of the dangers						
Yes	31 (75.6)	10 (24.4)	41 (11.4)	5.440	1	0.020*
No	181 (56.6)	139 (43.4)	320 (88.6)			

**Significant*

4.7 Logistic Regression Model Coefficients on Lifetime Nonmedical Use of Opioids

The Wald statistic in the Logistic regression model indicated the coefficient of perception of opioid abuse to be a significant predictor of nonmedical use of codeine ($p < 0.05$) and tramadol ($p = 0.001$) among the respondents (Tables 4.7a and b).

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Table 4.7a: Logistic regression on lifetime nonmedical use of codeine

Variable	B	S.E	Wald	df	p-value.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Codeine promotion	-0.669	0.350	3.643	1	0.056	0.512	0.258	1.018
Curiosity	-0.402	0.367	1.202	1	0.273	0.669	0.326	1.373
Family influence	-0.517	0.356	2.107	1	0.147	0.596	0.297	1.199
Socioeconomic	-.018	0.365	0.003	1	0.960	0.982	0.480	2.008
Peer pressure	-0.382	0.419	0.830	1	0.362	0.683	0.300	1.552
Perception	-1.449	0.402	12.976	1	0.000	0.235	0.107	0.517
Constant	3.757	0.493	58.115	1	0.000	42.829		

Predictors: exposure to codeine promotion in mass media, curiosity, family influence, socioeconomic, peer pressure and perception score.

Variable type used: numeric (perception score); categorical (exposure to codeine promotion in mass media, curiosity, family influence, socioeconomic, peer pressure).

Reference category: exposure to codeine promotion in mass media (not exposed), curiosity (no); family influence (no), socioeconomic (no), peer pressure (no), and perception score (good).

Table 4.7b: Logistic regression on lifetime nonmedical use of tramadol

Variable	B	S.E.	Wald	Df	p-value	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Tramadol promotion	-0.592	0.378	2.451	1	0.117	0.553	0.264	1.161
Curiosity	-0.327	0.390	0.703	1	0.402	0.721	0.336	1.549
Sexual satisfaction	-0.203	0.473	0.184	1	0.668	0.816	0.323	2.062
Illegal importation	-0.471	0.437	1.163	1	0.281	0.624	0.265	1.470
Ignorance of dangers	-0.460	0.449	1.052	1	0.305	0.631	0.262	1.521
Perception	-1.479	0.446	11.022	1	0.001	0.228	0.095	0.546
Constant	4.212	0.592	50.552	1	0.000	67.474		

Predictors: exposure to tramadol promotion in mass media, curiosity, sexual satisfaction, illegal importation, ignorance of dangers and perception score.

Variable type used: numeric (perception score); categorical (exposure to tramadol promotion in mass media, curiosity, sexual satisfaction, illegal importation, ignorance of dangers).

Reference category: exposure to tramadol promotion in mass media (not exposed), curiosity (no), sexual satisfaction (no), illegal importation (no), and ignorance of dangers (no).

CHAPTER FIVE

DISCUSSION, CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS FOR HEALTH EDUCATION AND PROMOTION

5.1 DISCUSSION

The age of the respondents ranged from 16 to 30 years with a mean age of 21.1 ± 2.7 years. This is consistent with the study of Oshikoya and Alli (2006) which reported that the majority (77.9%) of the students were aged 19–30 years. Most of the respondent (49.6%) were within the age range 16–20 years, which represent the age group that is vulnerable to drug use (i.e., adolescents and young adults) (Onajole and Bamgbala, 2004). Furthermore, a larger percentage of the respondents (47.1%) were Ordinary National Diploma level 1 students. This may be because the study was carried out among students residing in the halls of residence of the polytechnic, which are often reserved for the students in the lower levels. Respondents were predominantly from the Yoruba ethnic group (79.5%) while Christianity (62.6%) was the major religion among them. There were more males (57.3%) than female (42.7%) respondent, which is in line with a study conducted among undergraduate students in Benin where the majority of the respondents were young people and a higher proportion of respondents were male students (Adeyemo *et al.*, 2016).

Many of the respondents (40.4%) could not correctly describe opioid drugs, they simply described opioids as hard drugs. However, the majority (78.4%) had a fair knowledge of the nonmedical use of opioids. This implies many of the respondents do not know drugs classified as opioids and may actually not be able to differentiate them from other drugs of abuse. Only a few of the respondents (11.4%) correctly described opioids as painkillers, which is consistent with the UNODC/WHO (2013) definition of opioids – drugs derived from opium poppy plants, which are generally used to treat pain. The fair knowledge of the respondents implies that even though they may not know the right classification of opioids, they have a little knowledge of when it is not being used for medical purposes. A study among undergraduate students in Malaysia, however, reported that the students had a good knowledge of drug abuse, which was attributed to the several drug abuse programmes targeted at young people that has been implemented in the country (Al-Zurfi, Fuad Fuad,

Ghazi, AbdalQader, Elnajeh, and Baobaid, 2016). The implication of this is that more educational interventional programmes are required to increase the knowledge of young people on opioid abuse in Nigeria.

More than half of the respondents had a negative perception of the nonmedical use of opioids (56.5%). This is consistent with a study carried out among undergraduate students in Lagos that revealed that most of the students had poor attitudes to drug abuse (Oshikoya and Alli, 2006). Another study by Mohebb, Haghdoost, Noroozi, Vardanjani, Hajebi, *et al.* (2019) revealed 95% of the respondents showed a negative attitude to opioid use. Chi-square analysis revealed that parental marital status ($p=0.005$) and ethnicity ($p=0.008$) had a statistically significant association with the respondent's perception of nonmedical use of opioids. More respondents of the Yoruba ethnic group showed a negative perception of the nonmedical use of opioids compared to the other two ethnic groups. This, however, maybe because more of the study's respondents were from the Yoruba ethnic group. Also, more of the respondents with married as well as divorced parents showed a negative perception of nonmedical use of opioids while more of the respondents with widowed parents had a good perception of nonmedical use of opioids.

Chi-square test also revealed that there is a statistically significant association between the respondent's perception of nonmedical use of opioids use and lifetime use of codeine syrups ($p < 0.001$), dihydrocodeine tablet ($p=0.004$), and cocodamol tablet ($p=0.001$). More of the respondents with negative perception was involved in the lifetime, past-year, and past-month nonmedical use of all the types of codeine products listed in this study. This is consistent with the findings of Ekpenyong (2012) who found that the perception of students towards drugs affects their behaviour in terms of drug use.

Furthermore, past-year nonmedical use of codeine syrups ($p < 0.001$), dihydrocodeine tablet ($p=0.002$), and cocodamol tablet ($p=0.011$), as well as past-month nonmedical use of codeine syrups ($p=0.001$), dihydrocodeine tablet ($p=0.008$), and cocodamol tablet ($p=0.022$), showed a statistically significant association with the respondent's perception of opioid drug abuse. A study carried out among teenagers in the US also revealed young people who hold favourable attitude towards illicit drugs are at high risk of nonmedical use of prescription opioids (Sung *et al.*, 2015). The lifetime ($p < 0.001$), past-year ($p < 0.001$), and past-month ($p < 0.001$)

nonmedical use of tramadol tablets also showed a statistically significant association with the respondent's perception of opioid drug abuse. More of the respondents with negative perception was involved in lifetime, past-year, and past-month nonmedical use of tramadol.

In this study, the lifetime prevalence of any drug use among the respondents was 16.9%. This is almost similar to a study carried out in Kagoro, Kaduna state, Nigeria which reported a 21.0% prevalence of substance use among young people (Bassi *et al.*, 2017). In contrast, a study among undergraduate students in Benin City revealed that 46.6% of the respondents have taken drugs for nonmedical purposes at least once (Adeyemo *et al.*, 2016), which is quite higher than the prevalence of any drug use in this study.

The lifetime nonmedical use of codeine syrups, dihydrocodeine, cocodamol, and tramadol tablets among the respondents was 14.4%, 13.5%, 13.0%, and 11.4%, respectively. This is almost similar to the study of Kenne *et al.* (2017) where a 9.5% lifetime prevalence of opioid misuse was reported among college students. The past-year use of codeine syrups, dihydrocodeine, and cocodamol were 13.6%, 10.0%, and 12.7%, respectively while the past-month were 12.5%, 13.0%, and 12.2%, respectively. In contrast, Wang *et al.* (2014) found a very low prevalence of codeine syrups (2.1%) among high school students in China compared to the findings of this study.

The lifetime prevalence of codeine (codeine syrups, dihydrocodeine, and cocodamol) and tramadol abuse in this study were also quite similar, which implies the opioids are being used in almost equal proportion. The past-year and past-month prevalence of tramadol use among the respondents was 10.0% and 9.4%, respectively. This is consistent with a study in Egypt that reported an 8.8% prevalence of tramadol use among in-school adolescents (Bassiony *et al.*, 2015). In contrast, a study carried out in the UK revealed that only 5% of the respondents were involved in the past-year use of tramadol (Winstock *et al.*, 2014), half of the percentage reported in this study. Kenne *et al.* (2017) also reported a low prevalence of opioid misuse among college students (3.7%). A national survey of substance abuse in Nigeria estimated the national prevalence rates of lifetime, past-year, and past-month use opiates as 7.2%, 3.6% and 2.2%, respectively (Adamson, Ogunlesi, Morakinyo, Akinhanmi, Onifade, *et al.*, 2015), which is generally lower than the findings of this present study.

A lower prevalence of opioid misuse was also reported among student pharmacists in the US (lifetime [8%], past-year [5%]) (Lord, Downs, Furtaw, Chaudhuri, Silverstein *et al.*, 2009). The lifetime prevalence of opioid use in this study is, however, consistent with the findings of Mohebbi *et al.* (2019), which reported a lifetime prevalence of 12.9%. The NBS (2018) also reported that 4.7% of the Nigerian population had used opioids (such as tramadol, codeine, or morphine) for nonmedical purposes in the past year. In contrast to this study, the past-year prevalence of nonmedical use of opioids was reported to be 20.6% in a study conducted in Canada (Brands, Paglia-Boak, Sproule, Leslie, and Adlaf, 2010).

The majority of the respondents in this study first used codeine syrups, dihydrocodeine, and cocodamol tablets (57.7%, 55.1%, 53.2%, respectively) when they were 15–19 years. This is consistent with a study by Bassi *et al.* (2017), which identified the most vulnerable age group involved in substance use to be young people between 15–19 years of age. Among the respondents involved in the nonmedical use of tramadol, 58.5% used it when they were > 20 years. WDR (2018) also revealed that peak levels of drug use in countries and most regions and for most drug types are seen among those aged 18–25 years. Bassiony *et al.* (2015), however, reported the age of onset of tramadol use among in-school adolescents in Egypt as 16.5±1.1 years.

The recurring reasons for the use of the different types of codeine products by the respondents in this study include to feel good/high, to gain energy, to have fun in parties, to gain confidence, and to enhance sexual performance. This is consistent with a nationwide survey of high school students who reported students used drugs to have a good time with their friends, to experiment, to alter their moods, to feel good, to relax, and to overcome boredom and problems (Abudu, 2008). A study by McCabe *et al.* (2007) also identified reasons such as to relieve physical pain, to get high, and to experiment as the three most common motives for nonmedical use of prescription opioids. The most common reason stated by the respondents for the lifetime use of tramadol was to enhance sexual performance (31.7%). Other reasons include out of curiosity, for fun, to feel good/high, for sports activities, for strength and energy, to boost confidence, and as a result of friend's influence. Similar reasons were stated for the past-year and past-month use of tramadol. Also, in

Winstock *et al.*'s (2014) study, most of the respondents used tramadol to relieve pain, but 44% used it particularly to relax, sleep, get high or relieve boredom.

Among the respondents, 47.5% have used other drugs with codeine and tramadol, such as alcohol (24.1%), tutolin cough syrups (17.2%), Rohypnol (10.3%), pain relieve tablets (6.9%), Arizona (marijuana) (3.4%), and weed (3.4%). An increase in poly-drug use among young people has been reported in several studies (NBS, 2018; Anyanwu, Ibekwe and Ojinnaka, 2016). Brands *et al.* (2010) reported that students who used opioids nonmedically had a higher prevalence of alcohol use and other drugs compared to nonusers. Olsson, Öjehagen, Brådvik, Kronstrand, and Håkansson (2017) also found in their study that more opioid-positive patients screened significantly positive for other (noncannabis) drugs compared to nonopioid users. Winstock *et al.* (2014) further reported than respondents combined opioids such as tramadol with alcohol or other drugs to enhance its effects.

The most common factors contributing to opioid drug abuse identified by the respondents include peer pressure (65.9%), sexual satisfaction (65.1%), the influence of social media (65.9%), the influence of internet fraudsters (59.0%). It has been found that tramadol, though primary indicated for pain management, can delay ejaculation and extend the time to orgasm (Salem *et al.*, 2008), which could be the reason young people use it to achieve sexual satisfaction. The majority of the respondents that have been involved in nonmedical use of codeine and tramadol were introduced to it by their friends (42.5% and 56.1%, respectively), which is consistent with the study of Lord *et al.* (2009) that reported friends as the most common source of prescription opioids and stimulants. Several studies, local and global, have also identified the influence of peers as a major factor contributing to drug use among young people (Bassi *et al.*, 2017; Wang *et al.*, 2014; Brands *et al.*, 2010). Young people who have friends that use illicit drugs have been shown to be at high risk of nonmedical use of prescription opioids (Sung *et al.*, 2015). In Brands *et al.*'s study, only a small proportion of the respondents stated that they obtained opioids from friends (6.0%), the majority obtained it from home (72%). McCabe *et al.*, (2007), however, identified friends and parents as the leading sources of prescription opioids. Social media and generally, the Internet, has made communication and access to information, including information about drugs such as opioids easier than ever before. The fact that individuals can be anonymous on the internet has also

been identified as a possible contributory factor to drug abuse (Forman, Marlowe, and McLellan, 2006).

Respondents also identified illegal importation (57.1%), easy access (57.5%) and availability of the drugs (56.5%) as factors contributing to the menace of opioid abuse. This is consistent with a study in Egypt which noted that tramadol's prevalence is mostly due to its wider availability and cheaper prices compared to other types of abused drugs (Fawzi, 2011). Another study conducted among in-school adolescents in Kaduna also reported easy access to drugs as one of the reasons adolescents indulged in substance use (Bassi *et al.*, 2017). UNODC/WHO (2013) have also noted that opioid overdose rates are associated with the increased availability of opioids, both illicit and prescribed. However, when asked about their perceived access to opioids, 44.3% stated it would be very difficult to get codeine products in their community without prescription while 14.7% stated that it would be very easy. This percentage is the same for perceived access to tramadol among the respondents.

About half of the respondents believe curiosity, socioeconomic status of parent, and promotion of opioid drugs in music/videos contribute to the abuse. Curiosity is a major characteristic of young people and has been identified as a contributory factor to drug use in several studies (Bassi *et al.*, 2017). Other factors identified by the respondents include family influence and ignorance of the dangers of opioid abuse. Chi-square analysis revealed that there is a statistically significant association between lifetime use of codeine syrups and factors such as curiosity ($p=0.002$), family influence ($p=0.001$), peer pressure ($p=0.034$), and socioeconomic status of respondent's parents ($p=0.031$). Bassi *et al.*, (2017) also identified curiosity and family influence as major contributors to this prevalence of drug use among young people.

Among the respondents that reported that they have watched/listen to songs/videos promoting codeine, 31.4% revealed that the songs or videos made use of codeine attractive to them while 30.7% of the respondents exposed to the promotion of tramadol in songs/videos revealed that the exposure made using tramadol attractive to them. Chi-square analysis further revealed that there is a statistically significant association between the respondent's exposure to the promotion of tramadol in songs/videos and lifetime ($p=0.002$), past-year ($p=0.001$) and past-month ($p=0.018$) nonmedical use of tramadol. The lifetime-use of

codeine syrups showed a statistically significant relationship with the respondent's exposure to codeine promotion in the mass media ($p=0.048$). Indirect media advertising for tramadol abuse through movies and show series has been reported to play a remarkable role in the promotion of tramadol abuse (Fawz, 2011).

Chi-square analysis further revealed that there is a statistically significant association between lifetime use of tramadol tablets and factors such as sexual satisfaction (0.028), curiosity ($p=0.01$), illegal importation ($p=0.011$), and ignorance of the dangers of opioids ($p=0.02$). The Wald statistic in the Logistic regression model further indicated the coefficient of perception to be a significant predictor of nonmedical use of codeine ($p=0.000$) and tramadol ($p=0.001$) among the respondents. Respondents with negative perceptions are more likely (codeine syrups [23.5%], tramadol [22.8%]) to be involved in nonmedical use of opioids. This is consistent with the study of Arria *et al.* (2008) who found low perceived harmfulness is an important risk factor for nonmedical use of prescription drugs. In contrast, Sung *et al.* (2015) in their study reported that respondents' own use of illicit drugs as the strongest predictor of nonmedical use of prescription opioids among the respondents.

5.2 Conclusion

The study revealed that the majority of the respondents had fair knowledge but a negative perception of opioid abuse. Respondent's perception and exposure to the promotion of opioids in songs/videos were also found to be significantly associated with nonmedical use of opioids. Most of the respondents were introduced to opioid abuse by friends/peers. The age of onset of opioid abuse among the respondents was 15–19 years (nonmedical use of codeine) and > 20 years (nonmedical use of tramadol). Factors that contributed to significantly to lifetime use of codeine syrups include curiosity, family influence, peer pressure, and socioeconomic status of respondent's parents ($p<0.05$), while factors such as sexual satisfaction, curiosity, illegal importation, and ignorance of the dangers of opioids ($p<0.05$) were found to contribute significantly to nonmedical use of tramadol.

5.3 Recommendations

In light of the findings of this study, the following recommendations were made:

1. Continuous educational programmes should be implemented in schools to increase the knowledge of young people on opioids abuse and its dangers. This will also help to

improve their perception and drive positive behavioural change towards nonmedical use of opioids. Furthermore, public enlightenment and reorientation about opioids abuse and substance abuse, in general, should be carried by relevant agencies and organisations to stem the growing opioid crisis in the country.

2. The government should enact policies to regulate indirect advertising or promotion of nonmedical use of opioids in the mass media. Furthermore, government agencies such as NAFDAC, NDLEA, Nigeria Customs, Pharmacist Council of Nigeria and other relevant agencies should be strengthened and encouraged to collaborate more to further combat illegal importation of opioids into the country as a means to reducing unrestricted access and availability of the drugs.
3. Prescription policy for opioids should be strengthened and effective monitoring should be put in place to ensure proper compliance in all hospitals and pharmacies in the country. Appropriate sanctions should be meted out to any individuals or establishments that do not abide by the policy.

5.4 Implications of the Study for Health Promotion and Education

The findings of this study revealed that respondents have fair knowledge but a poor perception of the nonmedical use of opioids. The respondent's perception significantly contributed to their involvement in opioid drug abuse and they got involved in opioid abuse at a young age. This shows a need for health promotion and educational intervention targeted at young people to increase their knowledge and consequently their perception of nonmedical use of opioids as a means to combating the increasing menace of the opioid crisis. The indirect promotion of opioid abuse in mass media was also found to contribute to the nonmedical use of opioids. Hence, the need for policies to regulate the promotion and imagery of opioids in songs and videos.

This study also revealed that respondents were mainly introduced to opioid abuse by their peers/friends. The implication of this is that if young people are encouraged to focus on their academics and dissociate from people involved in drug abuse by parents and guidance, the prevalence of opioid drugs can be reduced significantly.

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APPENDICES

APPENDIX 1: INFORMED CONSENT FORM

Dear Respondent,

I am a postgraduate student of the Department of Health Promotion and Education, Faculty of Public Health, University of Ibadan. The purpose of this study is to gather information about the **Patterns of Abuse of Opioid Drugs among Students of Polytechnic of Ibadan**. Please note that your participation in this study is entirely voluntary. As the main intention behind the survey is not to identify any individual's response, but group responses, YOU SHOULD NOT WRITE YOUR NAME anywhere on the questionnaire. Each questionnaire has been given a CODE NUMBER to conceal your identity. All information that would be collected during this study will be treated with utmost confidentiality and will be used only for research purposes.

Please also note that there is no right or wrong answer to the questions asked or the statements made. The time needed to complete the questionnaire is approximately 15 minutes. Your willingness to complete the questionnaire implies you have given consent to participate. Kindly append your signature in the section below as a form of written consent to participate in the study. Thank you for cooperation. **Please answer all the questions as honestly and accurately as you can – this is very important.**

Respondent's signature _____

Serial Number _____

APPENDIX 2: QUESTIONNAIRE

PATTERNS OF ABUSE OF OPIOID DRUG AMONG STUDENTS OF POLYTECHNIC OF IBADAN

SECTION A: SOCIO-DEMOGRAPHICS (Please fill or tick)

1. Age as at last birthday (in years): _____
2. Gender 1= Male 2 = Female
3. Faculty/Department: _____
4. Hall of residence: _____
5. Level 1= ND 1 2 = ND 2 3 = HND 1 4 = HND 2
6. Ethnicity 1= Yoruba 2 = Igbo 3 = Hausa 4 = Others
7. Religion 1= Christian 2= Muslim 3=Traditional 4= Others _____
8. Parent's marital status 1= Married 2=Divorced 3=Widowed 4= Single parent

SECTION B: KNOWLEDGE OF OPIOID DRUG ABUSE

9. What are opioid drugs?

10. Abuse of Codeine or Tramadol can be described as the following (please tick **YES** or **NO**)

S/N	KNOWLEDGE STATEMENTS	YES=1	NO= 2
i.	Use of recommended codeine syrups to treat cough		
ii.	Use of tramadol for sexual activity		
iii.	Use of codeine or tramadol for fun and enjoyment		
iv.	Use of codeine or tramadol for medical purpose		
v.	Dependence on tramadol or codeine to function normally		
vi.	Persistent and excessive self-administration of tramadol or codeine		
vii.	Use of codeine or tramadol to overcome anxiety and stress		
viii.	Use of codeine or tramadol at normal dose to relieve pains		
ix.	Use of high dose of tramadol to gain power for hard work		
x.	Use of codeine or tramadol in ways that conform with approved, moral and social norms		

11. Please tick if any of the following are possible dangers of abusing opioid drugs like codeine and tramadol. Tick under **YES** or **NO**.

S/N	KNOWLEDGE STATEMENTS	YES=1	NO=2
i.	Addiction/dependence		
ii.	Good academic performance		
iii.	Increased strength and energy		
iv.	Damage to internal organs		
v.	Mental illness		
vi.	Respiratory depression		
vii.	Protection from sexually transmitted infections		
viii.	Relieve from pains		
ix.	Reduced violence		
x.	Coma and Death		

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SECTION C: PERCEPTION TO ABUSE OF OPIOID DRUGS

12. Kindly tick **Agree**, **Disagree** or **Undecided** to the statements below

S/N	PERCEPTION STATEMENTS	Agree=1	Undecided=2	Disagree=3
i.	It is ok to use codeine/tramadol for non-medical purpose			
ii.	Use of codeine/tramadol helps the body to relax and feel good			
iii.	Codeine boosts confidence and performance			
iv.	The benefit of using codeine/tramadol is more than the harm it can cause			
v.	Promotion of codeine/tramadol in music and videos makes drug use attractive			
vi.	Tramadol and codeine are not dangerous as some people claim			
vii.	Tramadol can help one to enjoy sexual activities			

SECTION D: PRACTICE OF OPIOID DRUG ABUSE

Please tick YES or NO for the following questions and fill in the space where necessary.

13. Have you ever used any drug for non-medical purpose (to feel good/high)?

1 = Yes

2 = No

14. Have you ever used any of these syrups/tablets containing codeine for non-medical purpose?

S/N	Drug containing codeine	1=Yes	2=No	If Yes to any, why did you use it?
i.	Codeine syrups			
ii.	Dihydrocodeine tablet (DF118)			
iii.	Cocodamol			

15. In the last one year, have you used any of these syrups/tablets containing codeine for non-medical purpose?

S/N	Drug containing codeine	1=Yes	2=No	If Yes to any, why did you use it?
i.	Codeine syrups			
ii.	Dihydrocodeine tablet (DF118)			
iii.	Cocodamol			

16. In the last 30 days, have you used any of these codeine or codeine containing preparations (syrups/tablets) for non-medical purpose?

S/N	Drugs Containing Codeine	1= Yes (1-5 days)	2= Yes (6-19 days)	3= Yes (20 days or more)	4= No	If Yes to any, why did you use it?
i.	Codeine syrup					
ii.	Dihydrocodeine tablet (DF118)					
iii.	Cocodamol					

17. How old were you when you first took codeine or codeine containing preparation (e.g. syrups) for non-medical purpose?

S/N	Drugs Containing Codeine	1= Never	2= 10 years or less	3= 11-14 years	4= 15-19 years
i.	Codeine syrup				
ii.	Dihydrocodeine tablet (DF118)				
iii.	Cocodamol				

18a. Have you ever used **tramadol capsule/tablet** for non-medical purpose?

1= Yes 2= No

b. If yes, why did you use it? (If No, go to question 18a)

19a. In the last one year, have you taken **tramadol** for non-medical purpose?

1= Yes 2= No

b. If yes, why did you use it? (If No, go to question 19a)

20a. In the last 30 days, have you taken **tramadol** for non-medical purpose?

1= Yes (1-5 days) 2= Yes (6-19 days) 3= Yes (20 days or more) 4= No

b. If yes, why did you use it? (If No, go to question 20)

21. How old were you when you first took **tramadol** for non-medical purpose?

1= Never 2= 10 years or less 3= 11-14 years
 4= 15-19 years 5= > 20 years

22a. Have you ever used any other drugs with codeine and tramadol?

1= Yes 2= No

b. If yes, what are these drugs _____

SECTION E: CONTRIBUTING FACTORS TO ABUSE OF OPIOID DRUGS

23. Who introduced you to non-medical use of Codeine?

1= Family 2= Friends/peers 3= Club member 4= Drug pusher
5= Doctor 6= Pharmacist 7= Other health workers 8= Internet
9= Have never used codeine 10= Others _____

23. Have you ever watched video or listened to songs promoting **codeine**?

1= Yes 2= No 3= Not sure

24. Did the songs or videos make using **codeine** attractive to you?

1= Yes 2= No 3= Don't know

25. How difficult do you think it would be for you to get **codeine** containing products without prescription in your community?

1= Probably impossible 2= Very difficult 3= Fairly difficult
4= Fairly easy 5= Very easy

26. Who introduced you to non-medical use of **tramadol**?

1= Family 2= Friends 3= Casual acquaintance 4= Drug pusher
5= Doctor 6= Pharmacist 7= Other health workers 8=Internet
9= Have never used tramadol 10= Others _____

27. Have you ever watched videos or listen to songs promoting Tramadol?

1= Yes 2= No 3= Not sure

28. Did the songs or videos make using Tramadol attractive to you?

1= Yes 2= No 3= Don't know

29. How difficult do you think it would be for you to get tramadol capsule without prescription in your community?

1= Probably impossible 2= Very difficult 3= Fairly difficult 4= Fairly easy 5= Very easy

30. Identify if the following are factors contributing to abuse of drugs such as codeine and tramadol. Kindly tick either **YES** or **NO**.

S/N	FACTORS	YES	NO
i.	Sexual satisfaction		
ii.	Curiosity		
iii.	Financial challenge		
iv.	Promotion of the drugs in songs/music videos/films		
v.	Influence of Social media		
vi.	Illegal importation		
vii.	Family influence		
viii.	Internet fraudsters (<i>yahoo-yahoo</i>) influence		
ix.	Peer pressure		
x.	Easy access to the drugs		
xi.	Socio-economic status of the parents		
xii.	Ignorance of the dangers		
xiii.	Availability of the drug		
Xiv	Others (please specify)		

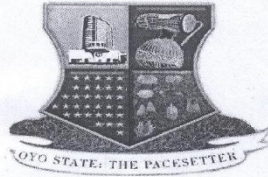
Thank you for the time spent with me

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APPENDIX 3: ETHICAL APPROVAL LETTER

TELEGRAMS.....

TELEPHONE.....



MINISTRY OF HEALTH
DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION
PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No.

All communications should be addressed to

the Honorable Commissioner quoting

Our Ref. No. AD 13/479/1387

31 July, 2019

The Principal Investigator,
Department of Health Promotion and Education,
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan, Nigeria.

Attention: Badewo Olurogba


**ETHICS APPROVAL FOR THE IMPLEMENTATION
OF YOUR RESEARCH PROPOSAL IN OYO STATE**

This is to acknowledge that your Research Proposal titled: "Pattern of Prescription Opioid Drug Abuse among Students of Polytechnic of Ibadan, Oyo State." has been reviewed by the Oyo State Ethics Review Committee.

2. The committee has noted your compliance. In the light of this, I am pleased to convey to you the full approval by the committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations, in line with this, the Committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of findings as this will help in policy making in the health sector.

4. Wishing you all the best.


Dr. Abbas Obolahan
Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethics Review Committee

