INCIDENCE AND PREVALENCE OF OPIOID ABUSE AMONG UNIVERSITY OF BENIN STUDENTS

BY

KARIS ONYINYE ZEKARYAH

PHA1405792

DEPARTMENT OF CLINICAL PHARMACY

AND PHARMACY PRACTICE

FACULTY OF PHARMACY

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CERTIFICATION

I certify that this work was carried out by **Miss Karis Onyinye ZEKARYAH,** in the Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, University of Benin, Benin city, Nigeria.

ZEKARYAH, Karis Onyinye	**Date**
(Student)	
Dr. Penaere T. Osahon	**Date**
(Project Supervisor)	
Prof. Stella F. Usifoh	**Date**
(Head of Department)	

DEDICATION

This project is dedicated to God Almighty.

ACKNOWLEDGEMENT

Firstly, I wish to appreciate Prof. Penaere T. Osahon, my project supervisor for her advice and instructions throughout the course of the study.

Secondly, my appreciation goes to my parents Mr. and Mrs. A.U Zekaryah for all their effort in getting me to where I am today.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Introduction: In Nigeria currently, opioids (especially tramadol and codeine) are the second most widely used substances among young individuals after cannabis. A review of several literature reported the prevalence of drug abuse, especially tramadol and codeine, among Nigerian students as 20% - 40% (Jatau et al, 2021).

Aim: This study is aimed at determining the prevalence, effects and factors associated with opioid abuse among final year students of University of Benin.

Method: A self-administered system of data collection was employed using a questionnaire that contained 4 sections and 30 questions. The questionnaire was constructed such that each section contained questions that relate to the specific objectives of this study. Data collected was analysed using SPSS version 21.

Results: 395 students participated in this study, out of which 101 (26%) students reported to have used opioids. The most popular opioids abused among the respondents are codeine and tramadol (60 and 63 respondents respectively). Out of the 101 abusers, 76% are male. There is a significant relationship between gender and opioid abuse (p value= 0.000). Major effects of opioid abuse observed are drowsiness, absence from class and exams, and altered daily activities (eating, sleeping and mood).

Conclusion: This study revealed that the prevalence of opioid abuse among final year students of University of Benin is relatively high. Tramadol and codeine are the most abused opioids among the respondents. The male gender is more likely to abuse opioids hence gender is a major factor associated with opioid abuse.

CHAPTER ONE

INTRODUCTION

Opioids are a class of drugs naturally found in the opium poppy plant, *Papaver somniferum*. It refers to compounds that are extracted from the poppy seed (e.g morphine) as well as semi synthetic and synthetic compounds with similar properties (e.g fentanyl) (WHO, 2021).

The term opioid is used to refer to all compounds that bind to opiate (opioid) receptors. Opioids are alkaloids that are directly derived from the opium poppy plant and the name "Opiate" can be used to describe them. Among these alkaloids are codeine and morphine. Opioids include synthetic opioids like methadone, fentanyl and propoxyphene as well as semi-synthetic opiates, which are medications made from naturally occurring opiates (such as heroin from morphine and oxycodone from thebaine). Narcotic is a legal term used to describe opioids and a few other drugs that are grouped with the opioids by law enforcement hence, it should not be used in the clinical setting (Naidu et al, 2015).

Opioids have a number of impacts on the brain including numbing of pain. They work by attaching to opioid receptors on the cells of the brain. These cells send out signals that cause massive amounts of dopamine to be released throughout the body, thereby reducing the experience of pan and increases feelings of pleasure.

People who take opioids experience pleasurable experiences that can raise their desire for those feelings, which can result in addiction. They are occasionally used for non-medical reasons because of this.

Tolerance and dependence to opioids can rise with repeated use. This means that in order to experience the drug's calming effects, the person will need to take higher doses more frequently. Opioids can cause respiratory depression at higher doses and result in deadly overdose.

Opioid abuse has become more common among young Nigerians over time. This is both a social and a public health issue. The rate of criminal offences such as theft, burglary, sex work, rape and shoplifting tend to increase as the rate of opioid abuse increase.

Examples of opioids which are frequently abused include fentanyl (popularly referred to as China Girl, Cash or Jackpot), heroin (commonly known on the street as Junk or H), morphine (commonly known as Monkey or Miss Emma) and codeine(commonly known as Captain Cody or lean schoolboy). Heroin is the most abused opioid in the world.

Fig 1: Rainbow Fentanyl Pills

Fig 2: Prescription Fentanyl Pills

Fig 3: Brown and White Heroin

Fig 4: Tramadol Pills

Fig 5: Codeine in cough syrups

Fig 6: Morphine tablets and injection

HISTORY OF OPIOIDS

Around 3400 BC, the Sumerians in Mesopotamia were among the first people to cultivate the poppy plant (opium). They named it Hul Gil, which means the "joy plant" (Booth, 1986). Early use of opioids was primarily linked to religion and mysticism. Primitive understanding of pain was deeply rooted in the spiritual realm, and consuming or inhaling opium produced an unexplainable, seemingly unearthly, euphoria in the user (Niewijk, 2017). Soon after, the plant spread throughout the world to every major civilization in Europe and Asia. It was used mainly to treat pain and many other ailments.

Medicine practice was transformed by developments in the 19th century. These developments stirred up a tension between the desire to make opioids available for their medicinal benefits and the recognition that the development of addiction can lead to devastating consequences for individuals and the society at large.

In 1803, the German Friedrich Serturner extracted morphine from opium seeds. Dr. Charles Wood, a Scottish physician, invented the hypodermic needle which was used to inject morphine and relieve pain associated with neuralgia. The first in-depth explanation of morphine addiction, withdrawal symptoms as well as the relapse was generated by a German physician called Dr. Eduard Livenstein. He argued that craving for morphine was a physiological response. In response to this

argument, diacetylmorphine (brand name: heroin) was synthesised. It was marketed as a superior and less addictive alternative to morphine and it was marketed legally in the pill form. In the early 20th century, young Americans exploited heroin to produce a strong euphoric high by grinding the tablets into powder. The powder was either inhaled or injected. In the twentieth century, advances were made in research and major changes were made in the way opioids were used in the management of pain and addiction. These advances included attempts to control the distribution and use of opioids by several nations and international Organization, the introduction of opioid maintenance therapy for the treatment of opioid addiction, the discovery of the endogenous opioids and the acknowledgement that opioids are essential for the treatment of pain (both acute and chronic pain) which is a debilitating and destructive disease.

During most of the twentieth century, the widely held perception among healthcare professionals in the United States was that the long-term use of opioid therapy to treat chronic pain was contraindicated by the risk of addiction, increased disability and lack of efficacy over time. In the 1990's, a major change which was driven by a variety of medical and nonmedical factors, occurred. The aftermath of both world wars stirred up a need for the development of new approaches to pain management, as many soldiers were left with loathsome wounds and chronic pain. Multiple new drugs were developed to meet this new demand and most of these drugs were

opioids (Niewijk, 2017). The use of opioids for management of chronic pain began to increase and this led to a substantial year-to-year rise that is still going on today. This increased use of opioids for medical purposes has been accompanied by a considerable increase in the prevalence of nonmedical use of prescription opioids. According to the National Survey on Drug Use and Health, there were 2.4 million first time users of prescription opioids in 2004 as opposed to 628,000 in 1990. Hospital admissions for prescription opioids misuse grew by 186% between 1997 and 2002 and emergency room visits for prescription opioid abuse increased by 45% between 2000 and 2002 (SAMHSA, 2004). Despite a 14% decrease in all-cause visits to the emergency room, opioid overdose visit counts increased by 10.5% in 2020, showing an increase when compared with the counts in 2018 and 2019. Reports show that opioid overdose rates increased by 28.5% in 2020. From 0.25 per 100 emergency room visits in 2018 to 2019, opioid overdose accounted for 0.32 per 100 emergency room visits in 2020 (William et al, 2021). Although the rise in abuse of prescription drugs is believed to be caused by various factors, including changes in the formulation of drugs and the prescribing practices of opioid medication (Compton and Volkow, 2006). This connection has led to a reassessment of the medical use of these drugs. The goal is to decrease the misuse of opioids without hindering their legitimate use, while recognizing that abuse may increase with greater accessibility. Efforts to control abuse must be careful not to

restrict medical treatment, as it could have unintended consequences of discouraging healthcare professionals from administering these medications.

Mechanism of Action of Opioids

Opioids mirror the effects of naturally occurring peptides. To produce inhibitory effects, they bind to opioid receptors which are Gi protein coupled receptors. Calcium dependent potassium channels are opened whereas N type voltage-operated calcium channels are closed. Hyperpolarization and a reduction in neural excitability are the outcomes of this. The reduction in intracellular cAMP which controls the release of nociceptive neurotransmitters is another effect (Bovill, 1997).

Contrary to popular belief, opioids do not only act on surface receptors like the endogenous peptides do. A recent study demonstrates that opioids also bind to receptors inside neurons that are not normally targeted by naturally occurring opioids. The National Institute on Drug Abuse (NIDA) financed the study that led to this discovery. Researchers have developed a brand-new kind of antibody biosensor termed a nanobody as a result of recent development in understanding the three dimensional structure of G protein coupled receptors. when a GPCR is triggered, this nanobody produces a fluorescent signal that enables researchers to monitor molecules as they react to stimuli. Using this nanobody, researchers found

that the receptor molecules enter the cell when an opioid attaches to and activates the mu receptor on the surface of a neuron. The mu receptor is activated as they enter an endosome and continues to be so for several minutes. This finding may aid in the development of painkillers that do not lead to addiction or other side effects associated with opioid medications (Stoeber, et al, 2018).

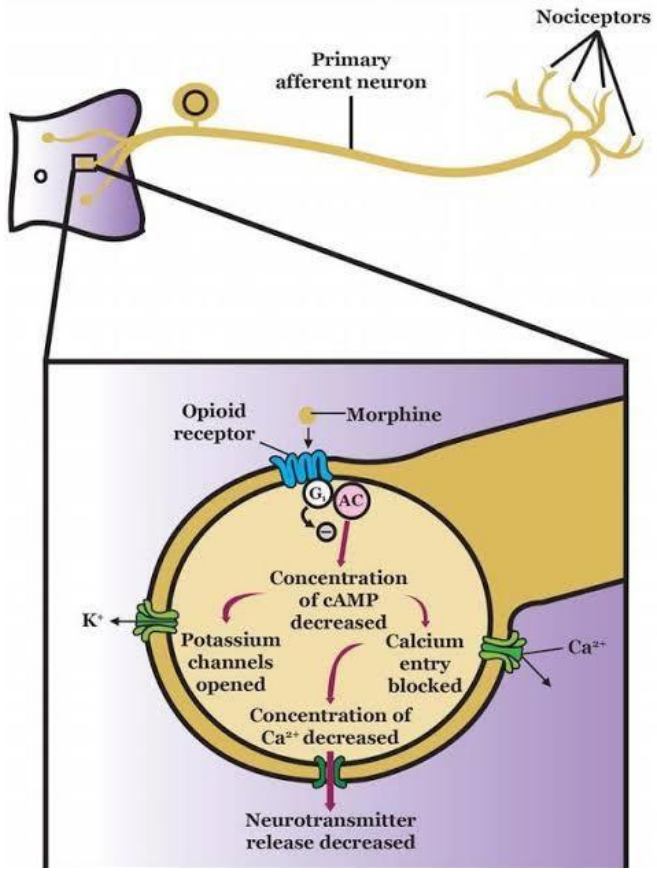

Fig 7: Mechanism of Action of Opioids to relieve pain

Therapeutic Effects of Opioids

Opioids are the current standard agents for the treatment of moderate or severe nociceptive pain. It is well accepted in management of pain in cancer patients.

Chronic pain is simply pain that lasts for at least 1 month following the usual healing time of an acute injury, pain that comes with a nonhealing lesion, or pain that recurs frequently for months. In most clinical and research reports, chronic pain is defined as pain that has lasted for at least 3 months (Verhaak et al, 1998). Although published reports have not been consistent, the frequency of chronic pain in the global population is believed to be quite high. In 2012, National Health Interview Survey showed that about 25.3 million U.S. adults (11.2 percent) experienced pain every day for the previous 3 months, and about 40 million adults (17.6 percent) had severe pain (NCCIH, 2018). A similar study was conducted recently using a chronic pain module introduced in the 2019 edition of National Health Interview Survey (a household-based annual survey of self-reported health status of U.S. adults that can be used to generate national-level estimates). It was discovered that about 50.2 million adults (20.5%) experienced chronic pain on most days or every day. (Yong et al, 2022).

Chronic pain is a highly complex issue that can be caused by multiple factors, including tissue damage (noiceptive pain) and dysfunction in the peripheral or

central nervous system (neuropathic pain). Categorizing pain simplifies a complex reality which indicates that both acute and chronic pain are induced by multiple peripheral and central mechanisms, which continually interact with each other and with numerous pain modulating systems. The uneasiness that eventually results in pain perception are caused by neurophysiologic processes and other related systems.

Chronic pain is a major public health challenge and has serious negative impacts to patients and society including health care utilization, and reduced productivity. Despite the need for fairer therapies, opioids are often used to treat chronic pain due to their ability to provide some relief. However, long-term opioid use poses potential risks, and the medical community is focused on finding a balance between benefits and risks for different populations. The challenge is to weigh the benefits of these drugs for patients with chronic pain against the potential risks.

Route of Administration

Administering medications through the oral route of drug administration is most appropriate for patients on opioid therapy. Parenteral, rectal and transdermal routes are used in specific situations. Opioid doses should be titrated according to agent specific schedules to produce maximum pain relief and maintain tolerability.

Oral formulations as well as formulations for transdermal administration are usually administered in the ambulatory setting for effective management of pain.

LITERATURE REVIEW

Overview of Drug Abuse

Substance abuse is described as the routine usage of substances to cause alteration in mood that eventually results in harm. The term “substance” in this case refers to anything that tends to change attitudes, confuse decisions, impair perceptions and change response times. These effects can put one at risk of an injury or an accident. Over time, a more specific definition of substance abuse has been developed to help differentiate it from substance misuse and substance use.

Substance abuse is the continuous usage of centrally active substances (psychoactive susbstances) in such a way that it causes harm which may be physical, cognitive, social or legal. The term “psychoactive” does not always mean dependence-producing. According to WHO, psychoactive drugs are drugs that alter cognitive functions like perception, consciousness, comprehension or attitude and feelings. Manufacture, distribution, sale and use of psychoactive substances is restricted to individuals or companies that are permitted by law. Psychoactive substances vary in terms of accessibility which is dependent on their benefits and

risks. These drugs belong to a broader category of psychoactive substances that also includes alcohol and nicotine.

Substance misuse is the usage of a substance irrationally. This implies the use of a substance for illegal pursuits not in line with medical policies. This irrational use of substances may be in terms of dose, indication, dosage regimen and route of administration. Occasionally, substance misuse can lead to substance abuse. For example, caffeine is the most commonly used drug in the United States. A cup of coffee in the morning is not harmful but excess consumption can lead to mood alteration and increased chance of cardiovascular disease.

Substance use is basically the use of a substance in an acceptable manner without any probability of risk. It is the usage of medicines the way they were prescribed.

DEFINITION OF TERMS

In order to fully understand the concept of substance abuse, certain terms have to be defined. They include tolerance, dependence, and addiction. These terms are often used interchangeably because they are thought to mean the same thing but, each term means something different and learning the difference is important. We will define the terms briefly before we go on.

Self Medication

Self-medication is the usage of medications to treat self-diagnosed illnesses or symptoms. It is also the irregular or persistent use of a prescribed drug for chronic or recurrent disease or symptoms (Awad et al, 2005). Self medication is often selected by people for symptoms that they regard as disturbing enough to require drug therapy but not enough to consult a prescriber. In developing countries, self-medication is a major approach in cure of most illnesses. A major shortcoming of this practice is the fact that there is no clinical assessment of the ailment by a skilled medical professional. This could lead to inaccurate diagnosis and unsuitable treatments.

According to the self-medication hypothesis (SMH), the individuals' choice of a particular drug is not accidental or coincidental, but instead, it results from the belief that the drug of choice provides relief that is specific to his or her condition (Khantzian, 1997).

Substance Intoxication

According to the free dictionary, substance intoxication is the "stimulation, excitement, or impaired judgment that is caused by a chemical substance, or as if by one". Alcohol intoxication is defined legally according to a person's blood alcohol level; the definition is 0.10 per cent or more in most states in the U.S. and 0.8 per cent or more in Canada.

Acute intoxication is the term in ICD-I0 that refers to intoxication of clinical significance. Complications of acute intoxication may include trauma, inhalation of vomitus, delirium, coma, and convulsions. These complications depend on the substance and method or route of administration. Acute intoxication is usually associated with dose levels. Individuals with certain underlying organic conditions (e.g. renal or hepatic insufficiency) may be an exception. Due to this underlying condition, small doses of a substance may elicit a distinctive extreme intoxicating effect. Acute intoxication is a temporary sensation. Intenseness of intoxication reduces with time, and the effects eventually disappear if there is no further use of the substance. Therefore, recovery is usually complete except in cases where tissue impairment or another complication has developed (WHO, 2004).

Symptoms of intoxication are not always in line with the primary effects of the substance. For instance, depressant drugs may elicit agitation or hyperactivity, and stimulant drugs may elicit withdrawal and introverted behaviour. Some psychoactive substances tend to produce various effects at different levels of intoxication. Alcohol, for example, is known to have stimulant effects at lower dose levels, but as dose levels increase, it can cause agitation and aggression and at very high levels, it can produce sedation.

Tolerance

This basically refers to reduced responsiveness to a substance due to continuous exposure to the substance. It is also referred to as drug desensitisation. It happens when a higher dose of the substance is required to achieve the same effect that was previously achieved with a lower dose or when the person first used it. This explains why people with substance use disorders use a higher amount of a drug to get the "high" they seek (NIDA, 2017). For instance, when morphine is used for a long time, larger dose must be taken to produce the same effect it produces when it was first used.

Usually, tolerance develops because metabolism of the drug speeds up. This is because the liver enzymes involved in metabolizing drugs become more active. It can also be due to a decrease in the number of sites (cell receptors) that the drug binds to or the strength of the bond (affinity) between the receptor and drug (Lynch, 2019).

The opposite of tolerance is **Reverse Tolerance** (or drug sensitization). In this case, the effect of a substance on a subject will increase following its repeated use. These two concepts go hand in hand and sometimes, tolerance may lead to reverse tolerance. For example, heavy drinkers develop tolerance to alcohol. This will require them to take larger amounts of alcohol to achieve a similar effect. Excessive consumption of alcohol can cause liver damage which means that the liver no longer produces enough enzymes needed to break down alcohol in the

body. This will cause these individuals to get intoxicated when they take very small amounts of alcohol. Thus means that they need a smaller amount of alcohol to achieve similar effects.

Tolerance can either be innate or acquired. Innate tolerance is genetically determined. This means that the individual can cope with very high doses of the substance from the outset. Acquired tolerance on the other hand, is acquired after repeated exposure to the substance.

Dependence

Substance dependence is described as a situation in which a person requires a substance in order to function. It is a condition whereby an individual's ability to function is dependent on the continuous intake of a psychoactive substance because of an adaptive condition that has evolved due to repeated intake of the substance. Individuals who are dependent on substance tend to experience withdrawal symptoms when they do not take the substance and this makes continuous use of the substance necessary. It is classified as a mental and behavioural disorder by the International Classification of Diseases.

Substance abuse and substance dependence are often used in place of the other as people tend to confuse one for the other. These two disorders are different in three ways. First, substance dependence is characterised by measurable periods of

tolerance and withdrawal symptoms, whereas substance abuse shows early warning signs of life impairment that can be linked to substance dependence. Second, drug-dependent users show marked cognitive, behavioural, and psychomotor retardation while substance abusers may not suffer apparent cognitive, behavioural, or psychomotor retardation. On the contrary, they may perform their jobs and vehicular operations adequately and interact normally with their families. Third, withdrawal syndrome only applies to substance dependence. Substance abusers are episodic users, and their consumptive rates are variable. These users build resistance to adverse cognitive dysfunctions and they only suffer mild or no side effects after abrupt cessation of the desired substances (Ruben, 2004). From these differences that have been highlighted, we can say that substance dependence is substance abuse in its extreme form. In the DSM-5 which was released in 2013, substance abuse and substance dependence were fused into substance use disorders; hence they cease to exist as individual conditions.

Substance dependence can either be physical or psychological. In physical dependence, body function is abnormal in such a way that the substance must be taken for normalcy to be achieved. The major manifestation of this type of dependence is the appearance of physical withdrawal symptoms when the substance is no longer used. Psychological dependence on the other hand, has to do with the development of emotional withdrawal symptoms, e.g. anhedonia, upon

abrupt cessation of the use of a substance. Although these types of dependence are distinct, they are not mutually exclusive. Therefore one should not be taken more seriously than the other.

Withdrawal Symptoms

Withdrawal symptoms are manifestations that appear following blunt termination or decline in the consumption of recreational drugs. Withdrawal symptoms often ensue after a form of drug dependence has evolved. They differ in relation to the substance that is continually consumed or abused. For example, cessation of use of an antidepressant medication after lengthened use will tend to provoke reactions distinct from reactions caused when extended use of an opioid, such as heroin is terminated. Withdrawal symptoms observed upon termination of opiates use include anxiety, sweating, vomiting, and diarrhoea. Withdrawal symptoms observed upon termination of alcohol use include irritability, fatigue, shaking, sweating, and nausea while abrupt cessation of nicotine can cause irritability, fatigue, insomnia, headache, and difficulty in concentration. The route of administration (intravenous, intramuscular, oral etc) is a major factor which determines the harshness of withdrawal symptoms. The term “cold turkey” is often used to describe the hurried discontinuation of use of a substance and the resulting manifestations.

Addiction

Drug addiction is basically an obsessional usage of a substance notwithstanding the negative effects. Due to the fact that they tend to suffer intense withdrawal symptoms when they abruptly cease consumption of the substance, people who are addicted have a physical and psychological need to take the substance. It is distinguished by obsessive involvement in pleasurable substances in spite of unfavourable effects. It is common practice to use the term addiction incorrectly while discussing other diseases including dependence. The fact that addiction is independent of withdrawal whereas dependence is dependent on withdrawal is a fundamental distinction between drug addiction and dependence. Although the two frequently co-occur, drug addiction and dependence are independent of each other.

Causes of Substance Abuse

The cause of substance abuse especially among young individuals is yet to be identified. More so, the explanation as to why a group of persons can abuse drugs briefly and stop without difficulty, whereas others continue using drugs despite undesirable outcomes is not understandable. The cause of drug abuse may not be known, but a number of factors that can enhance the risk of substance abuse have been identified.

Biological factors, like genetics are thought to account for 40% to 60% of a person's risk. Most times, substance use starts in childhood or early adolescence out of curiosity. Continuous usage of the substance together with heightened tolerance results in the development of substance use disorder and addiction.

The occurrence of psychiatric disorders can sometimes be related to increased risk of substance abuse.

Risk factors for drug abuse include:

- Anxiety or depression disorders
- ADHD
- Bipolar disorder
- Early drug usage
- Insufficient parental guidance
- Being male
- Being raised by parents who abuse drugs
- Peer influence
- Personality disorders (such as antisocial behavioural disorder or borderline personality)
- Physical or sexual trauma
- Poor family connection or relationships

- Stress
- Family history of addiction
- Sleep problems
- Chronic pain
- Financial difficulties
- Divorce or the loss of a loved one
- Long-term tobacco habit
- Tense home environment
- Relationship issues

The incidence of substance abuse disorder is not guaranteed by the existence of one or more of these factors but the presence of multiple factors as well as persistent use of substance of abuse can significantly boost the chance of addiction. (Alvarado Parkway Institute, 2017).

Neurological Basis for Substance Abuse

Substance abuse can also be influenced by neurological factors. The reward for use of a substance is due to its reinforcing effect. Reward may be defined as the attractive property of a stimulus that induces appetitive behaviour. There might be a relationship between the reinforcing properties of substances of abuse and their ability to increase neuronal activity in certain regions of the brain. These areas are

called Reward Centres. These centres are believed to be the reason why animals seek to repeat sweet experiences like sleep, sex, drugs and food. Substances which increase dopamine levels in the nucleus acumbens are more likely to cause addiction while those that block dopamine receptors do not. The role of dopamine in mediating reinforcement is not clear. Some studies have also implicated 5-HT, GABA, norepinephrine and opioid peptides as neuromodulators responsible for reinforcing effects of drugs.

Symptoms of Substance Abuse

Substance abuse can generate crises in interpersonal relationships, at home, on the job, and legally. Symptoms of drug abuse include symptoms which accompany intoxication as well as those related to unfulfilled duties and the social impacts of persistent substance use.

Common symptoms of drug abuse include:

- Wishing for the drug even when it's hard to get or stop using it
- Harm to relationships
- Decreased performance in school or work
- Difficulty maintaining employment
- Disconnection from activities unrelated to drug use
- Financial difficulties

- Engaging in risky sexual behaviour
- Spending more time thinking about, obtaining, using, and healing from the drug
- Neglecting responsibilities
- Legal issues
- Requiring higher doses to get the same effect (tolerance)
- Taking the drug to avoid its withdrawal symptoms
- Using drugs during activities where safety is important.

Common symptoms of substance intoxication

Intoxication is the term used to describe any change in perception, attitude, thought processes and motor skills that occur as a result of the effect of a drug or substance of abuse on the central nervous system.

Substance use can lead to symptoms of intoxication including:

- Balance challenges, walking difficulties, and falls
- Deterioration of mental status
- Shifts in attitude, character or behaviour
- Decreased reflexes
- Drowsiness or heightened energy
- Poor balance and coordination

- Tainted judgment and memory
- Changes in vision
- Nausea
- Pupil size shifts
- Slurred speech and excessive talking

Serious Symptoms that might indicate a Life-threatening Condition

In some cases, substance abuse can be life threatening. Life-threatening symptoms associated with substance abuse include:

- Endangering oneself or others, including the display of dreadful, irrational, or suicidal behaviour
- Physical symptoms from overuse, such as changes in heart rate or breathing abdominal pain, vomiting, diarrhoea, skin changes, drowsiness, chest pain, confusion and loss of consciousness
- Physical harm, such as bone damage, burns, eye injuries, and other injuries
- Deep desire to use the drug regularly
- Experiencing intense hungers for the drug to erase any other thought
- Requiring higher doses of the drug to feel the same impact after using for a long duration

- Consuming larger doses of the drug over a period that is longer than was initially intended
- Making sure that a stash of the drug is maintained
- Spending large sums on the drug, even when he or she cannot afford it
- Not keeping up with commitments and work duties, or reducing social or recreational activities due to excessive drug use
- Continuous drug use, even when you are aware that it is generating crises in your life or resulting in biological or psychological harm
- Engaging in activities that you normally would avoid, such as stealing in order to get the drug
- Driving or engaging in risky exercises when you're under the effect of the drug
- Spending a great amount of time obtaining the drug, consuming the drug or recuperating from the impacts of the drug
- Failing in your endeavours to quit using the drug
- Suffering withdrawal symptoms whenever there is an attempt to stop consuming the drug.

Effects of Substance Abuse on Young Individuals

Substance abuse tends to affect different aspects of the life of young individuals.

- **Effect of substance abuse on physical health**

Injuries from car accidents, physical disabilities, non-communicable diseases and effects of overdose are some effects of substance abuse on the health of young adults. A large number of young adult that consume alcohol and other drugs are more likely to be victims of suicide, homicide, accident and illness.

A study carried out by The Drug Abuse Warning Network (DAWN) reports increased number of people visiting the emergency department to seek treatment fir effects of illegal drug use or nonmedical use of legal drugs. It indicates that visits of youths aged 12 to 17 to the emergency unit for drug related issues increased by 17 percent between 1993 and 1994. This increase was significant than in older age groups. It also reported that visits to the emergency room for marijuana hashish related reasons among young people aged 12 to 17 increased by 50 percent between 1993 and 1994. Ninety-one youths between the ages of 12 and 171 died of drug abuse in 1993.

Youths that abuse substances tend to engage in activities that place them at risk of contracting HIV/AIDS or other sexually transmitted infections. This may also include injection of psychoactive substances or engaging in risky behaviour due to poor judgement and poor impulse control which are majorly consequences associated with the abuse of mood-altering substances.

These instances explain the health-related effects of substance abuse among young adults.

- **Effect of substance abuse on academics**

Substance abuse has a great impact on the academics of adolescents including poor grades, being absent from school, being uninvolved in extracurricular exercises, raised possibility of dropping out, decreased commitment to education and schooling as well as truancy. Mental and behavioural issues experienced by adolescents involved in alcohol and drug abuse may bring up barriers to education and deter their intellectual performance.

- **Effect of substance abuse on mental health**

Substance abuse when practised by adolescents can result in mental health illnesses like depression, poor development, and lack of appeal, retreat as well as several social problems. Adolescents who engage in persistent substance abuse are at elevated threat of acquiring mental health conditions like depression, behaviour issues, character disorder, suicidal thoughts and suicide. Continuous usage of marijuana which is observed to be common among young individuals is indicated to deter memory, education and psychomotor skills. Rationale and psychosexual/emotional growth will most likely be affected.

- **Effect of substance abuse on relationship with peers**

People who use alcohol and other drugs are oftentimes uninterested in school and society activities so they are absent which deprives their counterparts and societies of the favourable impacts they might have made. Adolescents who abuse substances are frequently isolated from and stigmatized by their equivalents.

- **Effect of substance abuse on families**

Family crisis is a major effect of substance abuse. It jeopardizes family life in many ways and it tends to result in family dysfunction. Everyone in the family is usually affected especially the siblings and parents of the young individual. In addition to jeopardising family life, a family's financial and emotional resources may also be affected.

Prevalence of Substance Abuse among Young Nigerians

In the last decade, the rate of abuse of prescription medicines has increased substantially. In the U.S, three classes of prescription medicines are usually abused. They include: opioids, central nervous system depressants and central nervous system stimulants.

A comparison with other third world countries reveals that Nigeria ranks among the highest users of dangerous drugs such as alcohol, tobacco, cannabis, benzodiazepines, cocaine and opioids (Degenhardt, 2008). A review of literature

clearly indicates that there has been a steady increase in the frequency of substance use and its associated consequences within the last three decades. Many types of psychoactive substances are available in Nigeria. This is due to their spill over into the streets from drug traffickers who use Nigeria as a channel to transport drugs from South East-Asia (the Golden Triangle) and South America (Boliva, Peru, and Brazil) to Europe and North America (Klein, 1994).

In June 1988, a research was conducted to determine the extent and nature of substance use among undergraduate students of the University of Ilorin in Nigeria. Out of 636 surveyed students, 69% were males. The results showed that the most widely used substances based on the 'lifetime' prevalence rates were salicylate pain relievers at 95.2, alcohol at 77%, stimulants at 69.2%, antibiotics at 63.3%, hypno-sedatives at 49.4% and cigarettes at 37.4%. The 'current users' were lower. Minimal usage was reported for cannabis, organic solvents, hallucinogens, cocaine and narcotic pain relievers. Most 'current users' only used the substances occasionally, except for cigarettes with over half reporting weekly or daily use. Male students were more likely to be 'current' users of cigarettes and alcohol while female students were more likely to use stimulants (Adelekan et al, 1992).

In 2004, a similar study was conducted at the University of Ilorin but was limited to medical students. The results showed that tobacco was most well-known substance at 99.4%, while anabolic steroids were the least known at 48.9%. Almost

all respondents had encountered cigarettes and reported that they were easily accessible. 92.5% of the respondents had heard of cannabis, but only 37.6% of them had seen it, and about half (48.8%) were aware of its availability. Mild stimulants ranked first, with 78% of respondents admitting to have been offered them in the past; alcohol ranked second at 43.2% and sedatives (sleeping pills) ranked third at 27.4%. Only a small number of respondents (8.2%) admitted they having been offered cannabis. Cocaine and heroin were the least commonly offered psychoactive substances, with only 1.7% and 1.3% of the respondents reporting having been offered them, respectively. 40.4% of all respondents reported current use of one or more psychoactive substances and 35.6% of respondents used more than one substance. The overall lifetime prevalence of substance use was 78%, with mild stimulants being the most frequently used substances, followed by alcohol, sedatives and tobacco. None of the respondents reported current use of cocaine or heroin. The majority of the respondents are users of mild stimulants (Makanjuola et al, 2007).

The results from these two studies show a change in the pattern of substance use among undergraduate students. The most preferred substance shifting from salicylate analgesics to stimulants between 1988 and 2004. At this time consumption or use of cannabis and opioids was not very common. The absence of

these drugs (salicylate analgesics and stimulants) in recent studies may be related to the decline in their availability in Nigeria.

A research was carried out in University of Lagos, Nigeria using a WHO student drug survey proforma. 1000 students were surveyed and a total of 807 responded to the questionnaire resulting in 80.7% response rate. Majority (77.9%) of the students were aged 19-30 years and unmarried. Six hundred and ninety-eight (86.5%) claimed they were aware of drug abuse, but contrarily they demonstrated poor knowledge and awareness. Marijuana, 298 (45.7%) was the most common drug of abuse seen by most of the students. The students were unable to identify very well the predisposing factors to drug use and the attending risks. Two hundred and sixty-six (33.0%) students were currently taking one or more drugs of abuse. Coffee (43.1%) was the most commonly used drug, followed by alcohol (25.8%) and marijuana (7.4%). Despite chronic use of these drugs (5 years and above), addiction is not a common finding (Oshikoya, 2006).

In 2019, a group of individuals collaborated to review the studies that have been done on the prevalence of substance abuse among young Nigerians. At the end of the investigation, they came up with a list of drugs that are commonly abused by young Nigerians. The list includes cannabis, cocaine, amphetamine, heroin, diazepam, codeine, cough syrup and tramadol. They went on to identify where the abusers get the drugs from and they include pharmacies/patent medicine shops,

open drug markets, drug hawkers, fellow drug abusers, friends, and drug pushers. According to the study, undergraduates and secondary school students, youths, commercial bus drivers, farmers, and sex workers made up majority of the drug abusers. Major reasons why these individuals use or abuse substances are to improve physical ability, to reduce anxiety and to gain pleasure. Low socioeconomic factors and inferior academic background were the elements observed to be common to the individuals who engage in drug abuse. (Jatau et al, 2021).

Cannabis was observed to be the most abused drug reported across the different study populations. The prevalence of cannabis abuse among members of the general public was 10.8%. It was 22.7% among adolescents of 25 years and younger. The frequency of abuse among secondary school students was between 0.6 and 34%, with a pooled prevalence of 12.5%. The abuse of cannabis among undergraduate students was also common, with a prevalence of 8–11%.

The rate of abuse of cocaine among secondary school students ranges from 1.6 to 4.8%, 0.6–10% among undergraduate students and 0.1–0.6% among members of the general public. Easy access due to increased trafficking of drugs despite the existing legal control measures may be responsible for the widespread use of cocaine in Nigeria.

Codeine was reported to be the third most frequently abused drug of abuse after keen study of the various investigations. The prevalence of abuse in the general public (all ages) was 2.4% and 22.7% among adolescent. Prevalence of 3–8.2% and between 5.3 and 28% was recorded among undergraduate students and secondary school students respectively.

The elevated rates of drug abuse among the younger generation shows the influence of availability of these drugs, peer group influence and lack of practical counselling programs in secondary schools and universities. The desire to explore, experiment and peer pressures are major factors that are responsible for the high frequency of substance abuse among young adults. The use of most of these substances start in secondary school therefore, the need for a comprehensive demand-reduction programme in Nigeria based on this and other local discoveries should be advocated.

Prevalence of Opioid Abuse among Young Nigerians

In a symposium held at the University of Benin in 2018, the Director-General of NAFDAC Professor Mojisola Christianah Adeyeye highlighted tramadol and codeine as the most abused substances in the country. According to her, Nigeria is one of the countries with the highest use of tramadol relative to our population.

According to the CDC, the number of opioid-related deaths increased by 5% between 2018 and 2019. In 2019, an average of 38 people died each day from prescription opioid overdose (Centres for Disease Control and Prevention, updated in March 2021). About 275 million people worldwide (or 5.5% of the global population aged 15-64 years) used drugs at least once in 2019. Among them, about 62 million people used opioids. (UNODC, 2019).

In 2017, the National Survey on Drug Use and Health conducted by Nigeria Bureau of Statistics (NBS) and Centre for Research and Information on Substance Abuse (CRISA) showed that 14.4 percent of the residents in Nigeria (10 or 14.3 million), including residents between 15 and 64 years of age had used drugs, excluding alcohol and tobacco. Cannabis was the most widely used substance, followed by opioids and cough syrups containing codeine or dextromethorphan. 0.4% of the population (376,000 people) were high-risk drug users and nearly 90%of them were opioid users. Approximately, 0.08% of the population aged 15 to 64 were estimated to inject drugs, with 75% of them injecting opioids. 4.7% of adults in Nigeria were regular opioid users. 85% of those misusing opioids took them orally and 12% injected them, with women being more likely to inject them than men. The gender gap in the non-medical use of opioids was less pronounced when compared with cannabis use. These patterns of non-medical use of opioids among the elderly and among women correspond with findings in other countries.

The majority of pharmaceutical opioids users were married or single and living rent-free with friends or family. They were more likely to have vocational education/training and part-time or irregular jobs. Urban opioid users spent N310 NGN per day while rural users spent N190NGN per day. High-risk drug users spent an average of N1,145 NGN per day for non-medical use of opioids.

In a cross-sectional survey to measure the extent of misuse and dependence of codeine-containing products among medical and pharmacy students in the University of Ibadan, it was observed that about 50% each of the male and female students involved in the study had used opioid-containing products. About 70.5% of the students in the age group of 20 years and above had used opioids while 29.5% of students aged between 16 and 20 years had used opioids. A total of 178 respondents in multiple responses had generally used opioid-containing products. 171 used codeine-containing formulation, comprising as cough syrups and 8 as non-cough syrups (Akande-Sholabi et al, 2019).

Interventions for Prevention of Substance Abuse

Modern language for categorizing interventions, originally suggested by the Institute of Medicine in 1994 incorporates a sequence of care that includes prevention, therapy, and supervision.

Here, prevention refers only to interventions done before the beginning of a condition. It is classified into three types: universal, selective and indicated interventions. Universal prevention programs focus on the general public with the aim of hindering the outset of a condition. Selective prevention programs are designed to focus on a selected group that is considered to be at high risk because they belong to a group (e.g., pregnant women or children of drug users). Indicated prevention programs are designed and implemented in individuals already showing early risky signs, such as engaging in risky behaviour or other related behaviours. Individuals are recruited in a selective intervention based on their involvement in a high risk subgroup whereas individuals are recruited in an indicated intervention based on some signs or behaviours that are considered risky.

School Based Prevention

Schools are a common target for evidence-based approaches to prevent drug abuse in adolescents, as they provide access to large numbers of young students. However, early school-based prevention efforts were often ineffective as they relied heavily on lectures about the dangers of substance abuse and fear-arousal techniques, rather than addressing the underlying factors that contribute to substance use. More recent approaches have shifted towards a focus on the risk factors that promote drug use, and can be divided into three categories: social resistance skills training, normative education, and competence enhancement skills

training. These approaches may be used individually or combined in a single preventive intervention.

- **Social Resistance Skills**

  This intervention aims to increase understanding of social factors promoting drug abuse and to teach resistance skills to peer and media pressures. It has been proven effective in reducing substance abuse, such as tobacco and marijuana, through randomized trials and long-term follow-up studies. The resistance skills training program educates young adults on recognizing peer pressure situations and how to effectively handle the by using clear refusal messages. The program also focuses on raising awareness of the tactics used by advertisers and teaching counter-arguments to their misleading messages. Developing social resistance skills also leads to reducing other health risk behaviours and promoting academic success (Botvin et al, 2014).

- **Normative Education**

  Normative education is a method of addressing inaccurate perceptions about substance abuse among young people by providing information and activities to correct these perceptions. Many young people overestimate the prevalence of drug use, which can make substance abuse appear to be more socially acceptable. Normative education aims to educate youth about the actual rates of drug use, using data from surveys of their immediate social

environment and national studies, which typically show lower rates of use than teenagers believe. It also aims to correct the false belief that drug abuse is not harmful, by highlighting evidence of strong anti-drug social norms and the high perceived risks of drug use. This type of education is often incorporated in programs that teach social resistance skills.

- **Competence-Enhancement**

  Competence-enhancement programs acknowledge that social education plays a crucial role in the development of substance abuse in young adults, as youth with poor individual and social skills are more susceptible to factors that encourage substance use. These programs aim to teach a combination of life skills such as problem-solving, decision-making, resistance to interpersonal or media influences, self-control, self-esteem, stress and anxiety coping strategies, social skills and assertiveness. These skills are designed to be applied broadly to many areas of young people's lives and the most effective programs teach both individual and social skills, and emphasize their application to substance abuse and other important issues. These skills can be used effectively to deal with the various problems young people face in their daily lives.

Family Based Prevention

There are various methods for preventing substance abuse in young adults that involve the family. These methods teach parents skills to keep their children away from substances of abuse, such as communication, social resistance, and rule-setting. Some methods are conducted with just the parents, while others include both parents and children to improve overall family functioning and communication. The most effective prevention methods combine both parenting and family skills. However, a challenge in these methods is getting parents, especially those of adolescents who are at high risk, to participate.

Community-Based Prevention

One example of a comprehensive program is the "Communities that Care" (CTC) program, which is a public-health based prevention program that focuses on identifying risk factors for drug abuse among young people and implementing evidence-based interventions to reduce those risk factors. The CTC program uses a community mobilization approach to engage parents, educators, community leaders and youth in the development and implementation of prevention strategies. The program includes activities such as youth surveys, community coalitions, and the implementation of evidence-based interventions such as parent education and youth mentoring programs.

Justification of the study:

- This study will help to find out the incidence and prevalence of opioid abuse among University of Benin students, so that such problems can be addressed.
- This study will also help health care professionals and other NGOs to put measures in place to ensure that opioids are not abused by University of Benin students.

General Objectives:

- To determine the percentage of University of Benin final year students that abuse opioids.

Specific Objectives:

- To identify the most commonly abused opioids among final year students of University of Benin.
- To identify the factors associated with the abuse of opioids among University of Benin final year students.
- To identify the effects of opioid abuse on final year students of University of Benin.

CHAPTER TWO

METHODS

Study Design

The study was a descriptive cross-sectional study aimed at evaluating the prevalence of opioid abuse among University of Benin students.

Setting

The study was carried out in University of Benin, Benin City, Edo state. University of Benin is one of the first generation federal universities in Nigeria. It was established in 1970. It has two campuses located in Ugbowo and Ekehuan. It currently has fourteen faculties including agriculture, art, basic medical sciences, dentistry, education, engineering, environmental sciences, law, life sciences medicine, management sciences, pharmacy, physical sciences and social sciences which cater to the academic needs of over 70,000 students. The research was conducted among final year students in all faculties in Ugbowo campus.

Study Population

This study involved all final year students undergoing full-time undergraduate programmes in the University of Benin, irrespective of gender and course of study. This includes 400 level students of faculties of art, basic medical sciences,

education, environmental sciences, life sciences, management sciences, physical sciences and social sciences, 500 level students of faculties of agriculture, engineering and law, and 600 level students of faculties of dentistry, medicine and pharmacy.

Sample Size Determination

USING COCHRAN FORMULA (Bartlett et al, 2001).

For an infinite population (population of 50000 and above), the formula is given as:

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

Where

N= Sample size

Z= Confidence level (at 95%)

P= Prevalence (estimated at 50%)

D= Confidence interval (at ± 0.05)

Using

Z (at 95%) = 1.96, P=50% (0.5), D= ± 0.05

$$N = \frac{1.96^2 \times 0.5(1-0.5)}{}$$

0.05^2

N= 384.16

For a finite population (population below 50000), the formula is given as:

$$n = \frac{N}{1+\frac{(N-1)}{Pop}}$$

Where

n= New sample size

pop= Study population

Using

Pop= 10,411

$$n = \frac{384.16}{1+\frac{(384.16-1}{10411}}$$

n= 370

Therefore, a sample size of 370 is needed to successfully carry out the survey.

Sampling Technique

A stratified random sampling technique was employed where final year students were randomly selected from each of the strata (Faculties).

Instrument for Data Collection

A well-structured questionnaire which consists of four sections was developed from an already existing questionnaire that was used to assess the extent of alcohol and drug abuse among undergraduates in Kenya (NACADA, 2021). A pilot study was done among pharmacy students in lower levels and Cronbach Alpha test was done to test the validity of the questionnaire. A Cronbach Alpha value of 0.799 was gotten indicating acceptable internal consistency.

- The first section contains seven (7) questions which covers the demography of the respondents.
- The second section contains eight (8) questions which assesses the prevalence of opioid abuse.
- The third section contains four (4) questions which identifies the factors associated with opioid abuse.
- The fourth section contains eleven (11) questions which covers the effects of opioid abuse on the respondents.

Each questionnaire has a total of thirty (30) questions. All questions are close ended questions except the fourth and fifth questions in section A which are open ended. The questions are brief and straight-forward.

Data Collection

Data was collected using self-administered questionnaires. Completed questionnaires were checked for clarity, consistency and completeness.

Inclusion criteria

- Final year students undergoing the full-time undergraduate programme were involved in the study.
- Male and female students in final year of undergraduate studies were involved.
- Final year students who live in school hostel and outside the campus were involved.

Exclusion Criteria

- Postgraduate students as well as part-time students were not involved in the study.
- Students of other levels other than final year were not involved in the study.

Data Analysis

Completed questionnaires were sorted according to faculty and responses gotten were entered into a Microsoft Excel spreadsheet. The responses were copied to Statistical Package for Social Science (SPSS) version 21 for descriptive analysis.

Ethical Approval

Permission to carry out this study was obtained from the project supervisor and the Dean of Student affairs. Objectives of the study were described to each participant before administration of the questionnaire. Verbal consent was obtained from each respondent before administration of the questionnaire. Confidentiality was maintained throughout the course of the study by coding the questionnaires rather than disclosing personal details of the participants.

CHAPTER THREE

RESULTS

During the study, a total of 395 questionnaires were distributed. Due to errors observed in some filled questionnaires, only data in 389 questionnaires were recorded. Hence, the response rate of respondents to the questionnaire was 98.48%.

Below are tables containing the responses recorded.

Table 3.1: Socio-demographic Characteristics of Respondents

Characteristics	Frequency	Percentage (%)
Sex		
Male	224	57.6
Female	165	42.4
Age		
19-24 years	252	64.8
25-29 years	126	32.4
Above 30 years	11	2.8
Religion		
Christianity	354	91.0
Islam	33	8.5
Traditional religion	0	0.0
Others	2	0.5
Faculty		
Art	52	13.4
Agriculture	21	5.1

Basic Medical Science	19	4.9
College of Medicine	5	1.3
Dentistry	3	0.8
Education	64	16.5
Engineering	33	8.5
Environmental Science	10	2.6
Law	10	2.6
Life Science	66	17.0
Management Science	27	6.9
Pharmacy	6	1.5
Physical Science	48	12.3
Social Science	26	6.7
Place of residence		
School hostel	111	28.5
On-campus (SSQ, JSQ)	36	9.3
Ekosodin	127	32.6
Osasogie	32	8.2
BDPA	65	16.7
Others	18	4.6
Average monthly allowance		
10,000-15,000	103	26.5
16,000-21,000	101	26.0
22,000-27,000	70	18.0
28,000-33,000	71	18.3
34,000-39,000	24	6.2
40,000 and above	20	5.1

Table 3.2: Incidence of Opioid Abuse

	Frequency	Percentage (%)
General knowledge of Opioids		
Yes	237	60.9
No	82	21.1
I don't know	70	18.0
Use of opioids		
Yes	101	26.0
No	288	74.0
Present use of Opioids		
Yes	4	4.0
No	61	60.4
Sometimes	36	35.6
Frequency of use		
Once a month	44	43.6
Once in two weeks	12	11.9
Daily	1	1.0
Not at all	44	43.6
First knowledge of opioids		
Doctor's prescription	24	23.8

By a pharmacist	8	7.9
Parents and family members	13	12.9
Fellow students in the university	25	24.8
Friends	31	30.7
Method of use		
Sniffing	1	1.0
Smoking	2	2.0
Injecting	5	5.0
Swallowing the tablet	93	92.1

*Percentage was calculated relative to those who have used opioids and not the entire sample size,

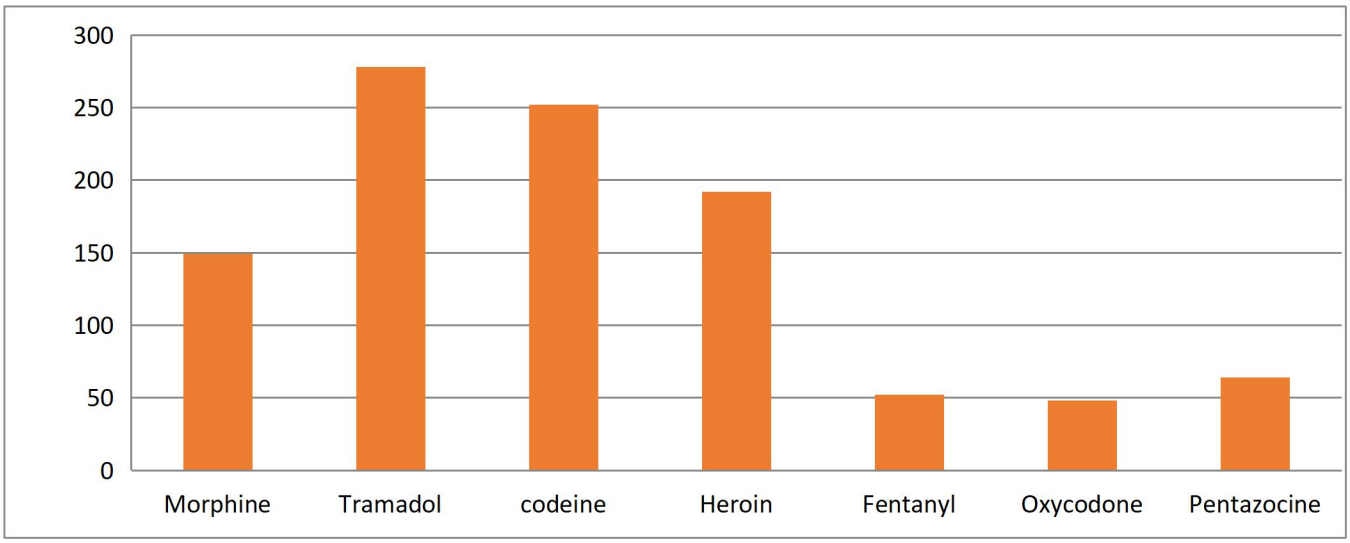

Fig 8: Knowledge of specific opioids

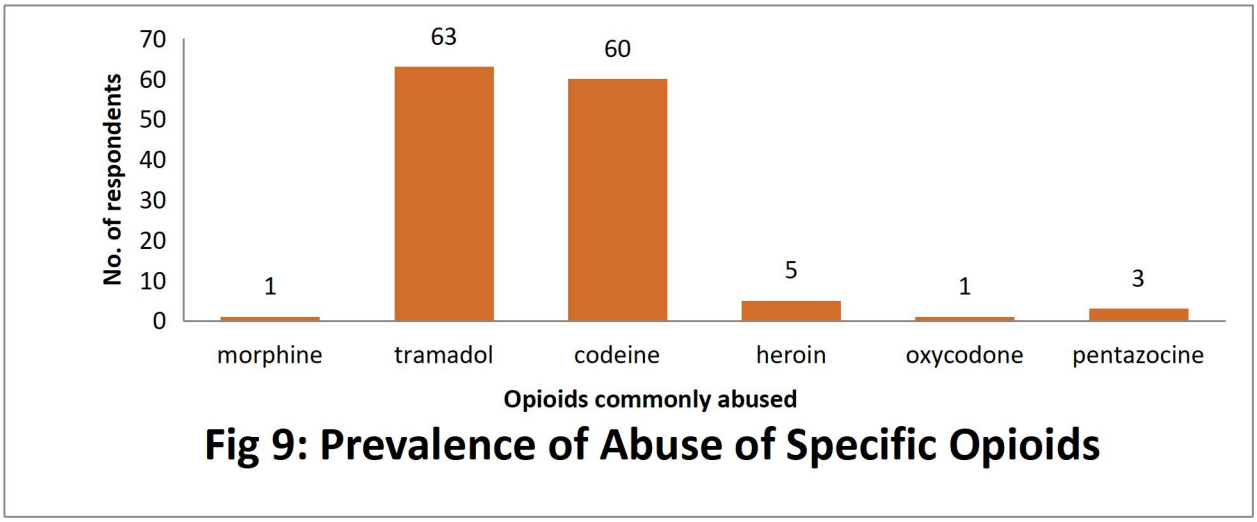

Fig 9: Prevalence of Abuse of Specific Opioids

Table 3.3: Factors Affecting Opioid Abuse

	Frequency	Percentage (%)
Reasons for taking opioids		
To relieve pain	27	26.7
To relieve cough	23	22.8
To deal with stress	24	23.8
To get high	26	25.7
Others	1	1.0
Sources of opioids		
Pharmacy within the university	4	4.0
Pharmacy outside the university	32	31.7
From fellow students within the university	16	15.8
From friends	22	21.8
From parents and family members	12	11.9
From hawkers on the street	1	1.0
At parties/social events	12	11.9
Others	1	1.0
History of family use		
Yes	28	27.7
No	34	33.7

Probably	20	19.8
I don’t know	19	18.8
Social history of opioid use		
Yes	50	49.5
No	14	13.9
Probably	16	20.8
I don’t know	16	15.8

Table 3.4: Effect of Opioid Abuse

	Frequency	Percentage (%)
Occurrence of side effects of opioids		
Yes	24	23.8
No	36	9.3
Probably	28	27.7
I don't know	13	3.3
Possible side effects experienced		
Nausea and vomiting	14	13.9
Constipation	2	2.0
Drowsiness	85	84.2
Difficulty in breathing	0	0.0
Alteration in daily activities		
Sleep pattern		
Yes	46	45.6
No	55	54.4
Eating pattern		
Yes	14	13.9
No	87	86.1
Mood		
Yes	14	13.9
No	87	86.1

From the responses gotten, a total of 74 (73.3%) respondents have missed classes due to use of opioids for recreational purposes and 2 respondents (2%) have missed

exams due to consumption of opioids. A total of 3 respondents (3%) have noticed improvement in their academic grades since they started taking opioids while 80 respondents (79.2%) have not experienced such improvement. Out of the 101 respondents that use opioids for recreational purposes, only 3 (3%) have had disciplinary issue with lecturers and the university while the remaining 98 respondents have not. No respondent indicated that they are experiencing academic challenges or family issues due to recreational consumption of opioids but 12 respondents stated that there is a high probability that academic challenges that they are currently experiencing is due to opioid use. Similarly, 6 respondents stated that there is a high probability that their current family issues is due to opioid abuse. A total of 2 respondents are currently experiencing financial challenges and 5 respondents have been involved in betting and gambling since they started using opioids for recreational purposes.

TABLE 3.5: Relationship between Knowledge and Gender

	Yes (%)	No (%)	Not sure (%)
Male	**46 (11.8)**	**139 (35.7)**	**39 (10.0)**
Female	**36 (9.3)**	**98 (25.2)**	**31 (8.0)**

X^2=0.285, df=2, p<0.867

TABLE 3.6: Relationship between Knowledge and Faculty

Faculty	Yes (%)	No (%)	I'm not sure (%)
Art	1(0.3)	37 (9.5)	14 (3.6)
Agriculture	7 (1.8)	11 (2.8)	2 (0.5)
Basic Medical Science	15 (3.9)	1 (0.3)	3 (0.8)
College of Medicine	5 (1.3)	0 (0.0)	0 (0.0)
Dentistry	3 (0.8)	0 (0.0)	0 (0.0)
Education	6 (1.5)	48 (12.3)	10 (2.6)
Engineering	0 (0.0)	26 (6.7)	7 (1.8)
Environmental Science	0 (0.0)	8 (2.1)	2 (0.5)
Law	0 (0.0)	7 (1.8)	3 (0.8)
Life Science	20 (5.1)	33 (8.5)	13 (3.3)
Management Science	0 (0.0)	22 (5.7)	5 (1.3)
Pharmacy	6 (1.5)	0 (0.0)	0 (0.0)
Physical Science	19 (4.9)	21 (5.4)	8 (2.1)
Social Science	0 (0.0)	23 (5.9)	3 (0.8)

TABLE 3.7: Relationship between Use and Gender

	Yes (%)	No (%)
Male	**77(19.8)**	**147 (37.8)**
Female	**24 (6.2)**	**141 (36.2)**

Chi square test : $X^2(2) = 19.435$, p=0.000(<0.05)*; *Significant

TABLE 3.8: Relationship between Use and Faculty

Faculty	Yes (%)	No (%)
Art	19 (4.4)	33 (8.5)
Agriculture	3 (0.8)	17 (4.4)
Basic Medical Science	6 (1.5)	13 (3.3)
College of Medicine	0 (0.0)	5 (1.3)
Dentistry	1 (0.3)	2 (0.5)
Education	13 (3.3)	51 (13.1)
Engineering	14 (3.6)	19 (4.9)
Environmental Science	4 (1.0)	6 (1.5)
Law	3 (0.8)	7 (1.8)
Life Science	13 (3.3)	53 (13.6)
Management Science	7 (1.8)	20 (5.1)
Pharmacy	1 (0.3)	5 (1.2)
Physical Science	12 (3.1)	36 (9.3)
Social Science	5 (1.3)	21(5.4)

X^2=4.08, df=1, p<0.130

CHAPTER FOUR

DISCUSSION

Since the beginning of history, humans have been on an unending search for substances that would produce pleasurable sensations. Over the past few years, humans have used opioids as a substance to achieve those pleasurable sensations and relax the muscles.

A total of 395 students participated in the study with majority of them being within the age of 19 years and 24 years (64.8%), which is the high risk age group for substance abuse. It was observed that 237 (60.9%) respondents have knowledge of opioids with tramdol, codeine and heroin being the most popular opioids. Most respondents from faculties of Pharmacy, Medicine, Dentistry and Basic Medical Sciences have better knowledge of opioids compared to other faculties (e.g Arts and Law). This is due to the fact that the curriculums used in these faculties include study of medical use of opioids.

This study revealed that 26% of final year students of University of Benin are exposed to opioids. In a similar study conducted in university of Lagos recently, it was recorded that 16% of the respondents use opioids, including tramadol and codeine for recreational purposes (Solayide et al, 2022).The reason for the variance among figures gotten might be due to the fact that there is a difference in the study

population. The study in university of Lagos focused on students in five faculties (Science, Management, Art, Education and Social Sciences) regardless of their year of study. In addition, we can say that prevalence of opioid abuse among final year students is higher due to the fact that they have been in school for longer periods and have been exposed to social vices longer than students of other levels. Tramadol and codeine (commonly in cough syrups) are the most used opioids among final year students in the University of Benin. Previous studies conducted in another public university in Nigeria (University of Ilorin) between 1988 and 2004 show minimal use of cannabis and opioids for recreational purposes. The common drugs of abuse were first salicylate analgesics in 1988 then stimulants in 2004 (Adelekan et al, 1992; Makanjuola et al, 2007). Use of these drugs has reduced in recent times due to reduced availability of these substances in the Nigerian market. The current rush for cannabis and opioids (mostly tramadol and codeine) is due to its availability in Nigerian market and affordability. Several literature have listed heroin, tramadol and codeine as part of the most commonly abused substances among young Nigerians (Jatau et al, 2021). The Director-General of NAFDAC, Professor Mojisola Christianah Adeyeye also stated that tramadol and codeine are the most abused substances in the country. From these findings, it is accurate to say that tramadol and codeine are part of the most abused substances among University of Benin students. Faculty of Art as well as faculty of Engineering had

the highest respondents who are users of opioids. This shows that prevalence of substance abuse in these faculties is relatively higher than in other faculties. Since the relationship between faculty and opioid abuse is not statistically significant ($p<0.130$), faculty or course of study is not a factor associated with opioid abuse.

From this study, it was observed that most respondents were first introduced to these substances by friends and fellow students in the university. It was also observed that most respondents have friends who use these substances for recreational purposes whom they get these substances from. This shows that peer pressure is a major factor associated with recreational consumption of opioids. Other sources include pharmacies and patent drug stores outside the University which is in line with sources identified in previous studies (Jatau et al, 2021). This shows that the Pharmacists Council of Nigeria need to enforce regulation and monitoring of pharmacies especially with regard to dispensing of prescription only medications. Drug pushers and hawkers are known to be in universities and the general public to provide substances of abuse for the consumers. It can be seen from the study that a higher proportion of users were male respondents (76%). This is consistent with previous studies show that males are more likely to abuse substances than females. One of the reasons is that individuals of the male gender are more likely to engage in risky and unhealthy behaviour compared to females (Ajayi et al, 2020). This higher tendency to engage in risky behaviour might be due

to males having high openness to experience (being imaginative and curious and enjoyment in trying new things), low agreeableness (showing minimal sympathy, kindness and warmth) and low conscientiousness (low tendency to be careful and take obligations seriously). Males also tend to have a greater desire to increase physical performance, reduce stress and get high which are the major reasons for substance use as identified by previous studies (Jatau et al, 2021). However, several studies in the foreign scene show that females tend to abuse opioids (especially injectable opioids) more than males (Hudgins et al, 2019) (Carrasco-Garrido et al, 2022) (Jones, 2020). This difference might be due to the fact that in the Nigerian context, women and girls who use drugs for recreational purposes are subject to more cultural stigma and humiliation.

A good number of respondents have experienced alteration in daily activities especially sleeping pattern (45.6%), eating pattern (13.9%) and mood (13.9%). These are due to the adverse effects of opioids on the human body. This alteration causes most of them to miss classes and exams (74 respondents missed classes) leading to downgrading of their academic performance. This is in constant with the findings of a recent study on undergraduates in Edo state which showed that the effects of drug abuse can make students stay away from classes, become less serious with academics, reduce cognitive capacity resulting in an inability to keep up with academic work and eventually dropping out (Abikwi et al, 2022). It could

also lead to issues among siblings and parents. Addiction to opioids can also lead to financial challenges as the desire to continuously consume such substances can lead to excessive spending on such substances.

Previous studies in University of Benin show that tramadol is the most abused drug in University of Benin (Adeyemo at al, 2016) which is very similar to the results of this study (62.4% use tramadol). This shows that current intervention in University of Benin, which involves education and counselling against drug abuse, is not effective enough to reduce the crisis. The University, in collaboration with the Student Union Government should organize media campaigns as young individuals are more responsive to media than counselling. These campaigns should highlight the dangers of drug abuse and measures that can be taken if one is already addicted to these substances.

CHAPTER FIVE

CONCLUSION

The study aimed to determine the prevalence and factors associated with opioid abuse among final year students of University of Benin and it can be concluded that;

The prevalence of opioid abuse among final year students of University of Benin is 26%.

Among final year students of University of Benin, 43.6% consume opioids for recreational purposes at least once a month.

Both genders use opioids for recreational purposes but males make up a greater proportion of opioid abusers.

Peer pressure is a major factor associated with opioid abuse. It influences the incidence of opioid abuse and also provides a source for these substances.

Opioid abuse among students is a major cause of poor class attendance and missed tests and exams.

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APPENDIX 1

ETHICAL APPROVAL

OFFICE OF THE DEAN OF STUDENTS
RECEIVED
Sign.....
Date 31/1/22
UNIBEN

Karis Onyinye Zekaryah,
Department of Clinical Pharmacy,
Faculty of Pharmacy,
University of Benin,
Benin City,
Edo state.

28th of January 2022.

Dean of students,
University of Benin,
Benin City.

Approved.
SDR kindly treat.
31/1/2022

Through,
The Dean,
Faculty of Pharmacy,
University of Benin.

Supported
31/01/2022

UNIVERSITY OF BENIN, BENIN CITY
OFFICE OF THE DEAN
FACULTY OF PHARMACY
DEAN

And
The Head,
Department of Clinical Pharmacy,
Faculty of Pharmacy,
University of Benin.

Supported
31/1/22
OF THE H.O.D.
CLINICAL PHARMACY
PHARMACY PRACTICE
CULTY OF PHARMACY
ERSITY OF BENIN,
BENIN CITY

Dear Sir,

APPLICATION FOR ADMINISTRATIVE APPROVAL

I, Karis Onyinye Zekaryah, a 600 level pharmacy student of University of Benin, humbly request for the permission to carry out my final year project work in the university. The project work is focused on determining the incidence and prevalence of opioid abuse among final year students in two faculties (Arts and Social Sciences). As part of the research work, questionnaires will be shared to students in lecture theatres in order to gather data for my research. This research is for academic purpose only and the information provided by the students will be treated as confidential. Attached to this letter is a copy of my questionnaire. Thank you in anticipation of your favourable response.

Yours faithfully,

Karis Onyinye Zekaryah.
08100581026

Sec
Pls give him a letter of approval / permission to his research.

APPENDIX 2

INSTRUMENT FOR DATA COLLECTION

QUESTIONNAIRE ON INCIDENCE AND PREVALENCE OF OPIOID ABUSE AMONG FINAL YEAR STUDENTS OF UNIVERSITY OF BENIN

This research is intended to assess the incidence and prevalence of opioid abuse among final year students of the University of Benin. I would like you to participate, although participation is optional. All responses will be treated with utmost confidentiality.

Optimum level of sincerity is needed by you to complete this questionnaire. Thank you.

SECTION A: SOCIAL DEMOGRAPHICS

1. Age(in years): (a)19-24[ ] (b) 25-29[ ] (c) 30 and above[ ]
2. Gender: (a) female[ ] (b) male[ ]
3. Religion: (a) Christian [ ] (b) Muslim [ ] (c) Traditional [ ] (d) Others specify .....
4. Faculty: .....
5. Department: .....
6. Place of residence: (a) School hostel [ ] (b) On-campus (ssq,jsq,etc) [ ] (c) Ekosodin [ ] (d) Osasogie [ ] (e) BDPA [ ] (f) Others specify.....
7. Monthly allowance(in naira): (a) 10,0000-15,000 [ ] (b) 16,000-21,000 [ ] (c) 22,000-27,000 [ ] (d) 28,000-33,000 [ ] (e) 34,000-39,000 [ ] (f) 40,000 and above [ ]

SECTION B: INCIDENCE OF OPIOID ABUSE

1. Do you know what opioids are (a) Yes [ ] (b) No [ ] (c) I'm not sure [ ]
2. Have you heard of any of these substances?

OPIOID DRUGS	YES	NO
Morphine (Miss Emma)		
Tramadol (Trammies)		
Codeine (in cough syrups)		
Heroin (H/Junk)		
Fentanyl (Jackpot)		
Oxycodone (Kicker)		
Pentazocine injection		

3. Have you used opioids before? (a) Yes [ ] (b) No [ ]
4. Which of these substances have you used?

OPIOID DRUGS	YES	NO
Morphine (Miss Emma)		
Tramadol (Trammies)		
Codeine (in cough syrups)		
Heroin (H/Junk)		
Fentanyl (Jackpot)		
Oxycodone (Kicker)		
Pentazocine injection		

5. Are you still using any of these substances? (a)Yes [ ] (b) No [ ] (c) Sometimes [ ]
6. How often do you use these substances?
   (a) Once a month [ ] (b) Once in two weeks [ ] (c) Daily [ ] (d) Not at all [ ]
7. How were you introduced to these substances? (a) doctor's prescription [ ] (b) By a pharmacist [ ] (c) Parents and family members [ ] (d) fellow students in the university [ ] (e) friends [ ]
8. How do you use these substances? (a)sniffing [ ] (b) smoking [ ] (c) injecting [ ] (d) swallowing the tablet [ ]

SECTION C: FACTORS AFFECTING OPIOID ABUSE

1. What is your reason for taking any of these substances?

(a) To relieve pain [ ] (b) To relieve cough [ ] (c) To deal with stress [ ] (d) To get high [ ]
(e) Others specify .....

2. Where do you get these substances?

(a) Pharmacy within the university [ ] (b) Pharmacy outside the university [ ]

(c) From fellow students within the university [ ] (d) From friends [ ]

(e) From parents and family members [ ] (f) Online purchasing via social media [ ]

(g) From hawkers on the street [ ] (h) At parties/social events [ ]

(i) Others specify.....

3. Does any member of your family take any of these substances? (a) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]

4. Do you have a friend who uses any of these substances? (a) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]

SECTION D: EFFECTS OF OPIOID ABUSE

1. Have you experienced any side effects of opioids? (a) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]
2. Which of the following effects have you experienced after using any of these substances?
   (a) Nausea and vomiting [ ] (b) Constipation [ ] (c) Drowsiness [ ] (d) Difficulty in breathing [ ]
3. Have you experienced an alteration in any of the following daily activities?

FUNCTION/ACTIVITY	YES	NO
Sleep pattern		
Eating pattern		
Mood		

4. Have you ever missed class or lecture because of these substances
   (a) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]
5. Have you ever missed any exam or test because of these substances
   (a) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]
6. Since you started taking these substances, have your academic grades improved? (a) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]
7. Have you ever had a disciplinary issue with a lecturer or the university because of these substances
   (b) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]
8. Are you having academic challenges as a result of these substances (a) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]
9. Are you having family problems as a result of these substances (a) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]
10. Are you having financial challenges as a result of these substances (a) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]
11. Have you been involved in gambling or betting since you started taking these substances
    (a) Yes [ ] (b) No [ ] (c) Probably [ ] (d) I don't know [ ]