



Original Research Article

## EVALUATION OF KNOWLEDGE, PREVALENCE AND EFFECTS OF OPIOID ABUSE AMONG UNDERGRADUATE STUDENTS IN A PUBLIC UNIVERSITY

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### ABSTRACT

In Nigeria currently, opioids are the second most widely used substances among young individuals after cannabis. A review of several literatures reported the prevalence of drug abuse, especially tramadol and codeine, among Nigerian students as 20% - 40%. The aim of this study was to determine the knowledge, prevalence, factors and effects associated with opioid abuse among final year undergraduate students. A cross-sectional study was carried out at a public University. A validated questionnaire was self-administered to 395 respondents. Data obtained were organized and analysed with Microsoft Excel and SPSS version 25. Descriptive statistics was done; frequencies and proportions were used to summarize variables of interest. Chi square test was done for association between variables and opioid abuse. Ethical considerations were observed. A response rate of 98.48% was obtained from the respondents. A total of 101 (26%) respondents used opioids. The most popular opioids abused among the respondents are codeine and tramadol (60 and 63 respondents respectively). A total of 5 respondents used heroin, 3 use pentazocine while only 1 respondent uses oxycodone and morphine. It was observed that majority of the users were males (76%). Peer pressure was the major factor, effects of opioid abuse observed were drowsiness, absence from lectures, examinations and altered daily activities (eating, sleeping and mood). The study revealed a good knowledge of opioid drugs and a high prevalence of opioid abuse among final year students. Tramadol and codeine were the most abused opioids among the respondents. Major effects of opioid abuse were alteration in daily functions and absence from academic activities.

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### INTRODUCTION

Opioids are a class of drugs naturally found in the opium poppy plant, *Papaver somniferum*. It refers to alkaloid compounds that are extracted from the poppy seed (e.g codeine and morphine) as well as semi synthetic and synthetic compounds with similar properties (e.g methadone, fentanyl and propoxyphene. Opiate" can be used to describe them. Medications made from naturally

occurring opiates include heroin from morphine and oxycodone from thebaine [1, 2]. Narcotic is a legal term used to describe opioids and a few other psychoactive drugs by Federal law enforcement agencies hence, its manufacture, distribution, prescription and use is regulated by international drug laws [3]. Opioids are the current standard agents for the treatment of moderate or severe nociceptive pain. It is well accepted in

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management of pain in cancer patients; they elicit their pharmacological actions by binding to opiate (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 numbing pain and increasing the feeling of pleasure which can result in opioid addiction or abuse [4, 5]. Opioid abuse can be described as the routine usage of this class of drugs for recreational purposes to cause alteration in mood that can eventually result in negative outcomes. Abuse of psychoactive drugs follow a pattern of harmful use via the oral, parenteral or nasal routes for mood-altering purposes resulting in clouded judgment, distortion of perceptions, and alteration of reaction time [6]. Opioid abuse has become more common among young Nigerians over time; this is both a social and a public health problem [7,8]. Effects of opioid abuse expose the individual and others to risk of accidents and mental disorders. The rate of criminal offences such as theft, burglary, sex work, rape and shoplifting tend to increase as the rate of opioid abuse increase [9,10]. Risk factors for opioid abuse include: male gender, peer influence, psychiatric disorders, physical or sexual trauma, stress, family history of addiction, chronic pain, financial difficulties, divorce or the loss of a loved one etc. [11].

A comparison with other third world countries reveals that Nigeria ranks among the highest users of alcohol, tobacco, cannabis, benzodiazepines, cocaine and opioids [12]. Commonly abused drugs by Nigerians include; amphetamine, diazepam, tramadol, 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 cough syrup (commonly known as Captain Cody or lean schoolboy) [13].

According to the Centres for Disease Control and Prevention, the number of opioid-related deaths increased by 5% between 2018 and 2019, about 5.5% of the global population aged 15-64 years used drugs (including opioids) at least once in 2019. In 2017, the National Survey on Drug Use and Health conducted by Nigeria Bureau of Statistics and Centre for Research and Information on Substance Abuse showed that 14.4 % of the residents in Nigeria 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 [14]. In a cross-sectional survey 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. A total of 178 respondents in multiple responses had generally used opioid-containing products [15].

The aim of this study was to determine the knowledge, prevalence, factors and effects associated with opioid abuse among final year undergraduate students.

## METHODS

### Study Design

The study was a descriptive cross-sectional study aimed at evaluating the prevalence of opioid abuse among undergraduate 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 College of Medicine and Dentistry, Faculties of Agriculture, Art, Basic Medical Sciences, Education, Engineering, Environmental Sciences, Law, Life Sciences, Management Sciences, Pharmacy, Physical Sciences, Social Sciences and different Centers of Excellence in specialties running both undergraduate and post graduate programs. The research was conducted among final year students in 12 Faculties and College of Medicine and Surgery at the Ugbowo campus.

### Study Population

This study involved all final year students undergoing full-time undergraduate programs 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, 600 level students of Faculty of Pharmacy and College of Medicine and Dentistry.

### Sample Size Determination

Using Cochran formula [16].

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

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

where

N= Sample size

Z= Confidence level (at 95%)

P= Prevalence (estimated at 50%)

D= Confidence interval (at  $\pm 0.05$ )

A sample size of 370 was calculated for the study.

**Inclusion Criteria-** Male and female final year undergraduate students who live in school hostel and outside the campus.

**Exclusion Criteria-** Postgraduate students as well as part-time students were not involved in the study. Undergraduate students of other levels other than final year were not included in this study.

### 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 30 item-structured questionnaire which consists of four sections was adapted from the questionnaire that was used to assess the extent of alcohol and drug abuse among undergraduates in Kenya [17]. 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 socio demographic characteristics of the respondents. The second section contains eight (8) questions which assesses the knowledge of opioids and 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.

### Data Collection

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

### Data Quality Control

Completeness and consistency of the collected data was achieved by making frequent checks on the data collection process.

### Data Analysis

Completed questionnaires were sorted according to Faculty and College. 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. The results were presented as percentages and averages.

### Ethical Approval

Permission to carry out this study was obtained from the Dean of Student Affairs, University of Benin. 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.

## RESULTS

### Response Rate

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%.

Socio demographic Characteristics of respondents are illustrated in Table 1, this study had more males, 224 (57.6%) and majority of the respondents were between the ages of 19-24 years.

About 237 (60.9%) respondents have knowledge of opioids with tramadol, codeine and heroin being the most popular opioids. Prevalence of 26% of final year students of University of Benin was exposed to opioids. Faculties of Art and Engineering had the highest respondents who are users of opioids. Details of the knowledge and prevalence of opioid use are illustrated in Table 2. The effects of opioid abuse on respondents that indicated are reported in Table 3. 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 80 respondents (79.2%) had not experienced any improvement in their academics. Out of the 101 respondents that use opioids for recreational purposes, only 3 have had disciplinary issues with lecturers and the University. Majority of the respondents indicated that they are experiencing academic challenges or family issues due to recreational consumption of opioids. Similarly, 6 respondents stated that there is a high probability that their current family issue is due to opioid abuse. A total of 2 respondents were currently experiencing financial challenges and 5 respondents have been involved in betting and gambling since they started using opioids for recreational purposes. There was a significant association between gender and opioid use- Chi square test:  $X^2(2) = 19.435, p=0.000(<0.05)$  but not with Faculty ( $p=0.130$ ). Details of the effects of opioid abuse are illustrated in Table 4.

## DISCUSSION

This study has reported that majority of the respondents have knowledge of opioids with tramadol, codeine and heroin being the most popular opioids. Most respondents from Pharmacy, Medicinal Sciences, Dentistry and Basic Medical Sciences had better knowledge of opioids compared to other faculties (e.g. Arts and Law). This may be due to the fact that the curricula used in these faculties include study of medical use of opioids. This study revealed that a significant number 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 [8]. Tramadol and codeine (commonly included in cough syrups) are the most used opioids; this finding is similar to results from previous studies in the same study site where tramadol was the most abused substance of addiction [18, 19]. Studies conducted in another public university in Nigeria (University of Ilorin) between 1988 and 2004 showed minimal use of cannabis and opioids for recreational purposes. The common drugs of abuse were first salicylate analgesics in 1988 then stimulants in 2004 [20, 21]. 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 [22]. It can be seen from the study that

Table 1: Socio demographic characteristics of respondents

<b>Characteristics</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
<b>Sex</b>		
Male	224	57.6
Female	165	42.4
<b>Age (years)</b>		
19-24	252	64.8
25-29	126	32.4
Above 30	11	2.8
<b>Religion</b>		
Christianity	354	91.0
Islam	33	8.5
Traditional religion	0	0
Others	2	0.5
<b>Faculty/College</b>		
Art	52	13.4
Agriculture	21	5.1
Basic Medical Science	19	4.9
Medical Sciences	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
<b>Place of residence</b>		
School hostel	111	28.5
Staff quarters	36	9.3
Ekosodin	127	32.6
Osasogie	32	8.2
BDPA	65	16.7
Others	18	4.6
<b>Average monthly allowance (Naira)</b>		
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 2: Incidence of Opioid Abuse

<b>Variables</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Do you know what opioids are?</b>		
Yes	237	60.9
No	152	39.1
<b>Have you heard of any of these substances?</b>		
Morphine (Miss Emma)		
Yes	149	38.3
No	240	61.7
Tramadol (Trammies)		
Yes	278	71.5
No	111	28.5
Codeine (in cough syrups)		
Yes	252	64.8
No	137	35.2
Heroin (H/Junk)		
Yes	192	49.4
No	197	50.6
Fentanyl (Jackpot)		
Yes	52	13.4
No	337	86.6
Oxycodone (Kicker)		
Yes	48	12.3
No	341	87.7
Pentazocine injection		
Yes	64	16.5
No	324	83.5
<b>Have you used opioids before?</b>		
Yes	101	26.0
No	288	74.0
<b>If yes to the question above, which of these substances have you used?*</b>		
Morphine (Miss Emma)		
Yes	1	1.0
No	100	99.8
Tramadol (Trammies)		
Yes	63	62.4
No	38	37.6
Codeine (in cough syrups)		
Yes	60	59.4
No	41	40.6
Heroin (H/Junk)		
Yes	5	5.0
No	96	95.0
Fentanyl (Jackpot)		
Yes	0	0
No	101	100
Oxycodone (Kicker)		
Yes	100	99.0
No	1	1.0
Pentazocine injection		
Yes	3	3.0
No	98	97.0
<b>Are you still using any of these substances?</b>		
Yes	4	4.0
No	61	60.4

**Table 2 contd.**

Sometimes	36	35.6
<b>How often did you use these substances?</b>		
Once a month	44	43.6
Once in two weeks	12	11.9
Daily	1	1.0
Anytime I felt like	44	43.6
<b>How were you introduced to these substances?</b>		
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
<b>How do you use these substances?</b>		
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

Table 3: Factors Affecting Opioid Abuse

Variables	Frequency, n	Percentage (%)
<b>What is your reason for taking any of these substances?</b>		
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
<b>Where do you get these substances?</b>		
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
<b>Where do you get these substances?</b>		
Pharmacy within the University	28	27.7
Pharmacy outside the University	34	33.7
From fellow students within the University	20	19.8
From friends	19	18.8
From parents and family members	50	49.5
From hawkers on the street	14	13.9
At parties/social events	16	20.8
Others	16	15.8
<b>Does any member of your family take any of these substances?</b>		
Yes	27.7	28
No	33.7	34
Probably	19.8	20
I don't know	18.8	19
<b>Do you have friends who use any of these substances?</b>		
Yes	49.5	50
No	13.9	14
Probably	20.8	16

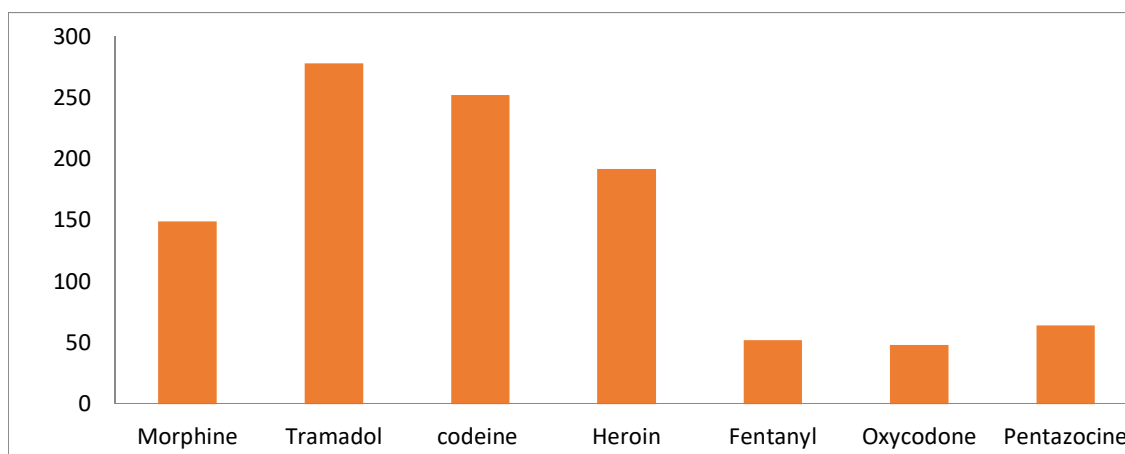


Figure 1: Knowledge of specific opioids

Table 4: Effects of Opioid Abuse

Variables	Frequency, n	Percentage (%)
<b>Have you experienced any side effects of opioid?</b>		
Yes	24.0	23.8
No	36.0	35.6
Probably	28.0	27.7
I don't know	13.0	12.9
<b>Which of the following effects have you experienced?</b>		
Nausea and vomiting	14.0	13.9
Constipation	2.0	2.0
Drowsiness	85.0	84.2
Difficulty in breathing	0	0
<b>Have you experienced an alteration in any of the following daily activities?</b>		
<b>Sleep Pattern</b>		
Yes	46.0	45.6
No	55.0	54.4
<b>Eating Pattern</b>		
Yes	14.0	13.9
No	87.0	86.1
<b>Mood</b>		
Yes	14.0	13.9
No	87.0	86.1
<b>Have you ever missed class or lecture because of these substances?</b>		
Yes	74.0	73.3
No	12.0	11.9
Probably	13.0	12.9
I don't know	2.0	2.0
<b>Have you ever missed any examination/test because of these substances?</b>		
Yes	2.0	2.0
No	84.0	83.2
Probably	14.0	13.9
I don't know	1.0	1.0
<b>Have your academic grades improved since you started taking these substances?</b>		

**Table 4 contd.**

Yes	3.0	3.0
No	80.0	79.2
Probably	1.0	1.0
I don't know	17.0	16.8
<b>Have you ever had disciplinary issue with a Lecturer or the university because of these substances?</b>		
Yes	3.0	3.3
No	97.0	96.7
<b>Are you having academic challenges as a result of these substances?</b>		
Yes	88.0	87.1
No	12.0	11.9
Probably	1.0	1.0
I don't know	0	0
<b>Are you having family problems as a result of these substances?</b>		
Yes	94.0	93.1
No	6.0	5.9
Probably	1.0	1.0
I don't know	2.0	2.0
<b>Are you having financial challenges as a result of these substances?</b>		
Yes	93.0	92.1
No	5.0	4.9
Probably	1.0	1.0
I don't know	5.0	5.0
<b>Have you been involved in gambling or betting since you started taking these substances?</b>		
Yes	88.0	87.1
No	7.0	6.9
Probably	5.0	5.0
I don't know	1.0	1.0

a higher proportion of users were male respondents and there was an association between gender and opioid abuse ( $p < 0.05$ ). This is consistent with a previous study that reported one of the reasons as males are more likely to engage in risky and unhealthy behaviour compared to females [22]. Other reasons reported by similar studies are that 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 [13]. However, several studies in the foreign scene show that females also tend to abuse opioids (especially injectable opioids) more than males [23, 24, 25]. 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. 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. Peer pressure still remains the major factor associated with

recreational consumption of opioids as discovered in our previous study [19]. Other sources include pharmacies and patent drug stores outside the University which is in line with sources identified in previous studies [13]. This shows that the Pharmacists Council of Nigeria needs to enforce regulation and monitoring of pharmacies especially with regard to dispensing of prescription only medications. Drug pushers and hawkers are known to be on the streets and corners in universities and in other public places in the city to provide substances of abuse for the consumers.

Effects of opioid abuse reported by the respondents (including alteration in daily activities especially sleeping pattern, eating pattern and mood) are due to the adverse effects of opioids on the human body. These effects cause most of them to miss lectures and examinations which can lead to poorer academic performance. This is in agreement 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 [26]. 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.

These findings show 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 corrective measures that can be taken to help students already addicted to opioid drugs.

### The Scope and Limitation of the study

The intention of the study was not to provide an intervention, but an overview of opioid abuse in a tertiary public university in South- South Nigeria. It is also, to provide evidence based information for drug regulatory agencies. Results from this study will also be of importance to the management of the university in designing appropriate interventions to curb the menace of drug abuse in our society. The study was limited to final year undergraduate students; further studies may include post graduate students and staff of the University.

### CONCLUSION

This study has reported good knowledge of opioid substances and a high prevalence of opioid abuse among final year students of University of Benin. 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 examinations. There continues to be a major gap in the control and regulation of sales and therapeutic use of opioid drugs in our society. Continuous professional training and counselling programs against drug abuse is imperative for university students.

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### CONFLICT OF INTEREST STATEMENT

There is no potential conflict of interest or any financial or personal relationships with other people or organizations that could inappropriately bias the conduct and findings of this study.

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