



Original Research

## Prevalence and Pattern of Analgesic Abuse Among Undergraduate Students of University of Port Harcourt, Rivers State, Nigeria.

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### Abstract

**Background:** The habitual or excessive use of painkillers, including prescription and over-the-counter drugs, that deviates from medical guidelines is known as analgesic abuse, and this includes taking larger doses than recommended, using the drugs for non-medical purposes, or continuing to take the medication despite adverse effects on one's physical, mental, and social well-being. Devastating health effects may result from this. The prevalence and patterns of analgesic abuse among University of Port Harcourt undergraduate students were evaluated in this study.

**Methodology:** A descriptive cross-sectional study was conducted, and respondents were selected using a multistage sampling method. A self-administered, structured questionnaire was used to gather the data, and IBM Statistical Product for Service Solution (SPSS) version 25 was used to analyze the data; means, frequency, proportions, chi-square, and regression analysis were used to summarize the results. A p-value of less than 0.05 was deemed statistically significant.

**Results:** 384 students in all, with a median age of 20, were interviewed. The distribution of results showed that 207 (53.9%) of the respondents were males and 177 (46.1%) were females. The majority of responders, 339 (69.6%), used paracetamol, with headaches accounting for 316 (57.4%) of all uses. The findings also showed that the prevalence of analgesic abuse was 9.1%, with paracetamol being the most frequently abused medicine (42.9%).

**Conclusion:** Although the results indicated that the prevalence of analgesic abuse among University of Port Harcourt undergraduate students was low, most respondents used analgesic medication without a prescription from a doctor. The most common reasons for using analgesics were headaches, muscle pain, and menstrual cramps. It is crucial that the institution implements strategic plans to ensure that students are taught how to use analgesics properly.

**Keywords:** Analgesic; Abuse; Prevalence; Pattern; Students.

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Quick Response Code:



## **Introduction:**

Analgesics are medications used to relieve pain that range from over-the-counter nonsteroidal anti-inflammatory drugs (NSAIDs) to opioids, but they are often misused, especially by young adults like university students, despite their benefits<sup>[1]</sup>. Students face a lot of stress from academics, social life, and finances, which makes them vulnerable to misusing analgesics to try to cope<sup>[1]</sup>. Misusing analgesics can lead to serious health problems, including addiction, physical dependence, and organ damage, especially with prolonged, unsupervised use<sup>[1]</sup>. This is a complex issue that affects not only students' health but also their academic and social lives<sup>[1]</sup>.

Studies have shown that analgesic abuse is a problem in different parts of the world. For example, a study conducted in Makkah, Saudi Arabia, found that 26.1% of the respondents were using analgesics<sup>[2]</sup>; a study conducted in the United States of America (USA) showed a prevalence of analgesic abuse of 7.6% among those between 12 and 17 years and 11.4% among those between 18 and 25 years<sup>[3]</sup>; a study conducted in Egypt found that 6.5% of university students reported using substances, with a notable percentage abusing tramadol, an opioid analgesic<sup>[4]</sup>. In Nigeria, about 14.4% of Nigerians were reported to be using drugs in the past year, with many of them misusing prescription opioids<sup>[5]</sup>.

A study conducted at the University of Lagos found that 33% of students reported abusing one or more substances, with marijuana being the most common at 45.7%<sup>6</sup>. Other substances frequently abused included coffee, alcohol, and tramadol<sup>[6]</sup>. The South-South zone of Nigeria, which includes Rivers State, has a high rate of drug use, ranging from 13.8% to 22.4% of the population, according to a report by the United Nations Office on Drugs and Crime (UNODC)<sup>5</sup>. This suggests that a reasonable amount of the southern population is involved in drug abuse<sup>[5,7]</sup>. The misuse of analgesics among university students in Port Harcourt may be influenced by factors like academic stress, peer pressure, and easy access to over-the-counter medications<sup>[8]</sup>. College students are often exposed to substances like stimulants, depressants, and opioids, which are sometimes misused to manage stress and improve performance<sup>[8]</sup>.

The consequences of analgesic abuse go beyond individual health problems and can significantly affect academic performance, leading to absenteeism and impaired cognitive function<sup>[9]</sup>. This study aims to investigate the prevalence of analgesic abuse and the patterns of analgesic use among undergraduate students at the University of Port Harcourt. The findings will contribute to a better understanding of analgesic abuse among students in tertiary institutions in Nigeria and highlight the need for improved regulation and student support systems.

## **Methodology**

**Study design:** The study employed a descriptive, cross-sectional design.

**Study settings:** The research setting for this study was the University of Port Harcourt (Uniport), a prestigious university found between latitude 4.09069N and longitude 6.9170E in Choba, in Rivers State, a southern state in Nigeria<sup>[10]</sup>. The university, founded in 1975, has over 60,000 students from diverse socio-cultural and religious backgrounds<sup>[10]</sup>. It is surrounded by three communities Aluu, Alakahia, and Choba communities and also has 3 campuses the Abuja, Delta, and Choba campus with 14 faculties and 60 departments<sup>10</sup>.

**Study participants:** The study included all University of Port Harcourt undergraduate students as participants.

### **Sample size:**

Cochrane's formula was used to calculate the minimum sample size for this study.

$$n = z^2pq/e^2$$

n = expected sample size; z = z-score table (1.96); p = prevalence rate (0.694, which was obtained from a similar study<sup>11</sup>; q = (1-p); e = error tolerance (level) or margin of error set at 0.05. The estimated sample size after adjusting for non-response using a rate of 10% was 358.

### **Sampling technique:**

The sampling method used for this study was multi-stage. The University of Port Harcourt has 14 faculties, which are basic medical sciences, clinical sciences, humanities, social sciences, science, science laboratory technology (SLT), education, engineering, management, agriculture, pharmaceutical science, law, dentistry, and communication and media studies. The first stage was the selection of four faculties from the list of fourteen faculties in the university using simple random sampling by balloting. In the second stage, one department from the list of departments in each of the four faculties was selected through simple random sampling by balloting. Department of Fine Arts and Design out of the nine departments in the faculty of Humanities, department of Anatomy was selected out of the eight departments in the faculty of basic medical sciences, department of Pharmacy was selected out of the four departments in the faculty of pharmaceutical sciences, and the department of petroleum engineering was selected out of the seven departments in the faculty of Engineering. The third stage was the selection of the classes/levels to be studied from each department, and two levels were selected from each department. The selected levels were 200 and 300 levels from the department of fine arts and design; 100 and 300 levels from the department of anatomy; 200 and 500 levels from the department of Petroleum Engineering; and 200 and 400 levels from the Department of Pharmacy. Respondents from various levels were selected by non-proportionate stratification, with at least 40 students from each of the various levels across the two selected levels.

### **Study instruments:**

The instrument was a semi-structured self-administered questionnaire. The questions to assess knowledge were derived from questions from previous related studies [12]. The questionnaire had three sections with a brief introduction of the study and the principal investigators. The first section covered the sociodemographic information of the participants, the second section covered the patterns of analgesic use among the participants, and the third section assessed the prevalence of analgesic abuse among the participants. An online questionnaire was created using Google Forms and disseminated digitally. The aim of the research was explained to the students, as well as instructions on how to fill out the questionnaire. The link was then sent to each respondent, and each respondent was followed up until all the responses were received.

### **Data analysis:**

The data was cleaned by verifying questionnaire completeness and then analyzed using IBM Statistical Product for Service Solutions (SPSS) version 25. Descriptive statistics included means and standard deviations for numerical variables and percentages and proportions for categorical variables. A chi-square test (or Fischer's test when necessary) was used to examine the association between categorical variables, while bivariate logistic regression analysis was used to characterize the dependence of each response variable on the explanatory variable and describe the outcome or response variable. Statistical significance was set at  $p < 0.05$ .

**Study duration:**

The study was conducted between January 2024 and August 2024.

**Results**

The sociodemographic characteristics of the students is shown in table 1. The results show that most of the students were male (53.9%) and between the ages of 18-20 (47.7%). The mean age of the students was  $20.59 \pm 2.71$ . 10.7% (41) of respondents were in their 1st year of study, 37.8% (145) were in their 2nd year of study, 24.5% (94) were in their 3rd year of study, 13.0% (50) were in their 4th year of study, and 14.1% (54) were in their 5th year of study.

**Table 1: Social demographic characteristics of study participants**

Variables (N=384)	Frequency	Percentage
<b>Gender</b>		
Male	207	53.9
Female	177	46.1
<b>Age category</b>		
≤17 years	34	8.9
18 – 20years	183	47.7
21 – 23years	120	31.3
≥24years	47	12.2
<b>Year/Level of Study</b>		
1 <sup>st</sup> year	41	10.7
2 <sup>nd</sup> year	145	37.8
3 <sup>rd</sup> year	94	24.5
4 <sup>th</sup> year	50	13.0
5 <sup>th</sup> year	54	14.1
<b>Course of Study</b>		
Pharmacy	103	26.8
Petroleum Engineering	102	26.6
Anatomy	94	24.5
Fine Art	85	22.1
<b>Marital Status</b>		
Single	375	97.7
Married	6	1.6
Others	3	0.8
<b>Religion</b>		
Christian religion (Christianity)	375	97.7
Islamic religion (Islam)	6	1.6
Traditional African Religion	2	0.5
Others (non-religious)	1	0.3
<b>Ethnicity</b>		
Igbo	171	44.5
Yoruba	37	9.6
Hausa	5	1.3
Others	171	44.5

One hundred and three 26.8% of students were from the department of pharmacy, 26.6% (102) were from the department of petroleum engineering, 24.5% (94) were from the department of anatomy, 22.1% (85) were from the department of fine arts and design, 97.7% (375) were single, 1.6% (6) were married, and 0.8% (3) were others. 97.7% (375) were Christian, 1.6% (6) were Muslims, 0.5% (2) were of the traditional African religion, 0.3% (1) were non-religious, 44.5% (171) were Igbos, 9.6% (37) were Yoruba, 1.3% (5) were Hausa, and 44.5% (171) were from other tribes.

**Table 2: patterns of analgesic use**

<b>Variables (N=384)</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Use of analgesics</b>		
Never	59	15.4
Rarely	173	45.1
Occasionally	134	34.9
Frequently	17	4.4
Always	1	0.3
<b>Weekly analgesic use (N=325)</b>		
0 times	113	34.8
1 – 2times	191	58.8
3 – 4times	14	4.3
5 and above	7	2.2
<b>*Commonly used analgesics</b>		
Paracetamol	339	69.6
Ibuprofen	81	16.6
Aspirin	34	7.0
Codeine	11	2.3
Tramadol	6	1.2
Morphine	2	0.4
Others (Piroxicam, Kacham, Felvin, Diclofenac, Anacin, Aceclofenac)	14	2.9
<b>Exceeding the recommended dosage of analgesics</b>		
Never	270	70.3
Rarely	63	16.4
Sometimes	37	9.6
Often	10	2.6
Always	4	1.0
<b>Use of prescription analgesics without a doctor’s prescription</b>		
Never	106	27.6
Rarely	63	16.4
Sometimes	148	38.5
Often	45	11.7
Always	22	5.7
<b>Guilty or ashamed of analgesic use</b>		
Yes	35	9.1
No	349	90.9

<b>Variables (N=384)</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Have you ever combined different types of analgesics?</b>		
Yes	52	13.5
No	332	86.5
<b>If yes, what are the combinations of analgesics?</b>		
Paracetamol and Ibuprofen	13	25.0
Paracetamol and Panadol	7	13.5
Paracetamol and Sudrex	3	5.8
Codeine and Paracetamol	2	3.8
Buscopan and Felvin	1	1.9
Codeine and Tramadol	1	1.9
Paracetamol and Busta-N-Orange with Sudrex	1	1.9
Paracetamol and Anacin	1	1.9
Paracetamol and Diclofenac	1	1.9
Paracetamol and Felvin	1	1.9
Paracetamol and Sivofermol	1	1.9
Paracetamol and Tramadol	1	1.9
Paracetamol, Kacham and Sudrex	1	1.9
Piroxicam and Ibuprofen	1	1.9
Sudrex and Boska	1	1.9
Not stated	16	30.8
<b>Have you ever taken analgesics from someone without their knowledge?</b>		
Yes	41	10.7
No	343	89.3
<b>*What is the main reason for using analgesics?</b>		
Headache	316	57.4
Muscle pain	78	14.2
Menstrual cramps	79	14.3
Toothache	21	3.8
Back pain	48	8.7
Others (Stress, Recreation, Taken alongside antimalarial)	9	1.6

The pattern of analgesic use is shown in table 2. Most respondents rarely used analgesics (45.1%), with the majority using analgesics 1-2 times a week (58.8%). Paracetamol was the most used analgesic (69.6%), and the majority of respondents never exceeded the recommended dosage (70.3%). Most respondents sometimes used analgesics without a doctor's prescription (38.5%). Most respondents do not feel guilty or ashamed of their analgesic use; most respondents did not combine different analgesic medications (86.5%). Most respondents who combined analgesics combined paracetamol and ibuprofen (25.0%). Most respondents had not taken analgesics from someone without their knowledge (89.3%). The most common reason for use was headaches at (57.8%).

The prevalence of analgesic abuse is shown in Table 3. The results show most respondents had not abused analgesics (90.9%); paracetamol was the most common medication among respondents who abused analgesics (42.9%). Most respondents agreed that analgesic abuse was becoming more common among university students (41.7%). Most respondents perceived analgesic use among their peer group to be rare (46.4%).

**Table 3: Prevalence of analgesic abuse**

<b>Variables (N=384)</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Abused or misused an analgesic</b>		
Yes	35	9.1
No	349	90.9
<b>If yes, which analgesics</b>		
Paracetamol	15	42.9
Aspirin	5	14.3
Tramadol	3	8.6
Codeine	2	5.7
Ibuprofen	2	5.7
Ibuprofen and Paracetamol	2	5.7
Anacin	1	2.8
Aspirin and Ibuprofen	1	2.8
Codeine and Tramadol	1	2.8
Codeine and Paracetamol	1	2.8
Panadol	1	2.8
Paracetamol and Busta-N-Orange with Sudrex	1	2.8
<b>Analgesic abuse is becoming more common among university students.</b>		
Strongly-disagree	23	6.0
Disagree	36	9.4
Neutral	125	32.6
Agree	160	41.7
Strongly-agree	40	10.4
<b>Perception of analgesic use among your peer group</b>		
Rare	178	46.4
Occasional	99	25.8
Common	72	18.8
Very common	26	6.8
Extensive	9	2.3

The association between the pattern of analgesic use and sociodemographic variables is shown in Table 4. The results show that more females used analgesic medications compared to males; this finding was, however, not statistically significant. More males (77.1%) than females felt guilty about their analgesic use.

**Table 4: Association between patterns of analgesic use and socio-demographic factors**

Patterns of analgesics use	Gender		
	Males n (%)	Females n (%)	Total n (%)
<b>Do you use analgesics (painkillers)</b>			
Never	37 (62.7)	22 (37.3)	59 (100.0)
Rarely	98 (56.6)	75 (43.4)	173 (100.0)
Occasionally	61 (45.5)	73 (54.5)	134 (100.0)
Frequently	10 (58.8)	7 (41.2)	17 (100.0)
Always	1 (100.0)	0 (0.0)	1 (100.0)
<i>Chi Square = 7.175; p-value = 0.127</i>			
<b>How often do you use analgesics per week? (N=325)</b>			
0 times	63 (55.8)	50 (44.2)	113 (100.0)
1 – 2times	94 (49.2)	97 (50.8)	191 (100.0)
3 – 4times	10 (71.4)	4 (28.6)	14 (100.0)
5 and above	3 (42.9)	4 (57.1)	7 (100.0)
<i>Fisher's Exact = 3.572; p-value = 0.312</i>			
<b>Do you exceed the recommended dosage of analgesics?</b>			
Never	140 (51.9)	130 (48.1)	270 (100.0)
Rarely	34 (54.0)	29 (46.0)	63 (100.0)
Sometimes	24 (64.9)	13 (35.1)	37 (100.0)
Often	7 (70.0)	3 (30.0)	10 (100.0)
Always	2 (50.0)	2 (50.0)	4 (100.0)
<i>Fisher's Exact = 3.387; p-value = 0.495</i>			
<b>Have you used prescription analgesics without a doctor's prescription?</b>			
Never	64 (60.4)	42 (39.6)	106 (100.0)
Rarely	38 (60.3)	25 (39.7)	63 (100.0)
Sometimes	69 (46.6)	79 (53.4)	148 (100.0)
Often	22 (48.9)	23 (51.1)	45 (100.0)
Always	14 (63.6)	8 (36.4)	22 (100.0)
<i>Chi Square = 7.284; p-value = 0.122</i>			
<b>Do you feel guilty or ashamed about your analgesic use?</b>			
Yes	27 (77.1)	8 (22.9)	35 (100.0)
No	180 (51.6)	169 (48.4)	349 (100.0)
<i>Chi Square = 8.368; p-value = 0.004*</i>			

\*Statistically Significant

Gender

Patterns of analgesic use	Males n (%)	Females n (%)	Total n (%)
<b>Have you ever combined different types of analgesics?</b>			
Yes	29 (55.8)	23 (44.2)	52 (100.0)
No	178 (53.6)	154 (46.4)	332 (100.0)
<i>Chi Square = 0.084; p-value = 0.772</i>			
<b>Have you ever taken analgesics from someone without their knowledge?</b>			
Yes	21 (51.2)	20 (48.8)	41 (100.0)
No	186 (54.2)	157 (45.8)	343 (100.0)
<i>Chi Square = 0.133; p-value = 0.715</i>			

## Discussion

This study aimed to determine the prevalence and patterns of analgesic abuse among University of Port Harcourt undergraduates.

This study revealed significant findings regarding the prevalence and patterns of analgesic use among undergraduate students at the University of Port Harcourt. The data showed that the majority of students frequently use analgesics, with most respondents consuming these medications 1-2 times per week. Specifically, paracetamol was the most used analgesic, reflecting trends seen in similar studies conducted in other Nigerian universities and globally, highlighting a widespread reliance on over-the-counter pain relievers among young adults<sup>[13]</sup>.

The observed pattern of frequent analgesic use among students in our study aligns with findings from similar research. For instance, a study conducted in Abia State, Nigeria, on self-medication practices among undergraduates reported that most students used analgesics whenever they felt unwell, with a substantial proportion using them multiple times a week<sup>[13]</sup>. This frequent consumption pattern is not isolated to Nigeria; a study in Ethiopia also showed that students commonly used analgesics on a weekly basis, often without medical guidance, demonstrating a global trend of self-medication behaviors among university students<sup>[14]</sup>. Paracetamol was the most used analgesic among students; this finding is consistent with similar findings from studies done at Lagos<sup>[15]</sup>; however, in a similar study in Bayelsa on self-medication practices with pain relievers: prevalence, patterns, and associated factors, most respondents used ibuprofen<sup>[16]</sup>. Similarly, in Ethiopia and the United Kingdom, paracetamol was the preferred analgesic<sup>[14, 17]</sup>. In all these studies, paracetamol was frequently used due to its accessibility, affordability, and perceived safety, making it a preferred choice for managing common ailments such as headaches, muscle pain, and menstrual cramps<sup>[14, 17]</sup>. This trend reflects a global reliance on over-the-counter analgesics among young adults who often face academic and social pressures<sup>[14-17]</sup>. The study also highlighted the primary indications for analgesic use among students, with headaches, muscle pain, and menstrual cramps being the most common reasons cited. Headaches accounted for over half of the reported cases of analgesic use, reflecting the high prevalence of this condition among students, likely exacerbated by academic stress, lack of sleep, and prolonged screen time. This pattern aligns with findings from a study done at the University of Lagos, where headaches were the most frequently reported reason for analgesic use among students<sup>[15]</sup>. Similarly, studies in other regions, such as Ethiopia and Saudi Arabia, have shown that students commonly self-medicate with analgesics for everyday ailments like headaches and muscle pain, often viewing these medications as quick fixes for their symptoms<sup>[14, 18]</sup>. In a study conducted in Pakistan with medical students being the respondents, the

commonest indication for analgesic use was fever, with over two-thirds of respondents using analgesic medications for fever; this difference may be due to knowledge of antipyretic properties of some analgesics by medical students or due to common ailments in the region <sup>[19]</sup>. The prevalent use of analgesics for these minor yet frequent conditions underscores the importance of educating students on non-pharmacological alternatives for pain management, such as relaxation techniques, proper hydration, and regular breaks, which can help reduce reliance on medications and mitigate the risks associated with their misuse <sup>[14, 15, 18, 19]</sup>. However, the frequent use of analgesics without a doctor's prescription, as observed in our study, poses a significant public health concern. In Ado Ekiti, Nigeria, a study on self-medication among undergraduates similarly found high levels of unsupervised analgesic use, often driven by convenience and the perceived safety of these medications <sup>[26]</sup>. A systematic review in Ethiopia, which included data from 13 studies, reported a high prevalence of self-medication among students, highlighting the pervasiveness of this issue. In Pakistan, another study on analgesic use among university students found that a majority of respondents consumed painkillers without consulting a healthcare professional, further underscoring the widespread nature of this behavior <sup>[14, 18, 20]</sup>. Another critical finding from this study was the behavior of taking analgesics without the owner's consent. This behavior reflects a significant disregard for medication ownership and safety protocols, indicating a broader issue of casual attitudes toward medication use among students. This trend was also observed in other settings; for example, a study in Ethiopia noted that students often borrowed or took medications from peers without formal approval, often underestimating the potential risks involved <sup>[14]</sup>. Such practices can lead to improper dosing, unrecognized drug interactions, and increased risk of adverse effects, especially when combined with other medications without professional guidance. This highlights an urgent need for educational programs that stress the importance of respecting medication boundaries, safe sharing practices, and understanding the legal and health implications of consuming medications without consent <sup>[14]</sup>. The study also revealed that many students do not feel guilty or ashamed about their analgesic use, a finding similar to findings from similar studies. Research carried out in Nigeria, Ghana, and the United States of America similarly reported a lack of guilt among respondents regarding their analgesic use <sup>[21, 22, 23]</sup>. For example, a study on the burden of drug use in Nigeria found that most respondents did not feel guilty about their drug use, reflecting a normalization of self-medication behaviors. This normalization, particularly for commonly used drugs like analgesics, highlights a broader societal attitude that views these medications as harmless, despite their potential for misuse and adverse effects <sup>[21, 22, 23]</sup>. A concerning pattern identified was the combination of different types of analgesics by some students, with paracetamol and ibuprofen being the most combined drugs. This practice was also noted in a study at Niger Delta University, where students frequently combined analgesics, highlighting a risky trend of mixing medications without understanding the combined effects. The combination of analgesics can result in severe health risks such as liver toxicity, gastrointestinal issues, and an increased likelihood of drug dependence, emphasizing the need for targeted educational interventions that address the dangers of such practices <sup>[12]</sup>. Despite the relatively low prevalence of analgesic abuse in this study, the frequent, unsupervised use of these medications often without medical consultation presents significant health risks. This finding contrasts with higher abuse rates reported in other regions, such as Jos, Nigeria, where more respondents reported misuse. The most abused analgesic was paracetamol, then aspirin and tramadol being next. This is comparable to a study on the use and abuse of analgesics in Nigeria, with most respondents consuming paracetamol; about one-fourth of the study population abused acetaminophen <sup>[22]</sup>. A similar study was done in Cameroon; the overall prevalence of recreational drug use was low, with tramadol being the most noted drug used among students <sup>[24]</sup>. This is about fourteen times less than the findings among the sample population <sup>[24]</sup>. Similarly, in a study done in Egypt, where few respondents abused drugs, tramadol was the second most common drug of abuse. The variation may be due to differences in educational backgrounds, drug availability, and the prevalence of common ailments in different locations<sup>[25]</sup>. Although the prevalence of analgesic abuse in this study is relatively low compared to other regions, this variation may be due to differences in educational backgrounds, drug

availability, and the prevalence of common ailments in different locations [22, 24, 25]. The frequent misuse without guidance raises concerns about potential future escalation.

### **Implications of findings of this study**

This study shows findings with implications for public health, policy-making, and educational interventions aimed at mitigating the risks associated with misuse. The study's findings on the prevalence of analgesic misuse among students reveal a critical aspect of health behavior that requires immediate attention. The relatively low levels of abuse observed in the study suggest that analgesic misuse is not yet widespread among this group. However, this does not negate the significance of the issue; rather, it presents a window of opportunity to implement preventive measures that can curb potential escalation. This is particularly important because early intervention can prevent the normalization of misuse behaviors, which are often influenced by peer practices and the perceived safety of over-the-counter medications. The implications here are twofold. Firstly, the low prevalence provides a chance for targeted educational campaigns that can reinforce responsible use before misuse becomes entrenched. By leveraging this initial stage, universities and healthcare providers can implement awareness programs that educate students on the correct use of analgesics, the dangers of unsupervised consumption, and the long-term health implications of misuse. The effectiveness of such preventive strategies can significantly reduce the likelihood of the issue growing into a larger public health concern. Secondly, the findings highlight the need for routine surveillance of drug use patterns among students. Continuous monitoring allows for the identification of shifts in misuse prevalence, enabling timely interventions. This approach ensures that preventive measures are adapted to current trends, maintaining their relevance and effectiveness in addressing emerging challenges in analgesic use among students. The patterns of analgesic use identified in the study—such as the frequent use of paracetamol, ibuprofen, and other over-the-counter painkillers—shed light on the behavioral tendencies of students regarding self-medication. These patterns reveal that students often resort to analgesics for quick relief from pain, which could be attributed to academic stress, lifestyle choices, and the high availability of these medications. The study's findings that some students combined multiple analgesics without proper medical advice underscore a critical gap in awareness about the risks associated with such practices. The implications of these usage patterns are significant for developing targeted interventions. The combination of analgesics without understanding the potential interactions or cumulative side effects poses severe health risks, such as liver toxicity, gastrointestinal issues, and increased potential for drug dependence. Therefore, it is crucial to develop educational content that specifically addresses these patterns, highlighting the dangers of combining medications and promoting safe pain management practices. Moreover, understanding these patterns enables policymakers and healthcare professionals to tailor intervention programs that address the specific needs of the student population. For example, stress-related analgesic use can be mitigated through stress management workshops and mental health support services that provide students with alternative coping strategies. Universities can also work towards restricting access to multiple analgesic types within campus pharmacies, ensuring that students receive guidance on safe usage when purchasing these medications. Additionally, this study's identification of specific misuse patterns, such as mixing NSAIDs with paracetamol, highlights a pressing need for policy reforms that regulate the sale of these drugs on campuses. Policies that enforce consultation with a medical practitioner and pharmacist before the purchase of multiple painkillers can significantly reduce the misuse of these medications. Educational institutions should collaborate with healthcare authorities to establish guidelines that restrict the unsupervised sale of analgesics, promoting a safer and more informed approach to pain management among students.

### **Limitations of the study**

The study is a descriptive cross-sectional study that relied on self-report and is thus prone to information bias. Additionally, the sensitive nature of the topic might lead to underreporting or bias in responses,

which is a limitation inherent in such studies. However, efforts were made to ensure accurate information was obtained.

## Conclusion

The study findings yield valuable insights into public health strategies, policy development, and educational programming. By addressing these patterns early and implementing targeted preventive measures, there is a significant opportunity to reduce the risks associated with analgesic misuse. Ensuring that students are well-informed about safe medication practices and providing robust support systems for stress and pain management can play a pivotal role in curbing the potential escalation of analgesic abuse in this vulnerable population.

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## References:

1. Soremekun RO, Folorunso BO, Adeyemi OC. Prevalence and perception of drug use amongst secondary school students in two local government areas of Lagos State, Nigeria. *S Afr J Psychiatr.* 2020 Jul 28;26:1428. doi: 10.4102/sajpsychiatry.v26i0.1428.
2. Alharbi A, Lodhi F, Khan A. Prevalence and pattern of analgesic misuse among patients attending primary health care center in Makkah, Saudi Arabia. *Med Sci.* 2020; 24(105):3182-3190.
3. Inciardi JA, Surratt HL, Martin SS, Gealt R. Prevalence of narcotic analgesic abuse among students: individual or polydrug abuse? *Arch PediatrAdolesc Med.* 2004 May;158(5):498-9. doi: 10.1001/archpedi.158.5.498-b. PMID: 15123486.
4. Khafagy M, Gomaa Z, Elwasify M. Substance use patterns among university students in Egypt. *Middle East Curr Psychiatry* **28**. 2021;59. <https://doi.org/10.1186/s43045-021-00140-6>.
5. United Nations Office on Drugs and Crime (UNODC), Government of Nigeria's Federal Ministry of Health (FMOH), European Union (EU). *Drug use in Nigeria 2018*. 1<sup>st</sup> edition. Vienna: Vienna International Centre; 2019.
6. Healththink. *Drug Abuse: A Public Health Menace In Nigeria*. 2021 Oct. 8 [cited 2024 June 16]. In: Adolescent health, Drug, Lifestyle, Tobacco [Internet]. Abuja: Healththink. 2021 Oct. 8. Available from: <https://healththink.org/drug-abuse-a-public-health-menace-in-nigeria/>
7. Chang WP, Stuart H, Chen SP. Alcohol Use, Drug Use, and Psychological Distress in University Students: Findings from a Canadian Campus Survey. *Int J Ment Health Addiction* **20**. 2022; 2366–238. <https://doi.org/10.1007/s11469-021-00519-w>
8. Sogue, M. *Current Addiction Statistics: 2024 Data on Substance Abuse & Trends [Internet]*. 2024 [2024, June 12]. Available from: <https://www.addictiongroup.org/resources/addiction-statistics/>

9. Yusuf FA. Factors Influencing Substance Abuse among Undergraduate Students in Osun State, Nigeria. *African Research Review*. 2011;4(4). <https://doi.org/10.4314/afrev.v4i4.69233>
10. Wikipedia contributors. *University of Port Harcourt [Internet]*. 2022 [2024, June 26]. Available from: [https://en.wikipedia.org/wiki/University\\_of\\_Port\\_Harcourt](https://en.wikipedia.org/wiki/University_of_Port_Harcourt)
11. Bassi PU, Osakwe AI, Builders M., Ette E, Kola G, BingaB, et al. Prevalence and Determinants of Self Medication Practices among Nigerians. *African Journal of Health Sciences*. 2021; 34(5): 634-649
12. Owonaro AP, Eniojukan FJ. Pattern, knowledge and other contextual correlates of use of pain killers among students of Niger delta university. *IOSR Journal of Pharmacy and Biological Sciences*. Mar 2016; 11(2):28-36
13. Ekeleme NC, Chiemeka NJ, Ikonne UG, Dike CV. Prevalence, patterns, and determinants of self-medication among students of Abia State Polytechnic, Aba, Abia State. *Abia State University Medical Students' Association Journal*. 2021; 13(1).
14. Fetensa, G, Tolossa, T, Etafa, W, Fekadu G. Prevalence and predictors of self-medication among university students in Ethiopia: a systematic review and meta-analysis. *J of Pharm Policy and Pract*. 2021; 14(107). <https://doi.org/10.1186/s40545-021-00391-y>
15. Olugbake OA, Akinola AA, Ekiran OO. Knowledge and Use of over-the-counter analgesics among medical and nonmedical students of the University of Lagos. *Journal of Basic and Social Pharmacy Research*. 2019; 1(1):37-45.
16. OwonaroPA, Eniojukan, JF. Prevalence, Patterns and Other Contextual Correlates of Self-medication with Pain Relievers in Opokuma Community in Bayelsa State, Nigeria. *Sch. Acad. J. Pharm.*, 2015; 5(2): 34-43.
17. Golar SK. Use and understanding of analgesics (painkillers) by Aston University students. *Bioscience Horizons: The International Journal of Student Research*. March 2011; 4(1):71–78. <https://doi.org/10.1093/biohorizons/hzr009>
18. Nahla KI, Banan MA, Wejdan OB, Rajaa MA. Self-medication with analgesics among medical students and interns at King Abdulaziz University, Jeddah, Saudi Arabia. *Pak J Med Sci*. 2015 Jan-Feb; 31(1): 14–18. doi: 10.12669/pjms.311.6526.
19. Farah Y, Muhammad SA, Unaiza N, Hala N, Hamza N, Muhammad NA, et al. Self-Medication Practices in Medical Students During the COVID-19 Pandemic: A Cross-Sectional Analysis *Front. Public Health*. 09 March 2022; Sec. 10:803937 <https://doi.org/10.3389/fpubh.2022.803937>
20. Awosusi OA., Konwea PE. Self-Medication Practice Among Secondary School Students in Ekiti State, Southwest Nigeria. *Journal of Advances in Medical and Pharmaceutical Sciences*. 2015; 3(2):61-68. <https://doi.org/10.9734/JAMPS/2015/16083>

21. Agaba EI, Agaba PA, Wigwe CM. Use and abuse of analgesics in Nigeria: a community survey. *Nigerian Journal of Medicine: Journal of the National Association of Resident Doctors of Nigeria.* 2004;13(4):379-382.
22. Alhassan JAK. Here in Ghana hard work don't deserve money: The uncertainty and precarity of youth who use tramadol. *SSM - Qualitative Research in Health.* 2022; 2(4):100165. <http://doi.org/10.1016/j.ssmqr2022.100165>
23. Ishino MFA, McNab PR., Gilreath T, Salmeron B, Williams F. A comprehensive multivariate model of biopsychosocial factors associated with opioid misuse and use disorder in a 2017–2018 United States national survey. *BMC Public Health.* 2020; 20(1):1740. <https://doi.org/10.1186/s12889-020-09856-2>
24. Mbanga CM, Efié DT, Aroke, D, Njim T. Prevalence and predictors of recreational drug use among medical and nursing students in Cameroon: a cross-sectional analysis. *BMC Res Notes.* 2018;11(1). <https://doi.org/10.1186/s13104-018-3631-z>
25. Amin DM., Elnagdi SA, Amer SA. Drug Abuse in Zagazig University students, Egypt: Cross Sectional Study. *Occupational Disease and Environmental Medicine.* 2018; 7(2): 37-49. DOI:[10.4236/odem.2019.72004](https://doi.org/10.4236/odem.2019.72004)
26. Olalekan A, Obafemi S, Adaraniwon A, Ajao IO. Comparative study of drug abuse among students of tertiary institutions in Ekiti State, Nigeria. *International journal of scientific research updates.*2022; 3(40):40-47. DOI:10.53430/ijsru.2022.3.1.0030.