

## A Survey On Drug Abuse Among Undergraduate Students Using Warner Randomized Response Technique

Oladimeji O. A, & Oyejide O. T

Department of Statistics, Federal Polytechnic, Ile-Oluji, Ondo State, Nigeria.

adedipupo.oladimeji@gmail.com.

**ABSTRACT:** The widespread issue of drug abuse among Nigerian youth, especially those in. The negative social consequences of drug misuse are profound and far-reaching. This study investigated the effects of drug abuse among undergraduate students at Obafemi Awolowo University in Ile-Ife, Osun State, Nigeria. The randomized response approach developed by Warner was used, a Stratified Random Sampling method was employed to gather data on drug abuse among the students. The study utilized well-structured survey questionnaire to collect data from the undergraduates Students based on their gender. The data was analyzed with SPSS (Statistical Package For Social Science). The findings from the study, showed that abuse of drug is relatively high and students primarily take substances for stress relief which call for intervention of mental health support. Also, lack of statistically significant relationship between demographic factors such as gender and year of study with drug abuse suggest that intervention should be broad based rather than targeting specific sub-group.

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**Keywords:** Drug abuse; widespread; utilized; targeting; randomized

### 1. INTRODUCTION

Drug abuse is a growing concern for Nigerian youth, and it has become a major public health issue in the country. The social and economic consequences of drug abuse are enormous, and it is a significant challenge to the development of the country. The prevalence of drug abuse among Nigerian undergraduate students is particularly alarming. Many students have become addicted to drugs, and this has serious consequences on their academic performance, behavior, and mental health. The issue of drug abuse among Nigerian undergraduate students has been the subject of various research studies. In this paper, we investigate the effects of drug misuse among undergraduate students at Obafemi Awolowo University, Ile-Ife. Drug abuse among youths in Nigeria has been on the increase in recent years, and it is attributed to a wide range of factors, including peer pressure, unemployment, and poverty. The abuse of drugs by Nigerian students has become a major concern, and it has been linked to academic failure, criminal activities, and poor mental health. According to a survey conducted by the National Bureau of Statistics (NBS),

drug abuse is more prevalent among young adults aged between 18 and 35 years. The same survey shows that about 14.3 million people in Nigeria abuse drugs, and this includes young people in the country. Drugs, legitimate and illegitimate, are commonly used by people of all ages, including animals, for therapeutic purposes and good health. However, drug abuse exists and can be harmful when used illegally and unlawfully. According to the Oxford Advanced Learner's Dictionary, drugs are substances used as medicine to cure ailments or illegal substances taken by some people for physical or mental effects. The National Drug Law Enforcement Agency (15, 20) has reported that youth constitutes the high-risk group for drug abuse influenced by peers and academic or family stress. Even legal substances, like cigarettes and alcohol, have health implications and can lead to drug abuse as a gateway substance to more potent drugs. Drug addiction is a serious concern for the Nigerian society, where drug abuse rates among students have been alarming; and efforts being made to eradicate it are losing strength.

According to the statistics provided by World Health Organization (23), drug including alcohol and tobacco, have caused a lot of road accidents and have claimed more lives than other sicknesses suffered by mankind. As International Drug Trafficking is gaining strength, the international cooperation against drug trafficking is steadily losing strength and lacking organization. Drug abuse and addiction have destructive consequences but our youths are still into drugs. "Not only that it destroys the affected individual but it has a pervasive effect on all those who know or work with the individual (5). The study aims to estimate the proportion of undergraduate students from Obafemi Awolowo University, Ile-Ife, Nigeria, who use psychoactive substances and compare the estimates of drug abuse proportions between men and women. Therefore, responsible behavior among students indicates a brighter future for the society, and drug abuse prevention should be a priority.

This study is investigated the use and abuse of drugs among students in Nigeria. Drug abuse has been found to bring different hazards to both the individual and the country as a result of the increased intake. Drug abuse among students in Nigeria is now rampant. Females are not exempted in this evil act. A recent research showed that 15-20 percent of drug addicts are females while males constitute about 50-55 percent, all comprising of traders, students, unskilled workers and the unemployed as shown by a retrospective study according to Nigerian Drug Law Enforcement Agency (1997). Drug abuse has contributed to the setback of the society. In spite of this, many youthful birthday parties, drugs are being distributed as a type of refreshment to guest. In many psychiatric hospitals in Nigeria, many of our youths are there undergoing drug treatment. The numbers of the youths or students that are insane are more than old people that are insane and youth's insanity is mostly caused by drug abuse. Some students are school drop-outs because they could not continue due to the rate of drug they have taken that resulted to their insanity.

Many students are homeless, wanderers, dropout, rapist, thugs, and armed robbers and so on because they are drug addicts. A lot of lives and property have been wasted in accident and violence because of drug. Youths

that are supposed to be the hope of their families and the society at large and useful to themselves have wasted their lives, all because of drugs and it has been a serious problem in Nigeria.

The following research questions will be addressed in this study:

1. what are the characteristics of students who abuse drugs?
2. what are the sources of influence of drug use among students?

The general objective of this study is to estimate the proportion of the undergraduate students of Obafemi Awolowo University Ile-Ife who abuses drugs using Warner Randomized Response Technique. The specific objectives are to:

examine the characteristics of students who use the identified substances as abusers; analyze the sources of influence of the use of drugs among undergraduate students of the University; compare the estimates of the proportions of male and female undergraduate students of the University who abuses drugs. examine if there is difference in male and female abuse of drugs and examine if there is difference in study of years and how often undergraduate abuse drugs. The research hypothesis is as follows:

Ho: there are no differences in male and female abuse of drugs

VS

H1: there are differences in male and female abuse of drugs

Ho: there are no differences in study of years and how often undergraduates abuse drugs

VS

H1: there are differences in study of years and how often undergraduates abuse drugs.

This is a studying association between substance abuse and diligence, the produce and effect of drug abuse on

students. Drug education helps students and young people understand that all drugs, legal or illegal, have the potential to cause harm, and that the drug abuse experience is always fatal to human existence.

## 2. LITERATURE REVIEW

The review provides insights into the issue of drug abuse in Nigeria, with a particular focus on college and university students. The (13, 14, 15) analyze the various causes of drug abuse, including peer pressure, lack of parental supervision, poverty, and the availability of drugs in the community. They also explore the adverse effects of drug abuse, such as academic underperformance, deviant behavior, addiction, and criminal activity. (10) highlights the significance of robust counseling and guidance services in schools and better communication between school authorities and students concerning drug-free environments. Parental involvement is also emphasized as an essential factor in preventing drug abuse. Many of these students' behaviors are heavily tied to the peer culture, as students learn from and imitate the peers they like and admire. Wanting to be attractive to others becomes very important, and this factor is significant in the development of eating disorders, alcohol consumption, tobacco and drug use, tanning, not practicing safe sex, and vulnerability to injury, among other behavior. These students who get involved in such risky behavior often have high levels of conflict with their parents and poor self-control, suggesting that they engage in such behavior to manage a stressful life. According to (4,9,10) to prevent drug abuse, suggests the provision of robust counseling and guidance services in schools, improved communication between school authorities and students, and greater parental involvement. Additionally, the (16, 17) recommends the need for the government to tackle poverty, improve security, and strengthen the laws regulating drugs.

Overall, this literature review provides valuable insights into the causes and consequences of drug abuse among college and university students in Nigeria, and offers practical solutions to prevent drug abuse in the future.

According to (2,16) in their studies on perception of drug abuse amongst Nigerian undergraduates identified dependence and addiction as one of the major consequence of drug abuse, characterized by compulsive drug craving seeking behaviors are used that persist even in the face of negative consequences.

On the havoc being caused by drug abuse, (17) lamented thus: It invoke the memory of the thousands of young people who, combating or consuming drugs, have lost their lives and also invoke the future of our children who are threatened by drugs and gins body but the harmfulness is more than the usefulness. Therefore, it is the role of the family, (2) reported that, despite worldwide concern and education about psychoactive substances, many adolescents have limited awareness of the adverse effects of drugs. If Education is regarded as a major tool in achieving national development institutions of higher learning and parents and the government have a very huge role to play if these objectives are to be met. When the educational standard is poor, there will be multiple problems. Education is not just schooling; it is an overall development of an individual which parents are stake –holder. The country is challenged with issues like incompetent graduates, corruption, poor standard of education, kidnapping, insecurity, internet fraud, insurgence, sexual immorality (3.18) in his study investigated the causes and effects of drug abuse among primary school learners in Shibuyunji and stated that the causes of drug abuse in Shibuyunji district were peer pressure, lack of recreational activities, curiosity and amusement, lack of parental supervision, prevalence of drugs in the locality and poverty, and that

the effects of drug abuse were deviant behavior, predisposing crime, drug addiction, rebellious behavior towards authority, lower academic performance and expulsion or suspension from school. (12) Investigated factors that influenced the use of drugs by youths and the extent to which this involvement has affected the security of the state and how it can be curbed. The results revealed that drug abuse was significantly practiced in the metropolis due to lack of parental control, easy access to drugs, and emerging street culture of gangsterism.

### 1.1. RANDOMIZED RESPONSE TECHNIQUES

Estimating sensitive behaviors, such as drug abuse, criminal activity, and sexual behavior, can be difficult due to individuals' reluctance to share such information in surveys. The Randomized Response Technique (RRT) can be an effective approach for preserving anonymity and obtaining unbiased responses. Initially introduced in 1965, the RRT instructs respondents to answer sensitive yes/no questions based on the outcome of a randomizing device, such as a coin flip. This technique helps protect individuals' privacy and can reduce response and non-response bias. However, the RRT's larger standard error may require a larger sample size compared to direct questioning. Nevertheless, studies have shown that the RRT can lead to more honest answers and may be useful in developing aggregate estimates of illegal behaviors. Techniques such as the unrelated question design have also been used to estimate the proportion of individuals engaging in sensitive behaviors. Overall, numerous improvements have been made to Warner's RRT. Thus, Warner's method was designed to give privacy protection. (22) claimed that the randomized response technique had the potential to reduce both response and non-response bias resulting from sensitive survey questions. Respondent who gives evasive answers introduced response bias into the study resulting in questionable data and poor results (22; 19). As (7) explain, the larger standard error of Randomized Response Technique is caused by two sources of sample

error the variation in the sample proportion that is directed to answer yes and the variation in the sample proportion that answers yes to the sensitive question (which is the typical sample error problem). (6) Used the unrelated question design to estimate the proportion of high school seniors who had consumed the equivalent of at least 50 glasses of alcoholic beverages in the previous year. A significantly higher proportion of student's report consuming alcohol using randomized response method as opposed to direct questioning. Similarly, (21) used the unrelated question design to estimate the percentage of adults who consumed alcohol every day. A lot of improvement on Warner's RRT have been reported in the literature which included the notable works of (11, 1, 8), among others.. Warner presumed that two yes/no questions were provided for each respondent and that a randomization device was used to determine which question would be answered. Since the interviewer would not know the result of the device, participants would be encouraged to give truthful responses to a sensitive question. For example, in a survey of abortions, a woman who had terminated her pregnancy might falsely deny the statement, "I have had an abortion." Or falsely affirm the statement, "I have never had an abortion." That is, it's not necessarily the "True" or "False" answer that is embarrassing, but the connection between the question and the response. Warner's suggestion was that a respondent be posed both questions but answer of the other depending on the outcome of randomizing device (e.g., dice, cards etc.) that she only sees. The response is no longer revealing, since no one except the respondent is aware of the question. More formerly, Warner's strategy directs the respondent to react to one of two logical opposites, depending on the outcome of a randomizing device.

Statement A: I have had an abortion

Statement B: I have never had an abortion

When the respondent answers “yes” or “no”, the researcher does not know whether the respondent is answering the Statement A or B. Thus, the privacy of the respondent is protected. Elementary probability theory dictates that the total proportion (regardless of question) of affirmative responses  $\lambda$ , can be expressed in terms of  $(\pi)$ , the probability of possessing the attribute in question (e.g., having had an abortion), in the following way

$$P(\text{“True” Response}) = P(\text{Question 1}) P(A \text{ is True}) + P(\text{Question 2}) P(A \text{ is False})$$

$$\text{Or } \lambda = p\pi + (1-p)(1-\pi)$$

$$\text{Thus, } \hat{\pi} = \frac{(\hat{\lambda} + p - 1)}{(2p - 1)}; \text{ provided } (p \neq .5)$$

$$\text{where } V(\hat{\pi}) = \frac{\pi(1-\pi)}{n} + \frac{p(1-p)}{n(2p-1)^2}$$

where:  $\hat{\pi}$  = the estimated proportion of “yes” response to Statement 1;

$\hat{\lambda}$  = the observed proportion of “yes” responses;

$p$  = predetermined probability of answering the sensitive questions;

$n$  = the sample size;

The higher the value of proportion  $p$ , the greater the protection offered to the respondents.

Privacy is an individual’s right to control access to his information and privacy protection means hiding a respondent’s true status from everyone, including the interviewer.

### 3. METHODOLOGY

The randomized response approach introduced by Warner was extensively applied in this study to conduct a survey sampling on drug abuse. The technique will ensure that the respondent’s identity remains anonymous and guarantees that the answer that will give by the respondents is accurate. A well-structured survey questionnaire was administered to undergraduate students of Obafemi Awolowo University, Ile-Ife. This study determined the proportion of undergraduate students at Obafemi Awolowo University involves, the

use of Warner's Randomized Response Technique was applied to know who abuse drugs and the type of substances they use, as well as the factors that contribute to drug use and the occasions on which drugs are used. The questionnaire will be design to maintain the privacy of the respondents by using a predetermined probability  $P$  that will be very close to one. The sample size for the study will be calculated using the formula according to Cochran. The sample will later group by gender in order to draw appropriate statistical conclusions. Overall, the methodology that will be used in this study will be design to ensure privacy and accuracy in determining drug usage among undergraduate students. Since this study adopted Warner’s Randomized Response Technique, it is pertinent to define the following as used in the work:

$n$  = the number of sampled respondents

$x$  = the number of respondents who answered ‘yes’ to the sensitive attribute in the sample size,

$p$  = predetermined probability of answering the sensitive questions

$\hat{\lambda} = \frac{x}{n}$  = the observed proportion of “yes” responses;

$\hat{\pi} = \frac{(\hat{\lambda} + p - 1)}{(2p - 1)}$  the estimated proportion of “yes” response;

Var.  $(\hat{\pi}) = \frac{\pi(1-\pi)}{n} + \frac{p(1-p)}{n(2p-1)^2}$ ; is the resulting variance such that  $P \neq 0.5$

In order to enhance privacy of respondents, there is need to choose the predetermined probability  $P$  very close to one in line with Warner’s Randomized Response Technique. Also, the privacy of the respondents was further enhanced with respect to the sensitive attribute “drug usage” by designing the administered questionnaire in such a way that the identities of the respondents were fully preserved. They were just required to provide an answer “Yes” or “No” to the sensitive attribute in the study.

To determine the appropriate sample size  $n$  for this study, the formula according to Cochran which is stated as follows is used:

$n = \frac{N}{1+N(e)^2}$  where  $n$  is the sample size and  $N$  is the population size and  $e$  is the level of precision. In this case,  $N = 564$ ,  $e = 0.05$ .

Therefore,  $n = \frac{564}{1+564(0.05)^2} \approx 234$

It means 234 survey questionnaires were administered and which was sent to three different schools in the University. Consequently, the sample size will be later group into male and female in order to draw appropriate statistical conclusion.

Table1: Demographic characteristics of respondents

Variables	Response	Frequency	Percentage (%)
<b>Age group of respondent</b>	Under 18	91	38.9%
	18-20	72	30.8%
	21-23	34	14.5%
	24-26	23	9.8%
	Over 26	14	6.0%
	<b>Total</b>	<b>234</b>	<b>100%</b>
<b>Gender</b>	Male	139	59.4%
	Female	95	40.6%
	<b>Total</b>	<b>234</b>	<b>100%</b>
<b>Year of study</b>	Year 1	77	32.9%
	Year 2	88	37.6%
	Year 3	34	14.5%
	Year 4	35	15.0%
	<b>Total</b>	<b>234</b>	<b>100%</b>
<b>Major/Field of Study</b>	Health Information Management	114	48.7%
	Science Laboratory Technology	52	22.2%
	Engineering	68	29.1%
	<b>Total</b>	<b>234</b>	<b>100%</b>

Source: Questionnaire Administered 2024.

Table 1 above shows that 91 respondents representing 38.9% are under 18 years of age, 72 respondents representing 30.8% are students in age bracket (18-20), 34 respondents representing 14.5% are in age bracket 21-23 while 47 respondents representing 15.8% are 24 years and above. 59.4% (139) males and 40.5% (95)

Also, Descriptive Analysis was used to describe the respondent's characteristics i.e. Responses frequency and Percentage for each Respondent's characteristics. Chi-square Analysis on SPSS was used to carry out various tests on the responses of the Respondent.

## 2. 4.ANALYSIS AND RESULT

This report presents an analysis of drug among undergraduate students based on survey responses. The study examines demographics, drug use patterns, awareness, social influences, academic impact and help-seeking behaviors to provide insights and recommendations

Section A: Analysis of demographics characteristics

females participated. Students in year 1 (77) representing 32.9%, year 2(88) representing 37.8%, year 3(34) representing 14.5%, year 4(35) representing 15.0% participated. Health Information Management (114) representing 48.7%, Science Laboratory

Technology (52) representing 22.2%, Engineering (68) 29.1% participated in the survey.

Therefore, the majority of respondents are aged less than 18 (91) and 18-20 (72). Also, more males participated compared to females, most respondents are

year 1 and year 2, Health- related fields dominate. Since younger students make up a large portion, they might be more vulnerable or less informed about drug-related issues.

### Section B: Analysis of Drug use patterns and awareness

**Table 2: Responses of Drug Use patterns and awareness**

Questions	Response	Frequency	Percentage (%)
Have you used illegal drugs	Yes	220	94.0%
	No	14	6.0%
	<b>Total</b>	<b>234</b>	<b>100%</b>
How often do you use drug illegal drugs	Daily	2	0.9%
	Weekly	220	94.0%
	Rarely	12	5.1%
	<b>Total</b>	<b>234</b>	<b>100%</b>
What are your reasons for drugs	Stress relief	93	39.7%
	Social Pressure	16	6.8%
	Curiosity	13	5.6%
	Others	112	47.9%
	<b>Total</b>	<b>234</b>	<b>100%</b>
Have you received any education about drug use?	Yes	201	85.9%
	No	33	14.1%
	<b>Total</b>	<b>234</b>	<b>100%</b>
Do you think drug is a serious issue among undergraduate students?	Yes	179	76.5%
	No	55	23.5%
	<b>Total</b>	<b>234</b>	<b>100%</b>
Are you aware of any resources available for students struggling with drug use?	Yes	160	68.4%
	No	74	31.6%
	<b>Total</b>	<b>234</b>	<b>100%</b>
Would you seek help if you or someone you know needed it?	Yes	186	79.5%
	No	48	20.5%
	<b>Total</b>	<b>234</b>	<b>100%</b>
Which types of drugs have you used?	Marijuana	14	6.0%
	Cocaine	7	3.0%
	Stimulants e.g amphetamines	39	16.7%
	Drugs without prescriptions	174	74.4%
	<b>Total</b>	<b>234</b>	<b>100%</b>

Source: Questionnaire Administered 2024.

The table 2 above indicated that 220 (94%) respondent used illegal drugs while 14(6%) don't use illegal drugs. The table also revealed that 94% of the respondents take drug weekly, 5% rarely take drugs and 1% takes drug daily. Also, 39.7% take illegal drugs to relieve

stress, 12% take illegal drugs due to peer pressure and curiosity sake while the other 49.3% take abuse drugs for other reasons.

The table further reveals that, (179) 76.5% are aware that abusing drugs is a serious issue among undergraduate while 23.5% don't see it as a serious

issue. 85.9% respondents have received education about drug abuse and 68.4% are aware of resources available for students struggling with drug use.

Stress is a major motivator for drug use, suggesting a need for better mental health support. The table also

reveals that, many undergraduate would run for help if any is made available even though many used drugs without prescriptions. Their awareness also varies significantly, indicating the need for more targeted educational programs to reduce or eradicate the mindset of undergraduate's abusing drugs.

### Section B: Analysis of social and environmental influences on drug abuse

**Table 3: Responses of social and environmental influences on drug abuse**

Questions	Response	Frequency	Percentage (%)
Would you feel comfortable discussing drug use with a university counselor?	Yes	179	76.5%
	No	55	23.5%
	<b>Total</b>	<b>234</b>	<b>100%</b>
What resources do you think would be most helpful for students struggling with drug use?	Support groups	14	6.0%
	Counseling	193	82.5%
	Educational workshops	15	6.4%
	Online Resources	12	5.1%
	<b>Total</b>	<b>234</b>	<b>100%</b>
How do you primarily receive information about drug use?	University programs	15	6.4%
	Social media	112	47.9%
	Friends	58	24.8%
	News articles	16	6.8%
	Family	33	14.1%
	<b>Total</b>	<b>234</b>	<b>100%</b>
What barriers do you think prevent students from seeking help for drug use?	Stigma	68	29.1%
	Lack of trust in resources	47	20.1%
	Fear of consequences	6	2.6%
	Lack of information	75	32.1%
	Fear of consequences	38	16.2%
	Stigma	68	29.1%
	Lack of trust in resources	47	20.1%
<b>Total</b>	<b>234</b>	<b>100%</b>	

Source: Questionnaire Administered 2024.

#### 4.1 HYPOTHESIS TESTING

Ho: there are no differences in male and female abuse of drugs

H1: there are differences in male and female abuse of drugs

**Table 4: How often do you use illegal drugs?**

Count		Daily	Weekly	Rarely	Total
Gender of Respondent	Female	0	134	5	139
	Male	2	86	7	95
<b>Total</b>		<b>2</b>	<b>220</b>	<b>12</b>	<b>234</b>

**Table 5: Chi-Square Tests**

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.699a	2	.095
Likelihood Ratio	5.342	2	.069
N of Valid Cases	234		

a 3 cells (50.0%) have expected count less than 5. The minimum expected count is .81.

genders equally rather than focusing on one group (gender).

**INTERPRETATION:**

Since the p-value (0.095) is much greater than 0.05, we fail to reject the null hypothesis. This means there is no significant relationship between student's gender and how often they use illegal drugs in this sample.

Therefore, preventive programs should target both

Ho: there are no differences in study of years and how often undergraduates abuse drugs

H1: there are differences in study of years and how often undergraduates abuse drugs

**Table 6: How often do you use illegal drugs?**

Count	Year of study	Daily	Weekly	Rarely	Total
Year of Study of Respondent	year 1	1	72	4	77
	year 2	1	82	5	88
	year 3	0	33	1	34
	year 4	0	33	2	35
<b>Total</b>		<b>2</b>	<b>220</b>	<b>12</b>	<b>234</b>

**Table 7: Chi-Square Tests**

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.285a	6	.972
Likelihood Ratio	1.898	6	.929
N of Valid Cases	234		

a 8 cells (66.7%) have expected count less than 5. The minimum expected count is .29.

#### **INTERPRETATION:**

Since the p-value (0.972) is much greater than 0.05, we fail to reject the null hypothesis. This means there is no significant relationship between student's year of study and how often they use illegal drugs in this sample.

Therefore, every student on campus should be sensitized on dangers of illegal drugs although, younger students, particularly year-one and year-two may be more vulnerable to drug-related issues due to lack of awareness and experiences.

#### **5. CONCLUSION**

The findings of this study provide valuable insights into the prevalence and determinants of drug use among undergraduate students. While reported drug use is relatively high, the primary driver for substance use among students is stress relief, indicating the need for improved mental health support. Despite awareness campaigns, knowledge about drug-related risks remains inconsistent, suggesting that awareness programs should be enhanced with interactive and engaging educational methods.

Furthermore, social influences, including peer pressure and social media, play a significant role in shaping students' attitudes towards drug use. The lack of a statistically significant relationship between demographic factors such as gender and year of study with drug abuse suggests that interventions should be broad based rather than targeting specific subgroups.

A key concern arising from this research is the reluctance of some students to seek help due to stigma, fear of consequences, or lack of trust in available support systems. Universities should prioritize confidential, stigma-free counseling services to encourage students to seek help without fear of judgment. Additionally, leveraging social media for accurate drug education and countering misinformation can be an effective strategy.

#### **6. RECOMMENDATION**

Based on the above findings, the following recommendations are proposed:

- Strengthen drug awareness programs particularly for first-year and second-year students.
- Implement mental health initiatives to address stress, a key reason for drug abuse

- Improve access to confidential support services to reduce stigma and fear.
- Leverage social media for accurate drug education and awareness campaigns.

By implementing these recommendations, institutions can create a more informed and supportive environment that discourages drug use and fosters student well-being.

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