

(RESEARCH ARTICLE)



Substance abuse, knowledge of its long-term effects and occurrence of depressive symptoms among health students in a Nigerian tertiary institution

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Abstract

Introduction: Substance abuse confers enormous health, psychosocial and economic cost on the society, it has been found to be prevalent among young people in both developing and developed countries alike. Depression is one of the commonest byproducts of drugs abuse. In this study we evaluated the knowledge of the long term effects of drugs abuse and its prevalence among students of the college of health sciences of Nnamdi Azikiwe.

Methodology: The study is a descriptive cross-sectional survey done among final year undergraduate students of the College of Health Sciences, and the Faculty of Pharmaceutical sciences, Nnamdi Azikiwe University. A total of 200 students took part in the study. Data collection was with the use of semi structured, self-administered questionnaires, which were developed according to the specific objectives. Data analysis was done using SPSS version 22.

Result: The result showed a high prevalence of substance abuse among students of health sciences. Alcohol, with a rate of 31.5% is the most abused substance among the students surveyed, it is also the most abused substance among students in the school environment. The prevalence of depression for this study, which was done using the Beck's Depression Inventory (BDI), is 60.5%, with 12% having borderline clinical depression, 30% having moderate depression, 14% having severe depression and 4.5% having extreme depression.

Conclusion: Substance use and Depressive symptoms remains high among young people and is more in college students who represent the economic fulcrum and future of any society. It is recommended that further studies be done to evaluate for the depression distribution using other demographic indices as well as the causal relationship between substance use and depression.

Keywords: Substance abuse; Depressive symptoms; Prevalence; Long term effects

1. Introduction

According to the World Health Organization, substance abuse refers to the harmful or hazardous use of psychoactive substances. Psychoactive substances are substances that can have effects on the rewarding centers of the brain, hence they have the tendency to addiction [1].

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Depression is a common mental disorder, characterized by persistent sadness and a loss of interest in activities that an individual normally enjoys, accompanied by an inability to carry out daily activities, for at least two weeks. It can affect mood, sleep, cognition, weight and general behavior. It can present with emotional symptoms such as withdrawing from socializing, constant pessimism, feelings of inadequacy and so on; as well as physical symptoms which includes loss of appetite, constant fatigue, headaches, back pain, muscle [2].

Substance abuse have been linked to depression and mental disorders⁵, furthermore, substance use is associated with immediate health problems, academic difficulties, injuries, interpersonal violence, and high-risk sexual behavior [3].

Undergraduate years (undergraduates ages 18–26) is a period characterized by transition, intense academic pressures as well as independence and separation from parental supervision [4]. During this period, opportunities to experiment with psychoactive substances, including illicit drugs, increases [5]. Illicit drug use among university students has been recognized as a global public health issue [6] and this has been the focus of many studies in recent years [7]. It may lead to poor academic performance that in turn leads to poor productivity in their later life [8].

The aim of this study is to determine the pattern of substance abuse and depressive symptoms among health students of Nnamdi Azikiwe University, Nnewi Campus.

2. Methodology

2.1. Study Location

The study was carried out in Nnamdi Azikiwe University, Nnewi and Agulu Campuses in Anambra state, South-Eastern Nigeria.

Nnamdi Azikiwe University is a federal university in Nigeria with its main campus located in Awka. The second campus is at Nnewi and the third at Agulu. The university has a population of about 24,706 students for full time program and about 12,476 students for the part time program. The university also offers a diverse range of courses of study including Arts, Natural sciences, Engineering, Management sciences, Law, African languages, European languages, Medical and health sciences, Social sciences and Education.

2.2. Study Design

The study is a descriptive cross-sectional survey done among final year undergraduate students of the College of Health Sciences, and the Faculty of Pharmaceutical sciences, Nnamdi Azikiwe University.

2.3. Study Population

This included the students of the College of Health Sciences, Nnewi campus and the Faculty of Pharmaceutical sciences Agulu. Campus, all in Nnamdi Azikiwe University.

2.3.1. Inclusion Criteria

This comprised all the students currently admitted into the College of Health Sciences, Nnamdi Azikiwe University, and the Faculty of Pharmaceutical sciences who were in their final year of study.

2.3.2. Exclusion Criteria

It included the following: those who were not in final year, those in final year who did not wish to participate in the study, and those not around during the period of the study.

2.4. Sample Size Determination

The sample size was calculated using the Cochran formula

$$n = Z^2 (pq) / d^2$$

Where n= Sample size for infinite population, i.e. population size >10,000

Z = Standard normal deviation at 95% confidence level = 1.96

p = Prevalence from previous studies, i.e. the proportion of students who showed depressive symptoms following substance abuse. $P = (86.4\%)[9] = 0.864$

$$q = 1 - p = 1 - 0.864 = 0.136$$

$$d = \text{degree of accuracy} = 0.05$$

$$n = ((1.96^2) \times 0.864 \times 0.136) / 0.05^2 = 180.6$$

Now adjusting for a finite population, i.e. for samples of < 10,000 we use the $n_f = n / [1 + (n-1)/N]$

N = population of final year students of the various departments = 984

$$n_f = 180.6 / (1 + 180.6 - 1 / 984) = 180.6 / (1 + 0.1825) = 180.6 / 1.1825 = 152.72$$

2.5. Attrition

Anticipating a non-response rate of 10% we calculate attrition with $n_f / (1 - f)$

Where f = attrition rate = 10% = 0.1

$$152.72 / 0.9 = 169.69 \approx 170. \text{ Upgraded to } 200.$$

2.6. Sampling Technique

A multistage sampling technique was used to choose respondents to partake in the study.

2.7. Analytical Approach

Data was analysed using electronic method by means of Statistical Package for Social Sciences (SPSS) version 22 software.

2.8. Ethical Considerations

The entirety of the study, with special focus on the objectives and technique involved, were clearly explained to every participant and an informed consent obtained from each of them. Ethical approval was obtained from the Ethics board after a week of proposal submission and review. I assured the participants of confidentiality and anonymity of all information they supplied for the study. The participants were also availed the freedom to withdraw from the study at any point during the study and assured that their decision would not affect my decision to render medical services to them in the future.

3. Results

3.1. Section A

The socio-demographic profile of respondents

Table 1 The Socio-Demographic Profile Of Respondents

Age of respondents	Frequency(n)	Percentage %
14 to 19 years	5	2.5
20 to 24 years	145	72.5
25 to 29 years	46	23
30 to 34 years	4	2
Gender		
male	109	54.5

female	91	45.5
Ethnicity		
Igbo	196	98.0
Yoruba	2	1
Hausa	1	0.5
others	1	0.5
Religion		
Christianity	199	99.5
Islam	1	5
Total	200	100

Table 4.1 shows that 200 respondents participated in the study. Majority of them, 72.5%, were aged between 20 to 24 years, 2.5% were aged between 14 to 19 years, 23% were aged between 25 to 29 years, and 2% were aged between 30 to 34 years. There were more males, 54.5%, than females, 45.5%, 98% were Igbos, and 99.5% were Christians.

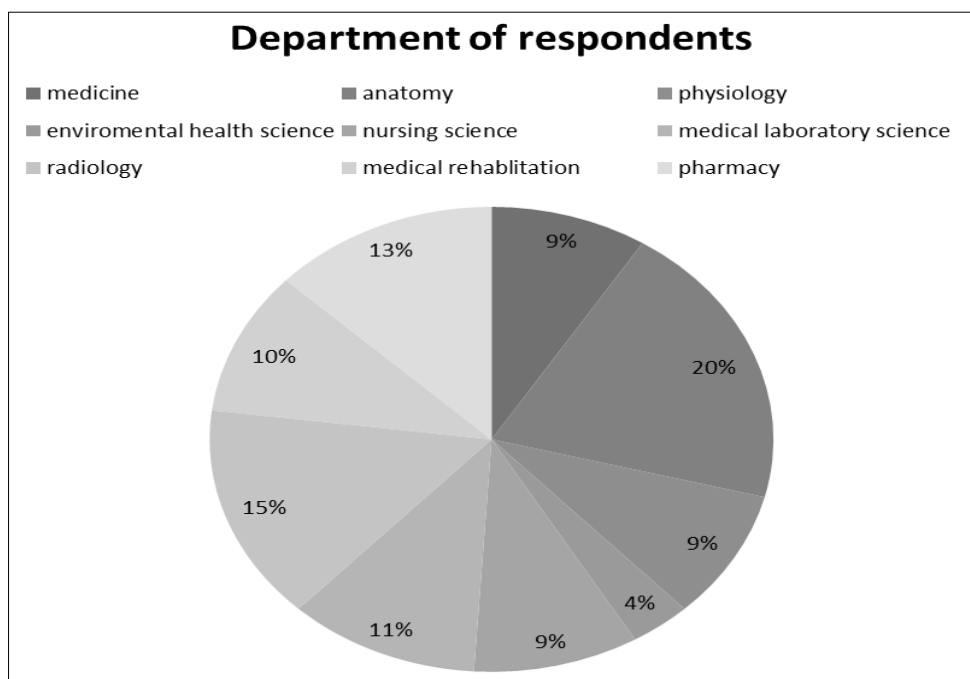


Figure 1 Departmental distribution of respondents

3.2. Section B

Prevalence of Substance Abuse

Table 2 shows the assessment of the prevalence of substance abuse among the respondents. Ninety-nine percent of the respondents have heard of the term substance abuse, the media, 41%, was a common source of information, 33% heard it from their lecturers, 16% heard it from friends, while 9% heard it from their parents. Alcohol was the most abused substance in the college of health sciences with a 90.5% usage, followed by tramadol at 70%, coffee was 59%, marijuana was 35.5%, codeine was 33%, and cigarette was 17%.

Table 2 Assessment of prevalence of substance abuse among respondents

	Frequency(n)	Percentage %
have you ever heard of the term substance abuse	198	99.0
Source of knowledge of substance of abuse		
Friends	32	16
Parents	18	9
Media	83	41.5
Lecturers	67	33.5
substances commonly abused in CHS		
Alcohol	181	90.5
Coffee	118	59
Marijuana	71	35.5
Cigarette	34	17
Codeine	66	33
Tramadol	141	70.5
have you ever used any of the substances mentioned above	136	68
which substance have you used		
Alcohol	63	31.5
Coffee	41	20.5
Marijuana	8	4
Cigarette	10	5
Codeine	5	2.5
Tramadol	9	4.5
None	64	32
how long have you used the substance		
Approximately 6 months	30	15
Approximately 1 year	27	13.5
Approximately 2 years	26	13
Approximately 3 years	19	9.5
Approximately 4 years	30	15
More than 4 years	4	2
Have not used any substance before	64	32
do you still take the substance presently		
Yes	109	54.5
No	27	13.5
Never used a substance	64	32
how frequently do you use them		

Once a day	39	19.5
More than once a day	32	16
Once a week	26	13
More than once a week	39	19.5
Never used a substance	64	32
Who introduced you to the use of substances		
Friends	101	50.5
Parents	7	3.5
Relations	21	10.5
Mass media	7	3.5
Never used a substance	64	32

3.3. Section C

Commonly abused substances

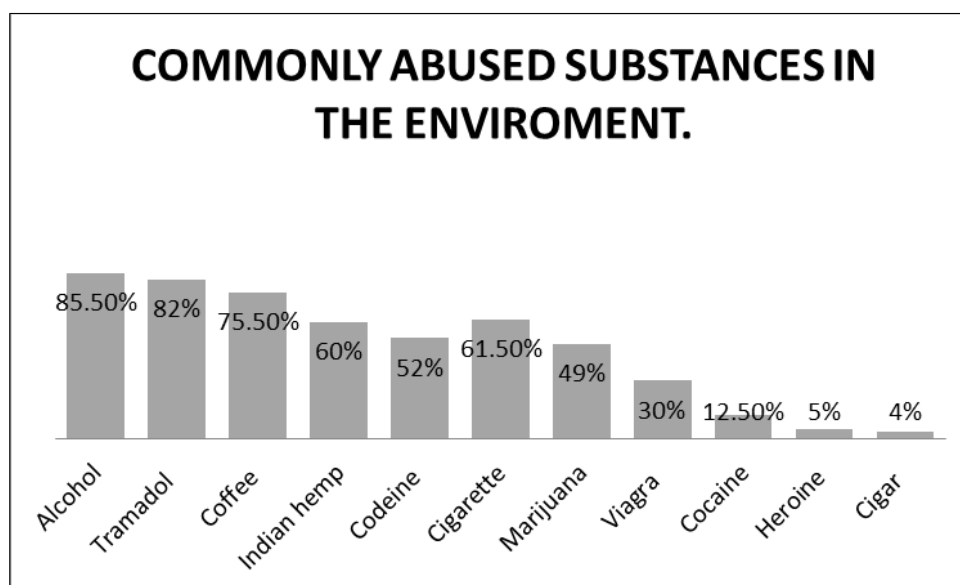


Figure 2 List of commonly abused substances in descending order

3.4. Section D

Factors Affecting Abuse of Substances

Table 3 shows that 48% admitted to having a reason for using the substances that they used, 28% had no reason for using the substances, while 32% did not use any substance. Thirty-eight percent (38.2%) of the students who use substances, do so at parties, 17.6% use them before exams, 10.4% use them before doing sports, while 33.8% use the substance 'anytime'. Nausea and vomiting, 55.1%, was the side effect that concerned the affected students the most, followed by restlessness, drowsiness and vertigo with frequencies of 43%, 34.5% and 20.5% respectively.

Table 3 Factors affecting abuse of substance

	Frequency(n)	Percentage %
Do you have any reason for using the said substance		
Yes	96	48
No	40	20
Never used a substance	64	32
Reasons for using substance		
helps me relax	28	20.7
to improve my efficiency in studies	43	31.7
to help me cope with stress	17	12.5
for recreational purposes	11	8
makes me to feel high	13	9.5
I don't know	24	17.6
Total	136	100
Do you think there are any benefits in the use of substances		
Yes	105	52.5
No	95	47.5
Benefits of substance use		
Helps me read well at night	42	21.0
Helps me unwind after a hard day	26	13.0
Makes me bold enough to talk to the opposite sex	12	6
Enhancement of sexual activity	9	4.5
Makes me feel good	16	8
No benefits	95	47.5
Total	200	100
On what occasions do you use drugs mostly?		
before exams	24	17.6
before doing sports	14	10.4
at parties	52	38.2
any time	46	33.8
Total	136	100
Does any of your friends or family members use drugs?		
Yes	61	30.5
No	139	69.5
Total	200	100
Which of the following side effects affect you the most?		
Drowsiness	47	34.5
Restlessness	58	43
Vertigo	28	20.5
Nausea and vomiting	75	55.1
Total	136	100

3.5. Section E

Knowledge of the Long Term Effects of Use of These Substances

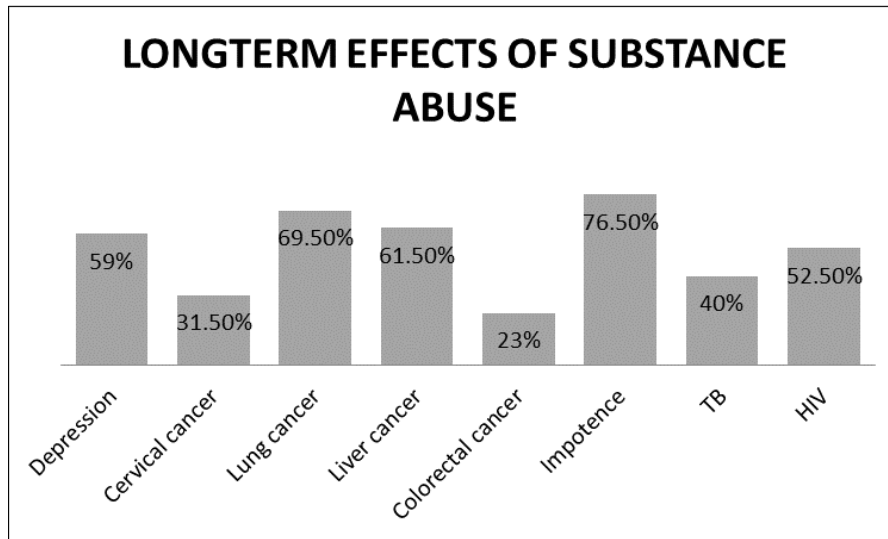


Figure 3 Knowledge of the Long Term Effects of the Use of Substances

Almost all the students, 98%, know about the negative effects of substance abuse, 76.5% know drowsiness as a side effect of substance use, 64.5%, 54%, 62.5% and 33%, identify nausea and vomiting, blurring of vision, restlessness, and vertigo respectively as a side effect of substance abuse. For the long-term effects, 59%, 31.5%, 68.5%, 61.5%, 23%, 76.5%, 40% and 52.5% identified depression, cervical cancer, lung cancer, liver cancer, colorectal cancer, impotence, tuberculosis, and HIV respectively

3.6. Section F

Frequency of Depressive Symptoms amongst Students

Table 4 Becks Depression Index Score Distribution of Respondents

BDI score	Frequency (n)	Percentage%	Interpretation
1-10	25	12.5	Normal
11-16	44	22	Mild mood disturbances
17-20	24	12	Borderline clinical depression
21-30	60	30	Moderate depression
31-40	28	14	Severe depression
>40	9	4.5	Extreme depression

Table 4 shows a distribution of the Beck's depression index scores of the respondents. It shows that 12.5% of the respondents had normal scores, 22% had mild mood disturbances, 12% had borderline clinical depression, 30% had moderate depression, 14% had severe depression and 4.5% had extreme depression.

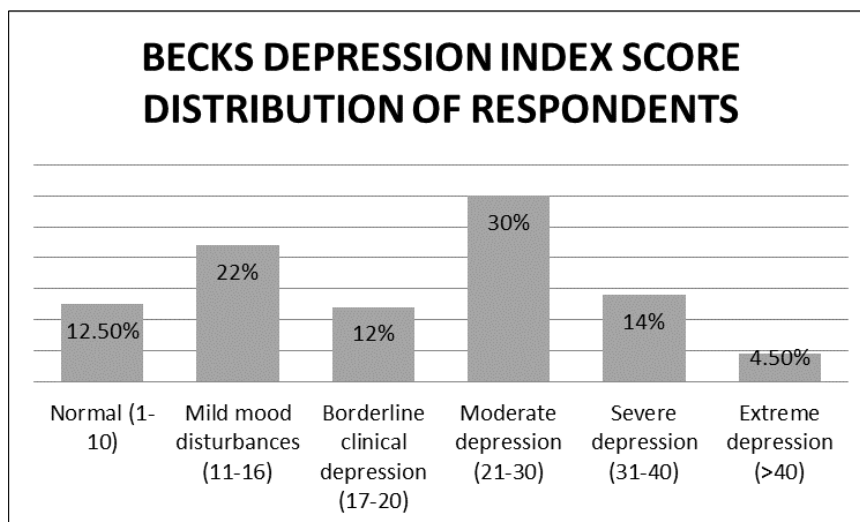


Figure 4 Becks Depression Index Score Distribution of Respondents

4. Discussion

This study involved 200 students from nine departments cutting across the faculties of Medicine, Basic Medical Sciences, Health Sciences and Technology and Pharmacy of Nnamdi Azikiwe University Nnewi and Agulu campuses respectively.

The result showed a high prevalence of substance abuse among students of health sciences. Alcohol, 31.5% is the most abused substance among the students surveyed, it is also the most abused substance among students in the environment. The reason for this higher rate of alcohol use may be attributed to its characteristics of being socially tolerated, accessible, affordable and easily available. This result is similar to the findings of Anyanwu et al., who conducted a study in Abakiliki and reported a prevalence of 32.1% for alcohol use, though his study was done among secondary school students and reason for this high prevalence is similar to above study [10]. A similar study done in Lagos state reported a prevalence of 29.1% for alcohol use among secondary school students [11]. Also, the finding is lower than the findings of a study by Adekeye et al. in 2015 in Nigeria, which reported an alcohol consumption prevalence rate of 85% [12], The results from other African countries tend to vary, for instance, Tarig et al. in 2016, found tobacco to be the most abused substance among students in Sudan though this may be due to the fact that alcohol consumption is legally banned in Sudan [13]. The high level of awareness and use of these substances demonstrated by respondents may be attributed to the ease of acquisition as well as regular advertisements on some substances in social media and on roadside billboards. An example of this is the Federal ministry of Health including in all cigarette adverts that “all smokers are liable to die young”. These findings x-ray an underlying unhealthy trend among young people of indiscriminate involvement in drugs, with little or no regard for the huge and diverse economic, social, and psychological cost of such behavior.

Regarding factors that influence substance use, it was observed that majority of the users were male students although the involvement of female students was also evident. This is similar to the findings of a study by Essien in 2010 [14], another comparable determining factor between these two studies was age of the users. We found that majority of the users were aged between 20-24 years, comparable to 20-30 years reported by Essien. The involvement of females in drugs shows the influence of pop culture on traditional African culture, this is one of the ills of globalization. In the untainted African culture it were considered a taboo for a female of any age to be involved in smoking and or alcoholism as this is often judged as a marker of moral decadence, parental failure and low family values. The age bracket of the majority of users shows that it is among university students majority of whom dwell in campuses away from the watchful eyes of their parents, this also shows a period when adolescents and young adults are experiencing freedom and independence from their parents in areas of decision making and lifestyle, a period of increased peer influence.

The most important factor influencing substance use was the desire to improve efficiency in studies as was cited by 31.7% of the students. These corroborate the findings of El Ansari in 2014 who found that illicit drugs use was more likely among students who consider their academic performance better than that of others [15], it could be implied that the use of drugs by students who are excelling academically could influence other students to venture into drugs use. Johnson et al. in 2016 reported an even higher prevalence, 85% of the 350 students surveyed cited the use of substances as study aid [16]. This may be pointing to a misconception and misinformation among students, as there are no scientific

evidence, as far as we know which supports that views neither have there been studies that empirically showed a positive correlation between stimulants and improved academic performance. Thirty five percent (30.5%) of the respondents have a family member or friends who use substances, this was higher than the 10.77% reported in a study done among students in Ilorin by Johnson et al. 2016 [16], and is a pointer to a possible influence of peers and relatives behavior in shaping the behavior of young people. It may also be a subtle indication that tendencies to drugs use may be familial.

In this present study, 98% of the students who took part in the study were aware of some of the long-term side effects of drug abuse this is similar to the findings of Awosusi and Adegboyega in 2013 [17]. That study reported 85.1% awareness for drugs the side effects which were stratified into three broad categories of physical health effects (headache, hand tremors, liver damage, weight loss, accident, lung diseases, high blood pressure, and premature death) ; psychological health effects (emotional problem, increased aggressiveness, inability to sleep, restlessness, mental illness, and poor concentration) ; and social health effects (altered family relationship, poor academic performance, unprotected premarital sex, violence, robbery, cultism, and financial instability). Results from other research works done in India and Pakistan showed a comparatively lesser percentage of knowledge of effects of substance abuse. A study by Shafiq in 2006 [18] reported 57% knowledge of the side effects of substance use, while Vinish in 2015 reported 50.75% knowledge of the side effects of drugs abuse among medical students in India [19]. The fact that a high percentage of students are aware of the ills of drugs use is positive and encouraging, however the concurrent high rate of substance use is a cause for concern.

The prevalence of depression for this study, which was done using the Beck's Depression Inventory (BDI), is 60.5%, with 12% having borderline clinical depression, 30% having moderate depression, 14% having severe depression and 4.5% having extreme depression. This is similar to another study done in Tabriz, Iran, also using the Beck's Depression Inventory (BDI), which showed that 62.7% of the students had depression, with 10.9% of them having severe depression[20]. Another study reported a depression prevalence of 58.2%, with 37.0%, 15.7%, 3.9%, and 1.6% of respondents having mild, moderate, moderately-severe, and severe depression, respectively, using the PHQ-9 as a screening tool for depression[21]. It also is similar to the findings of a study done in Fayoum University, Egypt, using the Depression, Anxiety and Stress Scale-21 (DASS-21), which showed a 60.8% prevalence of depression among the students[22]. The minute differences may be due to differences in the screening tool used, as most of the researches used depression evaluation methods other than Beck's Depression Inventory (BDI) which was used in this study. The slight difference might also be due to the relative social stigmatization and ignorance to the rising rate of depressive symptoms in our environment especially owing to the stress and turmoils of medical education.

5. Conclusion

This study showed that a very tangible population of final year health students of the faculties of Medicine, Health Sciences, Basic Medical sciences and Pharmaceutical Sciences were aged between 20 to 24 years and were aware of the commonly used substances in their environment, with alcohol, tramadol, and coffee being the most commonly abused.

Friends were the highest ranked introducers of substance use to them. Relaxation, coping with stress, recreation, and improvement in study efficiency ranked high amongst their reason for usage.

They were also aware of the negative effects of these substances both on the short-term as well as on the long run.

A reasonable proportion of them have also experienced depressive symptoms before, with the moderate form of depression being the highest in occurrence on evaluation with the Beck's Depression Index.

Recommendations

It is hence recommended that more awareness be created among students about the dangerous Long-term effects of substance use; well trained Guidance and Counselling personnel be availed for the students to counsel and educate them on substance use, its harmful effects as well as on depressive symptoms.

It is also recommended that the school institute a long-lasting means of helping students to cope with stress such as well-structured lecture schedules, tutorials and breaks which were adhered to; that students be encouraged into being agents of change in their various departments and environments at, to help reduce the incidence of substance use among their fellow students; as well as awareness being created on the need the formation of substance-addiction support or recovery groups which are almost non-existent in our environment.

Furthermore, it is recommended that awareness be created on the increasing rate of occurrence of depressive symptoms and its hallmark of suicide; that students be availed help if they meet the criteria for depressive disorders by providing functional psychiatry unit in the school clinics as well as encourage reduction of stigmatization on fellow students and better stress-handling measures so as to reduce the rising rates of depression amongst them.

Finally, it is also recommended that further studies be carried out to ascertain if there are any existing relationship between use of substances and occurrence of depressive symptoms, if there are any existing relationship between the student's duration of stay in school and occurrence of depressive symptoms as well as increased frequency of substance abuse.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest

The authors declare that they have no competing interests.

Financial Support/ Sponsorship

The authors declared that this study has received no financial support.

Statement of ethical approval

The entirety of the study, with special focus on the objectives and technique involved, were clearly explained to every participant and an informed consent obtained from each of them. Ethical approval was obtained from the Ethics board after a week of proposal submission and review.

Statement of informed consent

I assured the participants of confidentiality and anonymity of all information they supplied for the study. The participants were also availed the freedom to withdraw from the study at any point during the study and assured that their decision would not affect my decision to render medical services to them in the future.

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