Original Article Research Journal of Health Sciences

Effect of psychoactive substance use on academic activities and performance among undergraduates of University of Lagos

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Abstract

Background: The objective of this study was to assess the effect of psychoactive substance use on academic performance among university students of Lagos undergraduates.

Methods: This is a descriptive cross-sectional study to assess psychoactive substance use and its relation to academic performance among undergraduate students of the University of Lagos. A multi-stage sampling technique was used to select the participants. Data was collected using a self-administered semi-structured questionnaire adapted from WHO model core questionnaire self-administered format**.** Data was collected and analyzed using the free-liscence software package Epi-Info, version 7.2.2.16. Chi square and Fisher's exact were used to test for any significant association between psychoactive substances use and academic performance of the respondents. Level of significance (p) was set at 0.05.

Result. Prevalence of psychoactive substance use was 28.6%. Male and female respondents were270 (69.77%) and 117(30.23%) respectively, with age range between 14 and 30 and mean age of 20.51 (SD)(±2.91) year. Alcohol was the most abused substance with 68.99%, this was followed by cigarette with 20.67% ever use prevalence. The mean age of first use of psychoactive substance was 16.31±3.89. Using the Grade Point Average system from the previous semester, majority of the respondents (87.08%) had GPA >2.50. Both frequency of studying and mean CGPA was statistically better among non-life time users and non-current users of alcohol, tobacco and cannabis in the male group. However there was no statical significance among female group. Using fischer exact test to assess the effect of age of fisrt substance use and mean CGPA. The age of first substance use was statistically significant for tobacco p = 0.007

Conclusion. Psychoactive substance use among students was common and negatively associated with students's academic performance especially among male gender.

Key words: Psychoactive substance, academic performance, undergraduate students

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Received: March 23, 2022 *Accepted: May 21, 2023*

http://dx.doi.org/10.4314/rejhs.v11i3.8

Article Original Research Journal of Health Sciences

Effet de la consommation de substances psychoactives sur les activités académiques et les performances des étudiants de premier cycle de l'Université de Lagos.

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Resume

Contexte: L'objectif de cette étude était d'évaluer l'effet de la consommation de substances psychoactives sur les résultats scolaires des étudiants universitaires de premier cycle de Lagos.

Méthodes: Il s'agit d'une étude transversale descriptive visant à évaluer la consommation de substances psychoactives et sa relation avec les résultats scolaires des étudiants de premier cycle de l'Université de Lagos. Une technique d'échantillonnage à plusieurs degrés a été utilisée pour sélectionner les participants. Les données ont été recueillies à l'aide d'un questionnaire semi-structuré auto-administré adapté du format auto-administré du questionnaire de base du modèle de l'OMS. Les données ont été recueillies et analysées à l'aide du progiciel libre Epi-Info, version 7.2.2.16. Le chi carré et l'exact de Fisher ont été utilisés pour tester toute association significative entre la consommation de substances psychoactives et les résultats scolaires des répondants. Le niveau de signification (p) a été fixé à 0,05.

Résultat: La prévalence de la consommation de substances psychoactives était de 28,6 %. Les répondants masculins et féminins étaient respectivement de 270 (69,77 %) et 117 (30,23 %), avec une tranche d'âge comprise entre 14 et 30 ans et un âge moyen de 20,51 (ET) (± 2,91) ans. L'alcool était la substance la plus consommée avec 68,99 %, suivi de la cigarette avec 20,67 % de prévalence de consommation. L'âge moyen de la première consommation de substance psychoactive était de 16,31 ± 3,89 ans. En utilisant le système de moyenne pondérée cumulative du semestre précédent, la majorité des répondants (87,08%) avaient un GPA> 2,50. La fréquence des études et la MPC moyenne étaient statistiquement meilleures chez les consommateurs non permanents et les consommateurs non courants d'alcool, de tabac et de cannabis dans le groupe masculin. Cependant, il n'y avait pas de signification statique parmi le groupe féminin. Utilisation du test exact de Fischer pour évaluer l'effet de l'âge de la première consommation de substances et l'ACMG moyenne. L'âge de la première consommation de substances était statistiquement significatif pour le tabac p = 0,007

Conclusion: La consommation de substances psychoactives chez les étudiants était courante et négativement associée aux résultats scolaires des étudiants, en particulier chez les hommes.

Mots-clés: Substance psychoactive, rendement scolaire, étudiants de premier cycle

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Received: March 23, 2022 *Accepted: May 21, 2023*

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INTRODUCTION

Psycho active Substance abuse is also defined by DSM-V as use of any drug, usually by self-administration, in a manner that deviates from approved social or medical patterns (1, 2). For different reasons, psycho active substance use has been practiced by students regardless of the negative consequences (3). The use of psycho active substances have become a major public health challenge, and this is associated with different factors like sex, age, peer pressure, family substance abuse, personal pleasure, and poor academic achievement (3, 4,5, 6). According to the national youth risk behavior survey, USA, negative association was seen between alcohol and other drug use and academic achievement after controlling for sociodemographic variables (7). Another study conducted in USA school adolescents indicated that students who were engaged in different psycho active substance use practices were poor academic achievers (8). A study conducted at Jimma University also showed that psycho active substance use was associated with poor academic achievement (9).

Despite some researchers suggesting that psycho active substance use is associated with poor academic performance, many students used variety of psycho active substances for the sake of good academic achievement (3, 10). As a study conducted in Turkey indicates, psycho active substance use was practiced by significant proportion of university students; cigarette was smoked by 24.8% students regularly every day; alcohol was drunk occasionally by 37.8% of university students and by 8.1% of students regularly (11). In Iran psycho active substance (alcohol, cigarette, and pipe was used by 22% male medical students and 8% female medical students at least once in their life (12). Alcohol was consumed daily by 42% of Osun State University students in Nigeria and 34.1% of students consumed alcohol weekly. A research done in South Africa showed the lifetime use of alcohol use was 38.7%, tobacco smoking 30%, and cannabis was 8.4% (13).

Different psycho active substances like alcohol, and tobacco have been consumed by significant proportions of university students in Nigeria. Since the proportion of student population in higher educational institutions is increasing, psycho active substance use and its association with academic performance is going to be an increased concern. As a good alert for universities and policymakers about the effect of psycho active substance use on academic performance; the result of this study will play a major role in conducting further interventional measures with evidence based actions. Hence, the purpose of this study was to assess the relationship between psycho active substance use and its association with academic activities as well as academic performance among university students.

MATERIALS AND METHODS

This is a descriptive cross-sectional study design to assess the effect of psycho active substance use on academic activities and academic performance of undergraduate students. The variables studied under this study were academic activities and academic performance which were the dependent variable and the main independent variable was students' psychoactive substance use. For the sake of this research, psycho active substance use was defined as using either tobacco products or alcoholic beverages or any combination of those substance. When the study participants used substances (alcohol, cocaine, cannabis heroine, sedatives, tranquilizers, or tobacco) even once in their life, it was defined as lifetime use. Last year use of substance is when the study participants were using those substances in the last 12 months from the data collection time. Current use when the participants using those substances in the last 30days from the data collection time.

Description of Study Site: The University of Lagos was founded in 22nd October, 1962. It covers a total of 802 acres of land in Akoka, North Eastern part of Yaba. It presently has two Campuses in Yaba (the main campus in Akoka, and another campus at the former School of Radiography) and Surulere (College of Medicine, University of Lagos in Idi-Araba).University of Lagos currently has twelve Faculties, namely, Arts, Basic Medical Sciences, Business Administration, Clinical Sciences, Dental Sciences, Education, Engineering, Environmental Sciences, Law, Pharmacy, Science, and Social Sciences.

Study Design: This is a descriptive cross-sectional study design seeking to assess psychoactive substance use and its relation to academic performance among undergraduate students of the University of Lagos.

Study Population: This study was carried out among undergraduate students in the University of Lagos, Akoka, Lagos State.

Inclusion Criteria: Only registered full-time undergraduates of the University of Lagos.

Exclusion Criteria

- Undergraduate students from the College of Medicine, University of Lagos, Idi-Araba, Lagos.
- First year students.
- Undergraduates studying more than a 4-year course.

Sample Size Determination: The sample size was calculated using the Cochrane formula, which was developed to determine the sample size for a population greater than or equal to 10,000.

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

Where,

n = minimum sample size

Z = confidence interval, set at 1.96 for 95% confidence level

p = the estimate of expected prevalence of substance abuse amongst University undergraduates. This was 35.5% (0.355) as adapted from a similar study carried out amongst University undergraduates in Hawassa University, Hawassa Ethiopia.

q = 1.0 – p; 1.0 – 0.355 = 0.645

d = degree of accuracy required/acceptable margin of sampling error = 0.05

Therefore;

$n = [1.96^2 * 0.355 (0.645)] / 0.05^2$

$n = [3.8416 * 0.2290] / 0.0025$

n = 351.89

Therefore, the estimated minimum sample size as calculated above is 352.

Sampling Technique: A multi-stage sampling technique was used to select the undergraduates who will participate in this study.

Stage 1: Selection of faculties

There are twelve faculties in the University of Lagos which include; Arts, Basic Medical Sciences, Business Administration, Clinical Sciences, Dental Sciences, Education, Engineering, Environmental Sciences, Law, Pharmacy, Science, and Social Sciences. But for the purpose of this study four faculties including; Basic Medical Sciences, Clinical Sciences, Dental Sciences and Pharmacy would be excluded from the selection process due to the exclusion criteria (exclusion of medical and paramedical students). This leaves 8 faculties that are situated in the Main Campus, Akoka. 4 Faculties of these eight were chosen by random sampling.

Stage 2: Selection of departments

Simple random sampling (balloting) was used to select 4 departments each of the 4 faculties.

Faculty of Science – Departments of Mathematics, Biochemistry, Botany and Microbiology.

Faculty of Art – Departments of English Language, History and Strategic Studies, Creative Arts, Philosophy.

Faculty of Education – Education Economics, Business Education, Physics Education, Chemistry Education.

Faculty of Social Science – Departments of Departments of Political Science, Psychology, Economics, Sociology.

Stage 3: Selection of respondents (undergraduates)

This stage involved selecting respondents (undergraduates) from each selected department from second year (200 level) to final year (400 Level) by simple random method.

Sample size / No. of selected departments = 352 / 16 = 22. Therefore, 22 questionnaires were administered to each slected departments across the aforementioned levels. An average of 6 questionnaires were then shared among undergraduates in each level.

Data Collection Tools: Data was collected using a self-administered semi-structured questionnaire adapted from *WHO model core questionnaire self-administered format.*

Academic performance of respondent was based on previous semester's cumulative Grade Point Average (GPA) of the respondents.

Pretesting: The questionnaire was tested among 20 undergraduate students in Yaba College of Technology, Yaba, Lagos; a tertiary institution similar to the study area. The outcome from the pretesting was used to restructure the questionnaire to avoid incomprehensible or ambiguous questions and also to make the instructions understandable.

Data Analysis: Data was collected and analyzed electronically using the free-liscence software package Epi-Info, version 7.2.2.16. Descriptive statistics were represented in frequency tables. Chi square and Fisher's exact were used to test for any significant association between psychoactive substances use and academic performance of the respondents. Level of significance (p) was set at 0.05.

Ethical Consideration: Ethical approval was obtained from the Health Research and Ethics Committee of Lagos University Teaching hospital (LUTH) with assigned no ADM/DCST/HREC/APP/562

RESULTS

A total of 400 questionnaires were distributed, 387 were completed giving a response rate of 96.75%. Questionnaires were excluded from analysis if they were incomplete, had inconsistent data, or were not returned. Majority of the respondents 270 (69.77%) were male while 117(30.23%) were females. The age range of the respondents was between 14- 30 with mean age of 20.51 (SD) (±2.91) year. Sources of income of the respondents were parents 249(64.34%), personal 118(30.49%) while (5.17%) had multiple sources of income. Among the respondents 20 % had a monthly income of <25USD, while 38.50%, 20.41%, 20.93%, 20.16% had 25 – 50USD, 500 – 75USD and greater than 75USD respectively. When the respondent were asked of awareness of psychoactive substance use. Most (80%) of the respondents had good knowledge about substance abuse while others (20%) had a poor knowledge about substance abuse

Substance Use Characteristics of the Students

The following substances were known to respondents as psycho active substances alcohol 307(79.33%), cocaine 322 (83.20%), cannabis 326 (84.24%), heroine 316(81.65%), cigarette 311(80.36%), amphetamines 198(51.16%), digoxin 168 (43.1), salbutamo1 65(42.64%), glue 209 (54.01%) and tramadol 207 (79.33%). Most of the respondents (71.58%) have abused substance(s) at least once in their lifetime. While 54.26% respondents have abused substance(s) in the past year and 41.34% are current abusers of substance(s) (they have abused substances in the past 30 days). There is a statistically significant association between sex and lifetime (ever use) prevalence of substance abuse ($p<0.05$). More males (77.04%) had a positive lifetime (ever use) prevalence of substance abuse compared to the females (58.97%). There is no statistically significant association between lifetime (ever use) prevalence of substance abuse and age; ethnic group; religion ($p>0.05$).

In our study alcohol was the most abused substance with 68.99% of the respondents having had alcohol at least once in their lifetime as well as 52.20% in the last 12 months while the current use of alcohol was 39.78%. This was followed by cigarette with 20.67% ever use prevalence, 11.11% 12-month prevalence, and 7.24% current (30-day) prevalence. The other prevalence of psychoactive substances include cannabis/marijuana (13.18% ever use prevalence), sedatives (10.59% ever use prevalence), opiates (3.88% ever use prevalence), amphetamines (3.36% ever use prevalence), tranquilizers (3.36% ever use prevalence), opium (2.33% ever use prevalence), cocaine (1.55% ever use prevalence) and heroine (1.03).The age range at first use of the various substances of abuse for majority of respondents fell between 15-19 years for most of the substances with a mean age of first use of psychoactive substance being 16.31±3.89. The ever use, past twelve month, and past month prevalence of substance use is displayed in table 2.

Academic Activities

Most (65.89%) of the respondents attend classes every day. Majority of the respondents also listen with rapt attention (69.77%); jot necessary notes in class (84.50%) and do their class assignments (77.26%). Only about half of the respondents (55.30%) have a regular reading time. When participants were ask about satisfaction of their academic performance. More than half of the respondents (53.75%) are not satisfied with their academic performance, another 16.02% remain indifferent while only 30.23% were satisfied with their academic performance. Using the Grade Point Average (GPA) system from the previous semester, majority of the respondents (87.08%) had GPA >2.50. Overall mean CGPA of the study population was 3.53 ±0.81

Effect of Substance Use on Academic Activities and Mean CGPA

In this study we consider academic activities as frequency of study per week as well as duration of study per day. We divided frequency of studying into every day, once a week, two times in a week, three times in a week, four times in a week. In our study when we compare lifetime and current use of tobacco on frequency of study per week and mean CGPA among male respondents. Both frequency of studying and mean CGPA was better among non-life time users of tobacco ($p < 0.001$) as well as non-current user of tobacco ($p < 0.001$). We compared mean CGPA of lifetime and current tobacco user and frequency of study per week among female respondents. Mean CGPA showed

no statistical significance. We equally compared lifetime and current use of alcohol and cannabis to frequency of study per week and mean CGPA among male respondents. Both frequency of studying and mean CGPA was better among non-life time users and non-current users of alcohol and cannabis in the male group statistically see table 3 and 4. However there was no statistical significance among female group see table 3 and 4. In this study we compare lifetime and current psycho active substance (tobacco, alcohol and cannabis) hours of study per day and mean CGPA among male respondents. Both hours of studying and mean CGPA was better among non-life time and non-current psychoactive substance users among male gender see table 5 and 6

Effect of age at first substance use and mean CGPA

When we use Fischer Exact Test to assess the effect of age of first substance use and mean CGPA. Among the three drugs studied (cannabis, alcohol and tobacco) the age of first substance use was statistically significant for tobacco p = 0.007 (see table7)

DISCUSSION

The overall prevalence of psychoactive substance use among the University students was 28.6%. The most frequently consumed substance by the students was alcohol, followed by tobacco products, respectively. This finding was consistent with the study done in Southern Iran but lower than the study conducted in Northern Ethiopia (3.12). Alcohol was consumed by 24.7% of the students and this was consistent with the study conducted in different higher education institutions in Ethiopia; it was 21.6% among Addis Ababa University medical students, 20% in Haramaya University students, and 21.7% in college students of Southern Ethiopia (16,17). Similarly a research done in South Africa showed the occurrence of alcohol use was 38.7%, tobacco smoking 30%, and cannabis was 8.4% (13). However, the finding in this study was lower than the study conducted among Axum University students in which the alcohol consumption was 32.8% (18). In addition, the finding of this study was much more less than the study conducted in Trinidad and Tobago university students in which the six-month alcohol consumption was 70%, and Turkey University students in which it was 37.9% (11,18, 19). This might be due to cultural and socioeconomic differences. The prevalence in our study was higher than those reported for undergraduate students of Ahmadu Bello University, Nigeria (25.7%), (20), but lower than those reported for undergraduate students of university of Benin in Southern Nigeria (46.6%) (21) and undergraduate medical students of the University of Nigeria (56.0%).(22). This may be due to different sociocultural values of the different regions

Tobacco products were used by 5.7% of the students and it was consistent with other studies done among University students in Ethiopia (23). However, the finding was lower as compared with the study done among Haramaya University students which was 10.8% and Italian University students in which current smoking was 24% (16,24).The use of substance is known for its significant association with mental distress and consequently this mental distress can affect the students' academic performance negatively (25,26,27). The most abused substances from previous studies in nigeria were tobacco and cannabis, and less frequently coffee and inhalants,(28) .

In our study the academic performance and substance use has significance influence among the male gender. The study conducted at Jimma university students indicated, substance use was associated with low academic performance (9). This may be due to the consequences of substance use towards social, economic, physical, and psychological aspects of the student. There may be conflict with parents or friends, health problems, financial hardships, and emotional disturbance because of substance use (29,30). Male students who use psyhoactive substances had significantly high risk of poor academic performance (lower score of Cumulative Grade Point Average) as compared with non psyhoactive substances users. This is comparable to the findings of the previous studies of substance abuse by undergraduate students in Nigeria wish revealed that male students showed more abuse than female (21, 22 28)

Smoking is known to be a getaway substance for other illicit drug uses, high risk drinking behavior, and high risk sexual behavior as well (6). Those complex interactions with other risky behaviors make smoking the important predictor of poor academic performance (6). Our finding is similar to other reports that CGPA of the students who uses psychoactive substance at least weekly was less than those who were not using at all. Even though most students perceived using psychoactive substance improves academic performance (31), it was associated with poor CGPA score as

indicated by this study.

Alcohol use usually tends to be more during ceremonial activity and most of the alcohol sessions are followed with smoking , which may interfere with students' academic activities negatively (32,33). Drinking alcoholic beverages was also significantly and negatively associated with the academic performance. Those who were drinking on a daily basis had scored significantly lower CGPA than those who never drank alcoholic beverages in the last 12 months. Alcohol clouds judgment and can make the student be careless about academic and other success issues. This finding was consistent with the study done in United Kingdom University students in which alcohol consumption was negatively associated with academic performance (34). In the study conducted elsewhere among adolescents, academic difficulties associated with alcohol consumption were reported (2).Not only using substances was associated with academic performance, but also having an intimate friend who uses substance was associated (2). Peer pressure is known to be an important predictor to shape adolescents behavior either in good or bad way. The CGPA of students who have intimate friend who uses substance was significantly lower as compared with those who did not have intimate friend who uses substance (3,23). Previous studies in Nigeria had observed that the academic performance of the students, class attendance, students' were affected by use of pychoactive drugs (20,21,22,28). Student substance use is associated with different factors like sex, age, peer pressure, family substance abuse, personal pleasure, and poor academic achievement (3,5,6).

According to the national youth risk behavior survey, USA, negative association was seen between alcohol and other drug use and academic achievement after controlling for sociodemographic variables (7). Another study conducted in USA school adolescents indicated that students who were engaged in different substance use practices were poor academic achievers (8). A study conducted at Jimma University also showed that substance use was associated with poor academic achievement (9). Our study showed negative association between alcohol, cannabis and tobacco and academic achievement after controlling for gender variables. The use of these psychoactive substances could be being students of an urban university, have more money to spend on alcohol and cigarette wish is readily available in open markets. Moreso in Nigeria, there is no official alcohol cigarette control policy specifically targeting adolescents. Despite some researchers suggesting that substance use is associated with poor academic performance, many students used variety of substances for the sake of good academic achievement (3,10). Our study found significant association between academic activities, and mean CGPA as among the male gender undergraduates.

CONCLUSION AND RECOMMENDATIONS

Substance use was high among University under graduate students. Life time prevalence and current prevalence of cigarette smoking, drinking alcohol as well smoking cannabis were significantly associated with poor CGPA score among male gender. The association of psychoactive substance use with poor academic performance especially among male gender requires the university authorities to have a good counselling programme to control the use of psychoactive substance.

Limitations of the Study: This study was mainly about psychoactive substances such as tobacco alcohol and cannabis, effect of other psychoactive substances with academic achievement was not assessed. Another limitation of the study is subjectivity of self-reporting of different academic activities and use of psychoactive substances

Conflicts of Interest: All authors declare that they have no conflicts of interest.

Authors contribution: Osalusi, Koleowo and Ogunsemi conceived the idea of the study. Ogunjimi, Afe, Ale and Osalusi were involved with statistical analysis. Osalusi, Agboola, Deji-Agboola, Koleowo and Ogunsemi were involved in the study design, and interpretation and made significant intellectual contribution to the manuscript development. Koleowo and Ogunjimi recruited patients, and made significant intellectual contributions to the development of manuscripts. Agboola, Deji-Agboola and Osalusi, provided the laboratory expertise in addition significant contribution to manuscript development.

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Table 1: Socio-demographics characteristics of the study population

Socio-demographic characteristics (N=387)	Frequency (n)	Percentage (%)
Age		
16 – 20	241	62.27
21 – 24	118	30.49
>25	28	7.24
Mean age = 20.51		
Standard deviation = 2.91		
Sex		
Female	117	30.23
Male	270	69.77
Sources of income		
Parents	249	64.34
Self/Working	118	30.49
Other	20	5.17
Average monthly allowance/income		
< 10,000 USD	79	20.41
10,000 – 20,000USD	149	38.50
20,000 – 30,000USD	81	20.93
> 30,000USD	78	20.16

Table 2: Prevalence / history of substance use

Variable (N=387)	**Ever use n (%)**	**12-month use n (%)**	**30-day use n (%)**
Cigarette/Tobacco	80(20.67)	43(11.11)	28(7.24)
Alcohol	267(68.99)	202(52.20)	154(39.79)
Tranquillizers	13(3.36)	6(1.55)	4(1.03)
Sedatives	41(10.59)	19(4.91)	12(3.10)
Amphetamines	13(3.36)	11(2.84)	7(1.81)
Cannabis/Marijuana	51(13.18)	34(8.79)	27(6.98)
Cocaine	6(1.55)	4(1.03)	3(0.78)
Heroine	4(1.03)	4(1.03)	4(1.03)
Opium	9(2.33)	5(1.29)	3(0.78)
Opiates	15(3.88)	6(1.55)	3(0.78)

Table 3: Association between lifetime Psychoactive substance use and CGPA and study frequency

Frequency of studying in a week	**Non-User Male**	**mean GPA**	**Tobacco User Male**	**mean GPA**	**sd**	**diff**	**t**	**p**
3 times	44	3.53	14	3.47	0.71	4	6.37*	<0.001
4 times	36	3.67	10	3.68	0.86			
twice	63	3.68	15	3.64	0.77			
Once	28	2.88	9	3.11	0.96			
everyday	43	3.37	8	3.31	0.74			
	Non-User Female	mean GPA	Tobacco User Female	mean GPA	sd	diff	t	p
3 times	22	3.69	5	3.59	0.55	4	1.90*	0.115
4 times	18	3.36	4	3.69	0.94			
twice	23	3.71	5	4.47	0.77			
Once	16	3.38	4	3.32	0.71			
everyday	14	3.98	6	3.35	0.70			
	Non-User male	mean GPA	Alcohol User male	mean GPA	sd	diff	t	p
3 times	17	3.46	41	3.54	0.71	4	6.37*	<0.001
4 times	11	3.33	35	3.78	0.86			
Everyday	28	3.73	50	3.64	0.77			
Once	12	2.79	25	3.01	0.96			
Twice	18	3.53	33	3.27	0.74			
	Non-User Female	mean GPA	alcoholUser Femal e	mean GPA	sd	diff	t	p
3 times	6	3.53	21	3.71	0.55	4	1.90*	0.115
4 times	8	3.44	14	3.4	0.94			
Everyday	10	3.73	18	3.91	0.77			
Once	8	3.64	12	3.19	0.71			
Twice	2	3.96	18	3.77	0.70			
	Non-User Male	mean GPA	Cannabis User Male	mean GPA	sd	diff	t	p
3 times	47	3.49	11	3.62	0.71	4	6.37*	<0.001
4 times	38	3.74	8	3.33	0.86			
Everyday	69	3.67	9	3.64	0.77			
Once	33	3.03	4	2.21	0.96			
Twice	46	3.42	5	2.86	0.74			
	Non-User Female	mean GPA	Cannabis User Female	mean GPA	sd	diff	t	p
3 times	25	3.69	2	3.35	0.55	4	1.90*	0.115
4 times	20	3.39	2	3.7	0.94			
Everyday	27	3.80	1	5	0.77			
Once	14	3.37	6	3.38	0.71			
Twice	17	3.82	3	3.63	0.70			

Table 4: Association between cuurent Psychoactive substance use CGPA and study frequency

Frequency of studying in a week	Non-User Female	mean GPA	Tobbacco User Female	mean GPA	sd	diff	t	p
3 times	26	3.64	1	4.24	0.55	4	1.90*	0.115
4 times	21	3.43	1	3.2	0.94			
Everyday	26	3.76	2	4.9	0.77			
Once	20	3.37	-	-	0.71			
Twice	49	3.36	2	3.40	0.74			
	Non-User male	mean GPA	Tobbacco User male	mean GPA	sd	diff	t	p
3 times	53	3.53	5	3.38	0.71	4	6.37*	<0.001
4 times	39	3.72	7	3.39	0.86			
Everyday	74	3.66	4	3.90	0.77			
Once	34	2.89	3	3.53	0.96			
Twice	49	3.36	2	3.40	0.74			
	Non-User male	mean GPA	Alcohol User male	mean GPA	sd	diff	t	p
3 times	32	3.65	26	3.35	0.71	4	6.37*	<0.001
4 times	22	3.71	24	3.64	0.86			
Everyday	53	3.78	25	3.44	0.77			
Once	23	2.98	14	2.87	0.96			
Twice	35	3.40	16	3.29	0.74			
	Non-User Female	mean GPA	Alcohol User Female	mean GPA	sd	diff	t	p
3 times	16	3.51	11	3.9	0.55	4	1.90*	0.115
4 times	14	3.29	8	3.63	0.94			
Everyday	20	3.79	8	3.97	0.77			
Once	13	3.38	7	3.36	0.71			
Twice	5	4.03	15	3.71	0.70			
	Non-User Male	mean GPA	User Male	mean GPA	sd	diff	t	p
3 times	49	3.46	9	3.81	0.71	4	6.37*	<0.001
4 times	42	3.69	4	3.51	0.86			
twice	71	3.67	7	3.70	0.77			
Once	37	2.94	-	-	0.96			
everyday	49	3.37	2	3.08	0.74			
	Non-User Female	mean GPA	User Female	mean GPA	sd	diff	t	p
3 times	26	3.70	1	2.9	0.55	4	1.90*	0.115
4 times	21	3.43	1	3.2	0.94			
twice	28	3.84	-	-	0.77			
Once	17	3.27	3	3.95	0.71			
everyday	20	3.79	-	-	0.70			

Table 5: Mean CGPA hours of study and lifetime use of tobacco

Duration of studying time in a day	Non-User		Tobacco User					
	male	mean GPA	male	mean GPA	sd	diff	t	p
>3 HOURS	74	3.67	22	3.71	0.66	4	6.75*	<0.001
1 HOUR	26	3.06	4	2.86	0.93			
2 HOURS	64	3.41	18	3.25	0.83			
3 HOURS	39	3.66	8	3.91	0.75			
< 1 HOUR	11	3.00	4	2.91	1.11			
	Non-User		Tobacco User					
	Female	mean GPA	Female	mean GPA	sd	diff	t	p
>3 HOURS	32	3.42	4	4.12	0.81	4	1.21*	0.350
1 HOUR	10	3.97	1	3.58	0.53			
2 HOURS	24	3.74	11	3.64	0.72			
3 HOURS	20	3.66	6	3.7	0.80			
< 1 HOUR	7	3.45	2	3.05	0.65			
	Non-User		Alcohol User					
	Male	mean GPA	Male	mean GPA	sd	diff	t	p
>3 HOURS	28	3.54	68	3.74	0.66	4	6.75*	<0.001
1 HOUR	11	3.03	19	3.03	0.93			
2 HOURS	24	3.51	58	3.32	0.83			
3 HOURS	15	3.91	32	3.60	0.75			
< 1 HOUR	8	2.68	7	3.31	1.11			
	Non-User		Alcohol User					
	Female	mean GPA	Female	mean GPA	sd	diff	t	p
>3 HOURS	12	3.56	24	3.47	0.81	4	1.21*	0.350
1 HOUR	4	3.99	7	3.9	0.53			
2 HOURS	8	3.85	27	3.67	0.72			
3 HOURS	4	3.09	22	3.78	0.80			
< 1 HOUR	6	3.54	3	3	0.65			
	Non-User		Cnnnabis User					
	Male	mean GPA	Male	mean GPA	sd	diff	t	p
>3 HOURS	83	3.69	13	3.60	0.66	4	6.75*	<0.001
1 HOUR	27	3.08	3	2.62	0.93			
2 HOURS	70	3.36	12	3.43	0.83			
3 HOURS	41	3.75	6	3.39	0.75			
< 1 HOUR	12	3.21	3	2.05	1.11			
	Non-User		Cannabis User					
	Female	mean GPA	Female	mean GPA	sd	diff	t	p
>3 HOURS	35	3.51	1	3.2	0.81	4	1.21*	0.350
1 HOUR	8	3.83	3	4.21	0.53			
2 HOURS	32	3.72	3	3.62	0.72			
3 HOURS	23	3.64	3	3.9	0.80			
< 1 HOUR	5	3.66	4	2.98	0.65			

Table 6: Mean CGPA hours of study and current psychoactive use

Duration of studying time in a day								
	Non-User		Tobacco User					
	Female	mean GPA	Female	mean GPA	sd	diff	t	p
>3 HOURS	33	3.45	3	4.08	0.81	4	1.21*	0.350
1 HOUR	11	3.93	-	-	0.53			
2 HOURS	34	3.70	1	4.24	0.72			
3 HOURS	23	3.66	3	3.74	0.80			
< 1 HOUR	9	3.36	-	-	0.65			
	Non-User		Tobacco User					
	male	MEAN GPA	male	MEAN GPA	SD	DIFF	T	P
>3 HOURS	87	3.67	9	3.77	0.66	4	6.75*	<0.001
1 HOUR	29	3.04	1	2.78	0.93			
2 HOURS	76	3.39	6	3.20	0.83			
3 HOURS	42	3.72	5	3.55	0.75			
< 1 HOUR	15	2.97	-	-	1.11			
	Non-User		Alcohol User					
	Male	mean GPA	Male	mean GPA	sd	diff	t	p
>3 HOURS	57	3.74	39	3.59	0.66	4	6.75*	<0.001
1 HOUR	19	3.03	11	3.04	0.93			
2 HOURS	44	3.57	38	3.15	0.83			
3 HOURS	34	3.74	13	3.61	0.75			
< 1 HOUR	11	2.86	4	3.28	1.11			
	Non-User		Alcohol User					
	Female	mean GPA	Female	mean GPA	sd	diff	t	p
>3 HOURS	25	3.33	11	3.9	0.81	4	1.21*	0.350
1 HOUR	6	4.07	5	3.77	0.53			
2 HOURS	17	3.77	18	3.66	0.72			
3 HOURS	13	3.60	13	3.75	0.80			
< 1 HOUR	7	3.38	2	3.3	0.65			
	Non-User		Cannabis User					
	Female	mean GPA	Female	mean GPA	sd	diff	t	p
>3 HOURS	35	3.51	1	3.2	0.81	4	1.21*	0.350
1 HOUR	9	3.87	2	4.19	0.53			
2 HOURS	35	3.71	-	-	0.72			
3 HOURS	25	3.70	1	2.9	0.80			
< 1 HOUR	8	3.35	1	3.47	0.65			
	Non-User		Cannabis User					
	Male	mean GPA	Male	mean GPA	sd	diff	t	p
>3 HOURS	85	3.68	11	3.71	0.66	4	6.75*	<0.001
1 HOUR	30	3.03	-	-	0.93			
2 HOURS	75	3.35	7	3.64	0.83			
3 HOURS	43	3.72	4	3.54	0.75			
< 1 HOUR	15	2.97	-	-	1.11			

Table 7: Effect of age of first substance use and mean CGPA

	FREQ	MEAN GPA	SD	DIFF	T	P
AGE AT FIRST ALCOHOL USE						
<15	66	3.50	0.77	2	0.41*	0.666
>19	21	3.64	0.85			
15-19	138	3.46	0.86			
AGE AT FIRST TOBACCO USE						
<15	17	3.51	0.88	2	2.81*	0.007
>19	7	3.29	0.70			
15-19	46	3.82	0.56			
AGE AT FIRST SEDATIVES USE						
<15	9	3.33	0.87	2	0.47*	0.631
>19	4	2.88	0.88			
15-19	16	3.39	1.00			
AGE AT FIRST CANNABIS USE						
<15	3	3.89	0.31	2	0.82*	0.448
>19	5	3.28	1.23			
15-19	37	3.32	0.71			

Table 8: Mean and standard deviation of ages at first time of substance abuse

Substances of abuse	Mean ± Standard deviation	Age range
Cigarette	16.11 ± 3.33	(12.78 – 19.44)
Alcohol	15.64 ± 3.64	(12.00 – 19.28)
Tranquillizers	17.10 ± 3.93	(13.17 – 21.03)
Sedatives	16.17 ± 3.44	(12.73 – 19.61)
Amphetamines	18.44 ± 4.16	(14.28 – 22.59)
Cannabis/marijuan	17.51 ± 2.03	(15.48 – 19.54)
Cocaine	15.50 ± 3.45	(12.05 – 18.95)
Heroine	15.00 ± 5.20	(9.80 – 20.20)
Opium	17.57 ± 5.74	(11.83 – 23.31)
Opiates	14.10 ± 3.98	(10.12 – 18.08)