Prevalence and Patterns of Alcohol and Drug Abuse among University Students

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Abstract

Globally, 29 million people face challenges on psychoactive substance abuse. Three million deaths and 132.6 million disability adjusted life years were attributed to alcohol globally in 2016. Use of psychoactive substances by the youth negatively affect cognitive development, judgement, health and academic outcomes, Kenya has 7.9 million youths aged 15-24 years, among which are University students. Individual characteristics and environmental influences from family and peers makes the youth vulnerable to psychoactive substance use. This study aimed to determine the prevalence of alcohol and substance use; factors associated with alcohol and substance use; and predictive factors for the vice among University students. The study was conducted at three purposively sampled University of Nairobi campuses. A self-administered questionnaire on psychoactive substance use was used. Respondents were registered students at the time of study residing in the three campuses. Hostels were systematically sampled and rooms randomly selected. Independent variables included commonly used psychoactive substances. Dependent variables were age, gender, campus and year of study. Data was analyzed using Stata SE 12 software. Descriptive, logistic regression and multivariate analysis were conducted. Majority of students were in the 20-24 years age bracket and the highest student proportion (29.3%) in 3rd year of study. The proportion of male respondents was 55.2%. Alcohol, marijuana and cigarettes were the most prevalent substances used at 41%, 14% and 13.5% respectively. Cocaine and heroin were the least used. Consumption of alcohol was significantly associated with male gender, higher year of study, city campuses (Main and Chiromo) and older age. Marijuana use was significantly associated with the male gender, higher year of study and older age. Use of cocaine and heroin were not significantly associated with any of the demographic factors under study. Male gender, city campuses and higher year of study were predictive factors for alcohol consumption and cigarette smoking.

Key words: *Alcohol and drug abuse, undergraduate students, drug addiction*

Introduction

About 29 million people globally substance use disorder (SUD) among whom 12 million are people who inject drugs (PWID) (Chukwuma, 2017). World drug report in 2016 indicated that 3 million deaths and 132.6 million disability-adjusted life years (DALYs), worldwide were attributable to alcohol use. Comparing with other illnesses like tuberculosis, diabetes and HIV and AIDs, alcohol use disorder has higher mortality (Kamenderi et.al, 2021). It is estimated that the global disease burden due to consumption of alcohol and illicit drugs is 5.4% while 3.7% is attributable to tobacco use alone (Chukwuma, 2017). There is some geographical variation with regard to the most commonly used psychoactive substances. In Europe and Asia, opiates are predominant While in most of Africa, cannabis is the most commonly used especially in South Africa. A national survey carried out in Nigeria revealed that alcohol and cannabis were the most common psychoactive substances in use

(Adamson et.al. 2015). In Kenya, out of the estimated population of 47.5 million people, 7.9 million (16.7%) are young people aged 15-24 years (KNBS, 2019). Most university students are in this age category with the majority aged between 17 and 24 years. This is the transitioning age to adulthood and a key period in life during which there is rapid growth in social life and new behavior is easily picked as compared to adult life. This is also the period when these young people move away from the close supervision of teachers at schools and parents at home, thereby giving them newly found freedom to make personal choices. The commonly seen consumption of alcohol and use of illicit drugs among undergraduate students is associated with this favorable environment away from regular supervision (Atwoli et al., 2011). Unfortunately, consumption of these psychoactive substances is often associated with poor academic outcomes arising from their effects on the students' memory, judgement, attention and learning skills.

This study examined the prevalence and patterns of alcohol and drug abuse among undergraduate students at selected campuses of University of Nairobi to determine the extent of the problem with an aim of instituting interventions.

Methodology

Study Sites: University of Nairobi is the oldest and largest public university in Kenya with an estimated total student population of 50,000. The university has 10 campuses, with 8 of these in Nairobi, and one each in Kisumu and Mombasa. The study was conducted in 3 of the Nairobi campuses namely: Main campus, Chiromo and Kikuyu campus.

Study Population: The study population comprised of undergraduate students residing at the University hostels.at the time of the study.

Sampling Procedures

The three campuses were purposively sampled. Systematic sampling was used to select the hostels. At the selected hostels, student rooms were randomly sampled and data collected from all students residing in the sampled rooms. A digital questionnaire was employed for students who were willing to provide their consent to participate in the study.

Sample size determination

Sample size was determined using the Cochran formula (Cochran, 1977) namely:

$$n = \frac{Z^2pq}{e^2}$$

Where;

n is estimated (desired) sample size,

Z = 1.96, the standard Z-Score for a 95% level of confidence

p=estimated proportion of young people who use alcohol or any form of substance abuse (assumed 0.5)

q = (1-p) = 0.5

e=error

Therefore

$n = (1.96^2 X 0.5 X 0.5)/ (0.05 X 0.05) = 385$

Thus, the desired minimum number of students from each campus was 385 giving a total of 1155 students. However, a slightly higher number of students were sampled 1864. Chiromo campus has a relatively small population and 241 students were sampled.

Data collection Procedures

Data was collected using a semi-structured self-administered questionnaire. The questionnaire was pre-tested prior to data collection to ensure questions asked were well understood. After pre-testing, the questionnaire was digitized and availed to the research assistants' smart phones. The research assistants' administered the consent and guided the study participants on how to complete the questionnaire digitally.

Before administering the questionnaires, the goal of the study and the eligibility criteria were explained to the participants and an informed consent sought from the respondents. Participants had to be University of the Nairobi students, with their registration confirmed using a student identity card. Written informed consent to participate in the study was sought and those who consented were enrolled to fill the digital questionnaire.

Data Analysis

Demographic variables collected included gender, age, year of study and University campus of residence. Use of alcohol, marijuana, shisha, kuber, cigarettes, snuff/chewed/piped tobacco, miraa, heroin and cocaine were among substances and drugs evaluated. Data was analyzed using Stata SE 12 software. Analysis included descriptive statistics, logistic regression and multivariate analysis.

Ethical Considerations

Ethical clearance to conduct the study was obtained from Kenyatta National Hospital-University of Nairobi Ethics Review Committee (KNH-UoN ERC). Research permit to carry out the study was obtained from the National Commission for Science, Technology & Innovation (NACOSTI). Permission to conduct the study at the University of Nairobi was obtained from the university administration. Written informed consent was given by all the participants prior to completing the study questionnaire. Anonymity of the respondents, privacy and confidentiality was assured to the participants. No participant's names were written in the documents and instead, unique identifiers were used.

Results

Socio demographic Characteristics of Study Population

Demographic characteristics of the students is shown in Table 1. The majority of the students 1566 (83.6%) were between 20 and 24 years old. age group. Female students were slightly higher than male students at 55.2%. The study participants were distributed among all four years of study with third year students comprising 29.3% while second year students comprised 17.2% of the total.

Prevalence of lifetime alcohol and substance use

Alcohol was the most used substance with 758 (41%) of students indicating they had ever used it at least once in their lifetime. Other substances included marijuana, cigarettes and shisha with a lifetime prevalence of 14%, 13.5% and 11.1% respectively. A small number of the students, 12 (0.7%) and 5 (0.3%) indicated to have ever used cocaine and heroin respectively. The lifetime prevalence of alcohol and substances of abuse ever use is shown in Table 2.

Substance use in the last 12 months and the last one month

Table 3 shows alcohol and substance use in the last one year and in the last one month. Alcohol, marijuana and cigarettes were the most used substances both in the last 12 months and last one month.

Substance dependency

Substance dependency was assessed by asking the students if there were any substances that they could not do without. Although used by very few students, the substances that students would not do without (indicative of addiction) were

heroine 2 (33.3%) and cocaine 3 (23.0%). Despite alcohol being the most prevalently used psychoactive substance compared to marijuana, many students, 58 (22.4%) were likely to be dependent on marijuana as compared to alcohol 142 (18.7%). (Figure 1).

Factors associated with alcohol and substance use

Analysis in this section relates to prevalence of lifetime use of alcohol and substances of abuse. Findings showed that the lifetime prevalence of alcohol consumption was higher for male students, those in year 2 to 4, students residing in two city campuses (main campus and Chiromo) and for those aged over 21 years. Inferential statistics showed that consumption of alcohol was significantly associated with male gender (Odds Ratio (OR) 1.3375 95% Confidence Interval (CI) (1.1084 -1.6139) p=0.002), higher year of study (OR 1.8358, 95% CI 1.4612 – 2.3066, p<0.001, city campus (OR 1.231, 95% CI 1.0203 – 1.4852, p=0.03 and older age. (OR 1.5460, 95% CI (1.2718 - 1.8794), p<0.001 (Table 4).

As indicated in Table 4, marijuana use was significantly associated with male gender, higher year of study and older age. Cigarette smoking was significantly associated with male gender, higher year of study, city campuses and older age. Snuff/chewed/piped tobacco was significantly associated with the male gender and older age. Shisha use was significantly associated with higher year of study, city campuses and older age while miraa use was significantly associated with male gender, higher year of study and older age. Kuber use was significantly associated with male gender, higher year of study, city campuses and older age. Use of cocaine and heroin were not significantly associated with any of the demographic factors under study.

Predictive factors

Multivariate analysis was used to identify predictive factors for alcohol and substance use. Factors associated with alcohol and substance use at P value of 0.1 were entered into the logistic regression model to identify predictive factors. Male gender, city campuses and higher year of study were predictive factors for alcohol consumption and cigarette smoking. Higher year of study and male gender were predictive for marijuana use while male gender and city campuses were predictive factors for snuff/chewed/piped tobacco use. City campuses, older age and higher year of study were predictive factors for shisha use while male gender, city campuses and older age were predictive for kuber use. (Table 5)

Discussion:

The findings show that lifetime prevalence of substance use among university students sampled from the three university of Nairobi campuses is higher than that of secondary school students (Atwoli et al., 2011; Kamenderi et al., 2019). From these studies and another study by Mbuthia et al (2020), substance use rate increases with age and education levels and this calls for interventions targeting students in the lower years of study. Aiming at first year students in prevention as they join the university may reduce the risk of psychoactive substance use among the students as they progress with their studies and also prepare them for later challenges in life. As has been seen in other studies (Kamenderi et al., 2019; Mbuthia et al., 2020; Onya et al., 2012), this study showed that alcohol was the most widely used substance followed by marijuana and cigarette smoking. Intra-personal and interpersonal factors such as age, gender, peer pressure and parental care are considered to be major factors influencing substance use. In addition, Mbuthia et al (2020) has shown that male students were more likely to abuse substances more compared to their female counterparts. This could be as a result of peer pressure, male egoism, poor parenting, excess freedom, stress and cultural factors where substances like alcohol are upheld as social drinks. Other predisposing factors are the environmental risk factors including availability of substances and free time without much of healthy recreational activities as noted in other similar studies (Onya et al., 2012). Studies conducted in Kenyan secondary and primary schools (NACADA, 2021) show that some students start abusing substances from primary

schools then proceed using the substances in secondary schools. This study indicates that some students report to the university while using psychoactive substances drugs, and the numbers of students using the substances significantly increases as the students' progress in studies. The consequences of early alcohol and drugs abuse have been shown in previous studies to include: poor social economic, psychosocial and health outcomes, poor educational gains, risky sexual behavior making them vulnerable to sexually transmitted infections, and unplanned early pregnancies (Odgers et al., 2008). It has also been shown that delaying early exposure to psychoactive substances can prevent many adult health complications (King et al., 2006; Stueve et al., 2005; Ellickson et al., 2003; Korir et al., 2013)

Non Communicable diseases like lung cancer and oral cancer are closely associated with cigarette smokers and those who orally take tobacco respectively (Nelson et al., 2017). Prolonged use of psychoactive substances leads to addiction or psychoactive substance use disorder a disease that manifests through impaired health, social function and voluntary control Tesfaye et al., 2014). A person with substance use disorder is not able to cope without using drugs and as seen in this study, some students are addicted to substance use and this therefore calls for treatment interventions. Some news articles indicate that some of these drugs like cocaine are life threatening and can cause heart attack, stroke, seizure or coma among other negative effects.https://www.medicalnewstoday.com/articles/effects-of-drug-abuse https://drugabuse.com/blog/drug-alcohol-effects/ Being the second most abused substance after alcohol, marijuana though illegal is readily accessible to students as seen from this study. This is in line with other studies (Damiri et al., 2018; Ngure et al., 2019) some of which suggested that use of marijuana is dependent and significantly associated with use of other illicit drugs due to genetic and environmental factors (Agrawal et al., 2004). There are legal consequences associated with drug use and studies have shown changes in students behavior as a result of drug influence with some of them becoming bullies, beating and raping their teachers, killing their fellow students, robbery due to financial constraints and sexual behavior disorders among others (King'endo, 2015; Elliott et al., 2012) Generally substance use majorly impact negatively not only on an individual, or the immediate family but also on the entire community and is a very costly challenge especially when treating those who get addicted (Das et al., 2016).

Conclusion

The study shows that alcohol and marijuana are the most widely used substances, and this is despite the use of marijuana being illegal. All these substances are readily accessible to students from the first year to later years of study. Although cocaine and heroin were not easily accessible, they were the most addictive substances. The study therefore recommends students centered intervention programs to prevent alcohol and drug abuse. These programs should be designed and implemented by the students for ownership. Further, these programs should target students at their entry to first year so as to mitigate progression of drug use problem in the other levels of study Finally, the university should implement screening, brief intervention and referral to treatment (SBIRT) to detect early substance use risks and related challenges among students.

Study Limitation

This study is unlikely to be generalized to inform the situation in other UoN campuses because the campuses were purposively and not randomly selected hence not given an equal chance. The findings can however be used to inform intervention programs.

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Annex:

Table1: Socio demographic Characteristics

Variable		N	%
Age category (yrs)	15-19	171	9.1
	20-24	1566	83.6
	25+	137	7.3
Year of study	1st	453	24.2
	2nd	322	17.2
	3rd	549	29.3
	4th	540	28.8
Gender	Male	1034	55.2
	Female	840	44.8
Campus	Kikuyu	834	44.5
	Main	799	42.6
	Chiromo	241	12.9
Religion	Christians	1477	78.8
	Hindu	8	0.4
	Muslim	103	5.5
	Others	286	15.3

Table 2: Lifetime prevalence of alcohol and substance use

Substance Use	No. Using	No. Not Using	Total	% Using
Alcohol Use	754	1,083	1,837	41
marijuana	255	1,564	1,819	14
Cigarettes	246	1,575	1,821	13.5
Snuff/chewed/piped tobacco	246	1,575	1,821	13.5
Shisha	203	1,623	1,826	11.1
Miraa	128	1,705	1,833	7
Kuber	71	1,750	1,821	3.9
Cocaine	12	1,821	1,833	0.7
Heroin	5	1,820	1,825	0.3

Table 3: Substance use frequency (n=1874)

Substance	Use in the last 12 months	Use in the last one month
Alcohol	661 (35.3%)	441 (23.5%)
Marijuana	194 (10.4%)	137 (7.3%)
Cigarette Smoking	143 (7.6%)	103 (5.5%)
Shisha	81 (4.3%)	41 (2.1%)
Miraa	77 (4.1%)	54 (2.9%)
Snuff, chewed piped tobacco	49 (2.6%)	35 (1.9%)
Kuber	27(1.4%)	23 (1.2%)
Cocaine	7 (0.3%)	5 (0.2%)
Heroine	2 (0.1%)	2 (0.1%)

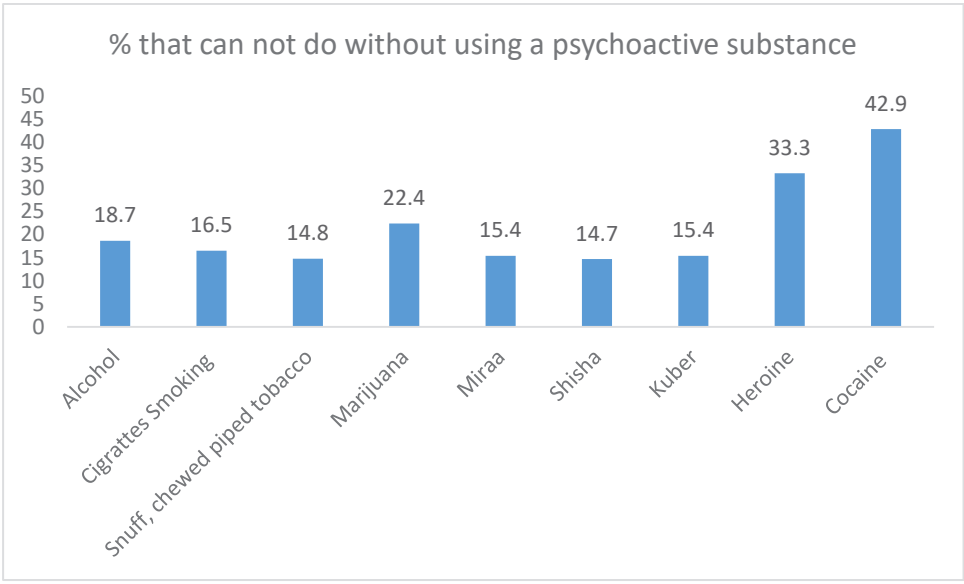

Figure 1: Level of addiction for various substances

Table 4: Association of substance use with demographic factors

Factor	Use substance	Do Not use	OR (95% CI)	P-Value
Alcohol				
Gender: Male	446	563	1.3375 (1.1084 - 1.6139)	0.002
Female	308	520		
Year of Study: Year 2,3,& 4	614	768	1.8358 (1.4612 - 2.3066)	0.000
Year 1	135	310		
Campus: Main and Chiromo	441	578	1.2310 (1.0203 - 1.4852)	0.030
Kikuyu	313	505		
Age: Over 21 yrs	515	630	1.5460 (1.2718 - 1.8794)	0.000
21 and below	239	452		
Marijuana				
Gender: Male	155	839	1.3394 (1.0221- 1.7551)	0.034
Female	100	725		
Year of Study 2,3,& 4	221	1,154	2.3387 (1.5946 - 3.4300)	0.000
Year 1	33	403		
Campus: Main and Chiromo	143	862	1.0398 (0.7964 - 1.3575)	0.774
Kikuyu	112	702		
Age: Over 21 yrs	189	952	1.8379 (1.3642 - 2.4761)	0.000
21 and below	66	611		
Cigarettes				
Gender: Male	175	822	2.2579 (1.6845 - 3.0265)	0.000
Female	71	753		
Year of Study 2,3,& 4	204	1,166	1.8079 (1.2603 --2.5933)	0.001
Year 1	39	403		
Campus: Main and Chiromo	155	850	1.4528 (1.1011 - 1.9168)	0.008
Kikuyu	91	725		
Age: Over 21 yrs	175	960	1.5764 (1.1751 - 2.1148)	0.002
21 and below	71	614		

Snuff/chewed/piped tobacco				
Gender: Male	61	941	1.9821 (1.2405 - 3.1671)	0.004
Female	26	795		
Year of Study 2,3,& 4	71	1,301	1.4530 (0.8355 - 2.5268)	0.186
Year 1	16	426		
Campus: Main and Chiromo	56	954	1.4808 (0.9453 - 2.3196)	0.086
Kikuyu	31	782		
Age: Over 21 yrs	63	1,072	1.6235 (1.0046 - 2.6237)	0.048
21 and below	24	663		
Shisha				
Gender: Male	104	896	0.8524 (0.6365 - 1.1415)	0.284
Female	99	727		
Year of Study 2,3,& 4	181	1,199	2.8476 (1.8042 - 4.4946)	0.000
Year 1	22	415		
Campus: Main and Chiromo	136	874	1.7395 (1.2779 - 2.3679)	0.000
Kikuyu	67	67		
Age: Over 21 yrs	160	980	2.4376 (1.7159 - 3.4628)	0.000
21 and below	43	642		
Miraa				
Gender: Male	95	910	2.5150 (1.6736 - 3.7794)	0.000
Female	33	795		
Year of Study 2,3,& 4	110	1,268	2.0627 (1.2384 - 3.4359)	0.005
Year 1	18	428		
Campus: Main and Chiromo	67	949	0.8750 (0.6106 - 1.2539)	0.467
Kikuyu	61	756		
Age: Over 21 yrs	97	1,041	1.9928 (1.3147 - 3.0207)	0.001
21 and below	31	663		
Kuber				
Gender: Male	53	946	2.5025 (1.4541 - 4.3067)	0.001
Female	18	804		
Year of Study 2,3,& 4	62	1,307	2.9546 (1.3423 - 6.5036)	0.007
Year 1	7	436		
Campus: Main and Chiromo	30	980	0.5749 (0.3557 - 0.9293)	0.024
Kikuyu	41	770		

Age: Over 21 yrs	59	1,073	3.0975 (1.6529 - 5.8049)	0.000
21 and below	12	676		
Cocaine				
Gender: Male	7	998	1.15451 (0.3651 - 3.6511)	0.807
Female	5	823		
Year of Study 2,3,& 4	9	1,371	0.9628 (0.2595 - 3.5720)	0.955
Year 1	3	440		
Campus: Main and Chiromo	9	1,009	2.4143 (0.6515 - 8.9469)	0.187
Kikuyu	3	812		
Age: Over 21 yrs	6	1,135	0.7253 (0.2205 - 2.3855)	0.597
21 and below	5	686		
Heroin				
Gender: Male	2	996	0.5515 (0.0919 - 3.3086)	0.515
Female	3	824		
Year of Study 2,3,& 4	5	1,369		
Year 1	0	442		
Campus: Main and Chiromo	2	1,013	0.5311 (0.0885 - 3.1860)	0.489
Kikuyu	3	807		
Age: Over 21 yrs	4	1,133	2.4219 (0.2701 - 21.7129)	0.429
21 and below	1	686		

Table 5: Predictive factors for alcohol and substance use

Factor	Odds Ratio	[95% Conf.	Interval]	P Value
Alcohol				
gender	1.310069	1.081902	1.586354	0.006
campus	1.348485	1.112161	1.635026	0.002
age	1.154365	0.8979666	1.483973	0.263
study year	1.71971	1.283454	2.304253	0.000
Marijuana				
gender	1.283468	0.9759095	1.687955	0.074
campus	1.145119	0.8733464	1.501463	0.327
age	1.301383	0.9035759	1.874329	0.157
study year	1.940207	1.216396	3.094719	0.005

Cigarette smoking				
gender	2.243091	1.666889	3.018472	0.000
campus	1.628616	1.225502	2.164328	0.001
age	1.162039	0.8023469	1.682981	0.427
study year	1.670268	1.061735	2.62758	0.026
Snuffed/ Chewed/piped tobacco				
gender	1.983842	1.237386	3.180598	0.004
campus	1.640713	1.041561	2.584524	0.033
age	1.52578	0.814781	2.857214	0.187
study year	1.102208	0.5347566	2.271804	0.792
Shisha				
gender	0.8216867	0.6098837	1.107045	0.197
campus	1.949387	1.425205	2.666361	0
age	1.887603	1.222278	2.915087	0.004
study year	2.009023	1.144122	3.527746	0.015
miraa				
gender	2.412119	1.601109	3.633929	0.000
campus	0.9944423	0.6898521	1.433518	0.976
age	1.536741	0.9160371	2.578031	0.104
study year	1.441274	0.7639571	2.719094	0.259
Kuber				
gender	2.185847	1.2616	3.787198	0.005
campus	0.6186589	0.3770225	1.015162	0.057
age	2.176881	1.01768	4.656485	0.045
study year	1.507252	0.581318	3.90803	0.399