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SUBSTANCE USE, ABUSE AND RISKY SEXUAL BEHAVIOUR AMONG STUDENTS STUDYING HEALTH RELATED COURSES IN A TERTIARY INSTITUTION IN WESTERN KENYA

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ABSTRACT

Background: **Substance abuse among university students in Kenya is currently a major public health concern. Drugs such as tobacco and alcohol are now widely and easily available in the universities. Colleges therefore form the main locus of substance abuse, with more than 40% of students already affected. Health care professionals are believed to be the lead in healthy practices but as well can be a serious source of safety lapses for patients if they engage in substance misuse. Although this is a very important subject area, studies regarding prevalence of substance abuse especially among students undertaking health related courses remain scant.**

Objective: **The study sought to determine substance use/abuse and likely consequences among student studying health related courses at a tertiary institution.**

Study Setting: **The study was conducted among students undertaking health related courses in the College of Health Sciences within a large tertiary learning institution in Western Kenya.**

Study Subjects: **The College of Health Sciences has four main schools; Medicine, Nursing, Dentistry and Public Health. Two schools; school of Medicine and school of Nursing were picked using simple random sampling. Proportionate sampling was then applied to each group. In total, 376 students from both the Bachelor of Science in Nursing and medicine programs were interviewed using a pre-tested questionnaire.**

Results: **The main substance commonly used and abused among students in the college of Health Sciences is alcohol. Other substances include; cigarettes, miraa and cannabis. About 37% of all the students interviewed had ever consumed alcohol. Of those who had taken alcohol, 35.6% were nursing students while 64.4% were medical students. More males (56.8%) than females (43.2%) drink alcohol. Factors associated with substance abuse include: gender; females are less likely to use/abuse substances compared to males (P;0.007, A.O.R; 0.518, C.I.0.373 - 0.908), religion; Muslim students are less likely to participate to use/abuse substances compared to other religions (P;0.005; A.O.R;0.173 C.I;0.046-0.504) and type of student residence; students renting**

rooms outside are more likely to use/abuse substances compared to their counterparts living in the hostels (P;0.158;A.O.R;4.58,C.I;0.556-22.955). There was a strong association between alcohol use and engagement in risky sexual behavior (X^2=20.4, P: 0.001). Students who take alcohol are more likely to suffer other effects such as quarrels (16.8%), fights (12%), injuries (12.2%), loss of money/valuables (19.4%) and relationship problems.

Conclusions: **Substance use and consequently abuse among students at the college of Health sciences is moderately high and there is a potential for this vice increasing further. Behaviour change strategies should be designed to address this problem among students at the college of health sciences.**

INTRODUCTION

Substance abuse is an intricate health and societal issue that contributes greatly to morbidity and mortality rates   globally[1]. Drug abuse contribution to the global burden of disease has been shown to be higher than that of many mental disorders and higher than that of all maternal conditions lumped together [2].

In Kenya, there has been an upsurge in the consumption of adulterated illicit brew, cultivation, consumption and trafficking of illicit drugs which has in turn resulted to numerous negative consequences among individuals involved in this vice. Alcohol and Drug Abuse (ADA) therefore remains a major danger to the public health system and the quality of life of the citizenry, with great implications in political, economic and social stability of the nation [3].

Substance use tends to peak between the ages of 18 and 25 years of age [4] with University students being at higher risk for alcohol abuse when compared to non-college peers [5, 6]. University students are at youthful age with lots of freedom that they were hardly accustomed to in high school and increased vulnerability to peer pressure. This is also the age that is characterized by experimentation and risk-taking, including alcohol and drug abuse as well as risky sexual behaviour.

Research has shown that drug use starts during adolescence or in early adulthood [7] and that drug use leading to addiction usually starts in teenage [8]. Substance abuse among college students is therefore a problem of public health importance since it predisposes one to drug dependence in adult life [9-11]. According to the National Agency for the Campaign Against Drug Abuse (NACADA), alcohol and generally abuse of drugs are major deterrents to education, development and by extension the National growth. Alcohol use and abuse as the main substance misuse has been associated with disciplinary problems such as failing to attend class, failing to carry out assignments and destructive strikes in schools with consequences such as poor performance, discontinuation from studies, damage to school property and even death [12, 13].

The problem of substance use among university students in Kenya is significant. Among the few documented studies on alcohol and drug abuse among university students in Kenya, alcohol is the most commonly used substance. A recent study involving first year undergraduate students in public Universities in the coastal region showed a life time prevalence rate of alcohol use of 31% and current use of 18%[14]. Elsewhere,lifetime prevalence rate of 51.7% for alcohol use and 42.8% for tobacco use was

reported among students in tertiary institutions in Eldoret, Kenya [15]. Similarly in another study, 30.5% lifetime use and 17.1% current use of tobacco was reported among students in public universities in Kenya [16].

Alcohol use and drug abuse has been shown to be a contributing factor to sexual risk-taking as it is thought to interfere with judgment and decision-making [17-21]. Studies have shown that acute effects of substance abuse cause one to take sexual risks that otherwise would not have been taken[22]. Therefore Atwoli *et al*. (2011) rightfully argued that unless the issue of substance use among young adults is well addressed, interventions on HIV infection are unlikely to achieve optimal results. Research has shown that risky sexual behaviours such as sex at an early age, having more than one sexual partner, inconsistent condom use, and engaging in sex under the influence of drugs are common among university students [23-29]. This exposes the students to numerous health risks including HIV infection.

Substance use among medical and nursing students has implications on the health of the general population. This is because these are future health professionals who are viewed as opinion leaders and role models in terms of health related behaviour[30]. Studies have shown that the drinking behaviors of the health professional is likely to influence their attitude and ability to counsel clients with problematic drug use [31]. In addition, health professionals who abuse drugs are a source of safety concerns for the patients they handle on a day to day basis. However, there is paucity of data on the prevalence of substance use and risky sexual behaviour among students undertaking health related degree programs in Kenya. The purpose of this study therefore was to determine the prevalence of substance abuse and risky sexual behavior among medical related programs at a tertiary learning Institution in Western Kenya.

METHODOLOGY

Study Design: The study employed a cross-sectional design. Data was collected from students undertaking Medicine or Nursing degree courses at the College of Health Sciences who were exposed to a self - administered questionnaire at that point in time. No follow up was done once the student completed the questionnaire.

Study Period: Data was collected from the selected students within a period of one month.

Study area: This study was conducted among students in the College of Health Sciences, Moi University. The College of Health Sciences is located in Eldoret Town next to and within Moi Teaching and Referral Hospital. The College has four Schools; School of Public Health, School of Medicine, School of Dentistry and School of Nursing.

Study Population: All students studying health related courses at the College of Health Sciences.

Sample size Calculation: Sample size was calculated using the single proportion formula

$$N = \frac{Z_{1-\alpha/2}^2 \times P(1-P)}{d^2}$$

Where:

$Z_{1-\alpha/2}$: is equals to 1.96, a standard normal variate for the level of significance where p value is ≤ 0.05.

P: Is the expected proportion in the population (The study used 69% for substance

use which had been reported in a previous study by Atwoli et al [15]).

d: is the level of precision for the 95% confidence interval which is 0.05

$$N = \frac{(1.96)^2 \times 0.69 \ (1- 0.69)}{(0.05)^2}$$

N = 328 students

We added a non-response rate of 20% hence N = 394 students

Sampling procedure: Multi stage sampling was used to select two schools in the college. In the first stage sampling, the school of medicine and the school of nursing were selected using simple random sampling method. One-degree program from each of the two schools was selected purposively based on the number of student representation and how long the program has been in existence. In the school of medicine; the Bachelor of Medicine and surgery was selected since it's the program with the highest number of students and has already had complete cycles of teaching (several cohorts of students have graduated). The other programs within the same school; Bachelor of Science in Medical Psychology and Bachelor of Science in Physiotherapy were still new programs with small student numbers (less than 20 each) which had not completed one cycle of teaching (no cohort has graduated). In the School of nursing, there was only one program; Bachelor of Science in Nursing. Sampling proportionate to size of each program was employed to determine the number of questionnaires to administer in each program. In the last stage, student admission numbers were used as a sampling frame for the actual random sampling of the individual students who were selected to participate in the study from each of the programs.

Pretesting of data collection instruments: A pilot study was done in Chepkoilel campus among students doing health related courses. The Bachelor of Science in Human Nutrition was chosen because it is one of the health-related courses. The University does not offer Bachelor of Science in Nursing and Bachelor of Medicine & Surgery. The purpose of the pilot study was to pre-test the questionnaires to ensure that the questions were able to capture the information required to answer the research questions. The data collection instruments were revised accordingly before the main study. The main language in the questionnaire was English.

Data collection: Data on substance abuse and sexual behavior was collected using a self-administered questionnaire. The data collected included the following; social demographic characteristics, information on the use of various drugs including alcohol, tobacco, stimulants, marijuana, cocaine and heroin. Data on sexual behavior of the students included the age at first sexual intercourse, number of sexual partners in the last one year, frequency of condom use with regular partners and irregular partners and the likelihood of engaging in sex while under the influence of alcohol.

The pre- tested questionnaires were administered to the students by the trained research assistants after a class. Each of the students could complete the questionnaire and return it to the research assistant immediately to reduce the non-response rate.

Data analysis: The data was entered and analyzed using Stata software version 13. Univariate categorical variables were

analyzed in frequency and percentages and presented in tables. The univariate continuous variables were analyzed using measures of central tendency and dispersion. Bivariate categorical variables were analyzed using chi-square test. Proportions of students using various drugs were reported and compared using confidence intervals. Multivariate logistic regression was used to establish association between different social demographic factors and substance use. The level of significance was set at 0.05 corresponding to the 95% confidence interval. *Ethical considerations*: Approval to conduct this study was obtained from Moi University College of Health Sciences /Moi Teaching and Referral Hospital Institutional Research and Ethics Committee (IREC). Students were assured of confidentiality and anonymity for any information they give. Participation in the study was voluntary, free of coercion and written informed consent was obtained from the participants.

RESULTS

Social -Demographic Characteristics: A total of 376 (out of 383) students from the Bachelor of Science in Nursing and Bachelor of Medicine programs completed and returned the questionnaires. More than half 64.3% (242/376) of these were from the Bachelor of Medicine program while 35.6% (134/376) were from the Bachelor of Science in Nursing program.   Almost three quarters of the students 72.2% (271/376) were Protestants, 20.5% (77/376) were Catholics and the rest were Muslims or had no religious affiliation. Majority of the students were between 21 to 25 years of age. The mean age of the respondents was 22 years (Figure 1).
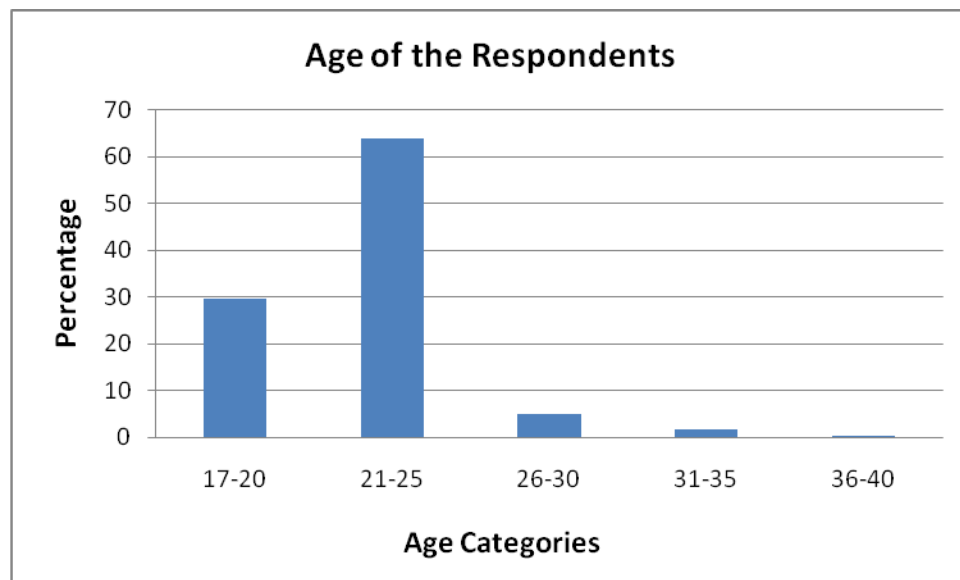

Figure 1: Respondents Age

Prevalence of Alcohol consumption and Drug Abuse: The univariate analysis indicates that more than a third 37% (139/376) of the students interviewed had ever consumed

alcohol and or other drugs. Among those who had ever taken alcohol, slightly over one quarter 35.6% (49/139) of the students were from the nursing program while 64.4% (90/139) were medical students. More of the male students 56.8% (79/139) than females 43.2% (60/139) use/abuse alcohol and other substances. Majority of those who admitted taking alcohol/other drugs had started this practice at the age of 18 years. Substance use/abuse increases with age, peaks at 24yrs (51.5% (72/139) of respondents who said yes). The most commonly abused drugs besides alcohol are cigarettes followed by miraa then Cannabis (Table 1).

Table 1

Commonly Abused Substances/Drugs

Type of Substance/Drug	Frequency	Percent
Cigars.	38	10.1
Miraa	36	9.6
Cannabis	32	8.5
Tranquilizers	9	2.4
Inhalants	7	1.8
Cocaine	5	1.3

Table 2

Commonly Abused Drugs (Prevalence by Sex)

Type of Substance/Drug	% Among Males	% Among Females
Cigars	53.0%	47.0%
Miraa	53.5%	46.5%
Cannabis	53.3%	46.7%
Tranquilizers	51.8%	48.2%
Cocaine	51.2%	48.8%
Heroine	51.2%	48.8%
Narcotics	51.3%	48.7%

Table 2 shows that prevalence of using drugs is consistently higher among the male students compared to their female counterparts.

Reasons Cited by Students for Using Alcohol and Drugs: The most commonly cited reasons for engaging in alcohol consumption and other drug use were; alcohol makes them relax, followed by peer pressure, having fun, coping with stress, study related stress and idleness (Figure 2)
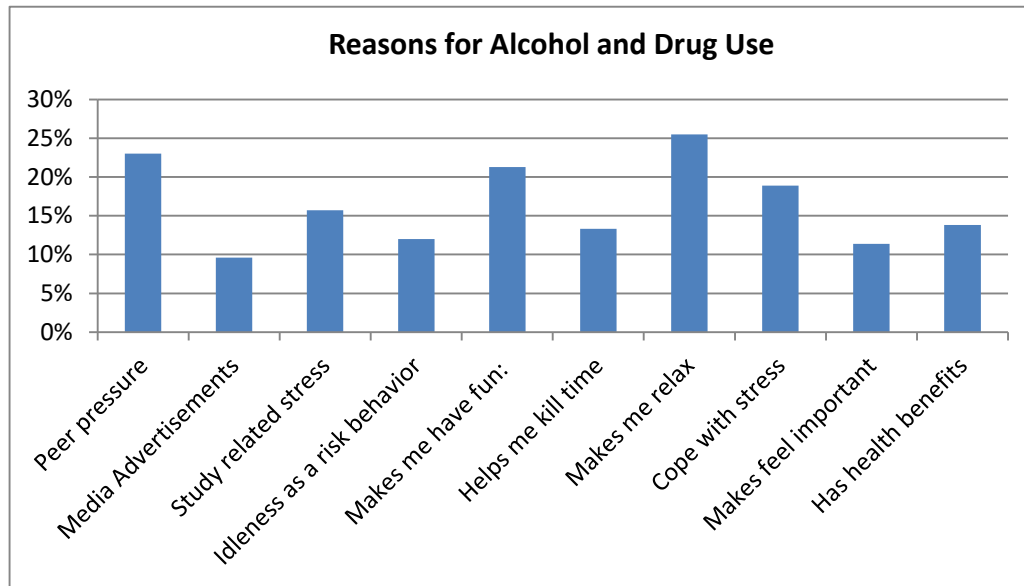
Figure 2: Reasons cited for using alcohol and Drugs

Factors Associated with Alcohol/Substance Abuse: The chi-square test was used to ascertain any association (s) between drinking and some of the demographic variables.

Religion (X^2=22, P: 0.001), gender (X^2=5.88, P:0.01) and Student residence (X^2 = 9.76, P: 0.008) have a strong association with alcohol use (Table 3).

Table 3

Factors Associated with Alcohol/Substance Abuse (Chi-Square)

Variable	Chi-Square (X^2)	P. Value
Religion	22.0	0.001
Gender	5.88	0.01
Student Residence	9.76	0.008

A univariate logistic regression model was fitted to give the direction of this association. The main factors identified were; Gender; female students have the least odds of using/abusing drugs (unadjusted O.R: 0.59, P. 0.016, C.I 0.389 - 0.906), Religion; Muslim students have the least odds of drinking alcohol/abusing drugs compared to other

religions (unadjusted O.R: 0.12, P. 0.003, C.I 0.055 – 0.562) and place of residence; students living in rented rooms have almost four times higher odds of drinking alcohol than their counterparts living in the University hostel (Unadjusted O.R: 3.76, P.0.129, C.I 0.556 – 22.955) (Table 4).

Table 4

Unadjusted Logistic Regression model for Factors associated with Substance Abuse

Variable	Sig.	Unadjusted O.R	95% C.I. for Unadjusted O. R	
Gender				
Males (Ref)		1		
Females	0.016	0.59	0.389	0.906
Religion				
Protestants (Ref)	0.005	1		
Catholics	0.054	0.339	0.115	1.017
Muslims	0.003	0.175	0.055	0.562
No Religion	0.772	1.270	0.252	6.400
Others	0.052	0.127	0.016	1.021
Student Residence				
University Hostels (Ref)	0.012	1		
Rented Room	0.129	3.76	0.556	22.955
Parent/Relative	0.850	1.2	0.145	8.519

Finally, to control for confounders, an adjusted multi-variable logistic regression model was fitted. Gender; Females have 50% (A.O.R; 0.518, P; 0.005 C.I.0.373 - 0.908) less odds of drinking compared to their male counterparts. Religion; Muslim students have 83% (A.O.R; 0.17, P; 0.005 C. I 0.046 – 0.504.) less odds of abusing substances compared to the other religions. Students living in their own rented rooms have four times higher odds of drinking than their counterparts who live in the University hostels (A.O.R; 4.58, P; 0.15, C.I 0.0556 – 22.955) (Table 5).

Table 5:

Adjusted Multivariate Logistic Regression model for Factors associated with substance Use/Abuse

Variable Name	Sig.	Adjusted O.R	95% C.I. for Adjusted O.R.	
Gender				
Males (Ref)		1		
Females	0.007	0.518	0.373	0.908
Religion				
Protestant (Ref)	0.006	1		
Catholic	0.048	0.310	0.097	0.927
Muslim	0.005	0.173	0.046	0.504
No Religion	0.624	1.533	0.219	5.917
Others	0.103	0.135	0.020	1.399
Student Residence				
University Hostels (Ref)	0.019	1		
Rented Room	0.158	4.581	0.556	22.955
Parent/Relative	0.242	1.144	0.145	8.519

Association between alcohol abuse and risky sexual behavior: We defined risky sexual behavior as; having sex with more than one partner and or unprotected intercourse. About 37.0% (51/139) of those who have ever taken alcohol/other drugs admitted having also had penetrative intercourse. Mean age for sexual debut among these students was 11 years. Slightly less than a quarter of the students had more than one sexual partner in the last twelve months. About 16% of the students who engaged in sexual intercourse did not use condoms at all despite not knowing their partner's HIV status, 12.5% used condoms sometimes. About 5.9% of the students admitted to having got an unwanted pregnancy or impregnated their partner.

There was a strong association between alcohol use and engagement in risky sexual behavior. The study also established a strong significant relationship between taking alcohol and age at first intercourse (X^2 =20.9, P value: 0.0001). In addition, the study showed a strong association between abusing substances and having multiple sexual partners (X^2 = 25.25, P; 0.001). Sexual intercourse without condoms was highly associated with substance use/abuse (X^2=20.4, p: 0.001).

Other effects of Alcohol and Drug Abuse: Students who drink alcohol/abuse substances are more likely to suffer other effects such as quarrels (16.8%), fights (12%), accidents /Injuries (12.2%), loss of money or other valuables (19.4%), problems with relationships with friends, relatives and teachers. Others include; poor performance in school, troubles with police and admission in hospital.

DISCUSSION

Alcohol and substance abuse is on the increase among students in the Universities and tertiary institutions [15, 32]. Given that alcohol and drug abuse have substantial negative effects on the affected students, there is need to make this issue a priority. As the practice of drinking alcohol and abusing drugs continues to become rampant, the students in health-related professions are not likely to be left behind yet this is the group of professionals that will be charged with ensuring that this unhealthy behaviour is deterred. Current evidence from research reports indicates that although alcohol abuse has been lower in Africa compared to Europe and America, the practice is slowly gaining root among the young people in Africa due to various reasons [4]. Although there is some attention being directed towards this area in terms of research, most of the studies have been conducted among students doing other courses apart from the medical studies. Therefore, there is a dearth of information regarding alcohol and substance abuse among students in the health-related courses.

Results from this study indicate that the prevalence of alcohol use and substance abuse among the students in the College of Health Sciences remains relatively high at 37% and is likely to increase. However, this is still much lower than the prevalence stated in a study conducted among medical students elsewhere [34]. It is also lower than the general prevalence among students in local universities and other tertiary institutions within Kenya [15, 32, 33]. Nevertheless, this still remains a cause for concern because previous studies have shown that medical students engaged in drinking may have impaired counselling skills towards patients with alcoholic disorders [30]. This could translate

ultimately into dearth or paucity of health professionals to cater/counsel any group of people affected with alcoholism.

The study showed more male students drink alcohol and abuse other drugs compared to the female students. This is corroborated by other studies which have shown the male sex as one of the factors that is associated with drinking alcohol and general drug abuse [15, 32].

Majority of those who admitted taking alcohol had started this practice at about the age of 18 years. This is around the age when students enter the University in Kenya. After entering the university, there is an overwhelming sense of freedom with new friends who exert influence on their decisions. This has been shown in similar study which reported that campus life influences students to take on new habits such as drinking [35]. Consumption of alcohol increases with age peaking at 24yrs (51.5% of respondents who said yes). This finding is similar to the results from studies conducted elsewhere that have also shown age as a predictor of alcohol/substance among young people [36].

The most cited reasons for engaging in alcohol consumption and other drug use was the need for relaxation and peer pressure. However, some students drink alcohol as a way of having fun, others used it to relieve study related stress, and idleness and yet some are influenced because of the constant media advertisements. Atwoli, Mungla [15] cites similar reasons for engaging in alcohol and drug use in a study he conducted among four tertiary institutions in Eldoret. Students cited enhancing their mood as well as relieving their stress as the main reasons for drinking in a study conducted by Iconis [37].

Various factors were found to be associated with alcohol consumption and drug abuse among students at the College of Health Sciences. For instance, sex was strongly associated with drinking alcohol. However, females have 50% lower odds of drinking alcohol compared to their male counterparts. This finding is similar to several previous studies [15, 32-34]. This is probably attributed to the fact that the cultural upbringing of females in Africa has defined the woman's place to be lower than that of the man and the fact that they are not allowed to engage in what is viewed as culturally inappropriate behavior for women such as drinking.

Religion was also strongly associated with alcohol use/abuse. Muslim students have 83% less odds of drinking compared to students from other religious groups. These findings are also in consonant with results from similar studies done among students in the US state universities where religion was found to be the major predictor of alcohol consumption (Roman Catholics and those who don't have any religious affiliations being the greatest consumers of alcohol) [38]. This is not surprising since religion has long been associated with good morality and forbidding some practices that can lead to erosion of the social fabric and morals. Thus students of the Islamic religion that completely prohibits its followers from consumption of any alcoholic drinks are more likely to practice what they have been taught.[39] while the students of the Catholic religion that is liberal with consumption of alcohol engage freely in the use of alcoholic beverages.

The type of residence was also strongly associated with drinking alcohol/substance abuse. Students living in their own rented rooms have four times higher odds of drinking than their counterparts living in the University hostels. The results of previous reports on correlates of drinking among University students have brought out type of residence as major predictor of students' drinking habits[37, 40]. Students living off

campus on their own without parents are more likely to drink than their counterparts living on campus hostels and the least likely are those living with their parents [41].

Drinking alcohol/abusing drugs has an association with engagement in risky sexual behavior such as multiple sexual partners and engaging in sex without any protection such as condoms. This finding is supported by evidence from other studies that have shown alcohol and drug abuse as the main precipitant for engagement in risky sexual behavior [22, 42]. In a study conducted among students at Mbarara University, alcohol abuse at all levels was strongly associated with having multiple sexual partners and inconsistent condom use [42]. Irresponsible sexual behavior has previously been documented to result in very detrimental effects such as contracting sexually transmitted infections among them HIV/AIDS. Studies have shown that those students who engage in risky sexual behavior with multiple partners are more likely to contract diseases such as HIV/AIDS[26]. The other major consequence for engagement in risky sexual behavior is unwanted pregnancies which may end up in illegal abortions that may result in untimely deaths as well as early discontinuation of studies especially for the female students [9]. In this study, some of the students reported that their irresponsible sexual behavior resulted in unwanted pregnancies.

This study has shown that besides engaging in risky sexual behavior, students who drink alcohol/abuse substances were also more likely to suffer other bad effects such as frequent quarrels, fights, accidents /Injuries, loss of money or other valuables, problems with relationships with friends, relatives and teachers, poor performance in school, troubles with police and admission in hospital. This finding is supported by evidence from other studies which have reported similar findings [43].

CONCLUSION

In conclusion, substance abuse among students at the College of Health Sciences is moderately high and there is a likelihood for this vice to be perpetuated further by these students. The association between drug use and engagement in risky sexual activities increases the chances of students contracting HIV/AIDS. Behaviour change strategies should be designed to address this problem among students at the College of Health Sciences.

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