
Assessment of substance use and risky sexual behaviour among Haramaya University Students, Ethiopia

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To cite this article:

Andualem Derese, Assefa Seme, Chalachew Misganaw. Assessment of Substance Use and Risky Sexual Behaviour among Haramaya University Students, Ethiopia. *Science Journal of Public Health*. Vol. 2, No. 2, 2014, pp. 102-110. doi: 10.11648/j.sjph.20140202.19

Abstract: Background: Substance abuse and problems arising from it are increasing all over the world, and currently together with HIV/AIDS epidemic, become one of the most threatening and challenging social and public health problems. University students are more vulnerable to wider sexual and reproductive health (SRH) and HIV/AIDS problems due to new environment with poor protection, age and the need to explore life, peer pressure and absence of proactive programs. Objectives: This study assessed the prevalence of substance use and its association with risky sexual behavior among Haramaya University students. Methods: A cross-sectional survey was carried out among 764 randomly selected Haramaya University undergraduate students from December 2010 to January 2011 using self-administered questionnaire. Descriptive statistics was used to describe the study population and cross-tabulation was done to see the association between dependent and independent variables. Logistic regressions with 95% confidence intervals were calculated to determine independent predictors of risky sexual behavior. Result: Among 725 participants, 390 (53.8%) reported having used at least one substance in their lifetime. The most commonly used substance was alcohol (41.7%) followed by khat (30.3%), cigarette (11.3%) and illicit drugs (3.9%). Out of the total respondents, 243 (33.5%) of students had sexual experience. Among sexually active, 28(11.5%) had multiple sexual partners in the last three months and 29(16.3%) of males have sex with commercial sex workers. One hundred forty nine (61.6%) of sexually active students used condoms last time when they had sex. This figure decreases to 55.7% when we come to consistent condom users. Use of Khat, Alcohol and Cigarette was significantly and independently associated with risky sexual activities with AOR (95% CI) of 2.58 (1.58, 4.22), 2.46 (1.52, 3.98) and 2.22 (1.19, 4.14) respectively. Conclusion and Recommendations: The prevalence of substance use among Haramaya university students was high. Use of Khat, Alcohol and Cigarette was significantly associated with risky sexual activities. Awareness creation activity on importance of safer sex and consequences of substance together with taking the necessary disciplinary measure for those who break the rule and regulation set by the university is highly advisable.

Keywords: Substance Use, Risky Sexual Behaviors, University Students

1. Introduction

Natural chemical stimulants have long been used by people of diverse cultures without considering their costs. In recent years, researchers have begun to explore the intersection of alcohol or drug use and sexual “risk behaviors” – activities that put people at increased risk for STDs, unintended pregnancy, and sexual violence. Studies conducted indicate that drinking and illicit drug use often occurs in association with risky sexual activity.(1)

The global burden of substance use is substantial, accounting for 8.9% of productive life lost annually due to

disability and premature mortality, as measured in disability-adjusted life-years (DALYs). Among the ten leading risk factors in terms of avoidable disease burden, tobacco was fourth and alcohol fifth in 2000 and both remain high on the list in the 2010 and 2020 projections. Tobacco and alcohol contributed 4.1% and 4.0%, respectively, to the burden of ill health in 2000, while illicit substances contributed 0.8% (2).

As seen in many developing countries, substance misuse is becoming a growing problem in Ethiopia. Moreover, Students and staff at institutions of higher education are considerably at high risk of substance use. A study done on

cigarette smoking and khat chewing among college students in North West Ethiopia revealed 13.1 % life time prevalence rate of cigarette smoking and 26.7 % life time prevalence rate of khat chewing. In the study, prevalence of cigarette smoking was found to be 8.1 % and that of khat chewing 17.5 %. Forty six (31.7 %) of the life time smokers and 45.6 % of the life time chewers started smoking and chewing while they were senior secondary school students.(3)

The rapid mental, social, and cultural transitions that most students are now experiencing have created a breeding ground for increased and socially disruptive use of alcohol and drugs. Given the high prevalence of HIV/AIDS in the region and the increasing number of adolescents infected with HIV, an understanding of the role substance use plays in the spread of HIV/AIDS is crucial to prevention efforts of the disease among adolescent population.(4)

Students at higher institutions are considered to be fully aware of HIV /AIDS risks/preventive mechanisms and reproductive health (RH) issues. As a result, they are neglected of HIV/AIDS and RH interventions. However, on arrival at university, many students encounter new independence and freedom and are at risk to HIV infection. (5)

The aim of this study is, therefore, to assess the prevalence and associated factors of substance use and risky sexual behaviors among Haramaya University students. The paper also dealt how substance use is related to risky sexual behavior. The study is crucial for initiating and strengthening proper educational and interventional programs on substance use and risky sexual behaviors among university students.

2. Objectives

- General Objective: To assess the prevalence of substance use and magnitude of risky sexual behaviour and its association with substance use among Haramaya University students

2.1. Specific Objectives

- To determine the prevalence of substance use among Haramaya University students
- To assess the magnitude of risky sexual behavior among Haramaya University students
- To identify factors associated with risky sexual behavior
- To assess the association between substance use and risky sexual behavior among Haramaya University students

3. Materials and Methods

The study was conducted in Haramaya University. It is located 510 Km to the East of Addis Ababa in between Harar and Dire Dawa towns. It is one of the oldest

Universities next to Addis Ababa University in the country. There are two campuses in the University (main campus and College of Health Sciences).The total students enrolled in the university in 2010/2011 academic year were about 13,800 in both undergraduate and post graduate programs. (19)

A cross-sectional study was conducted to determine the prevalence of substance use and its association with risky sexual behavior among Haramaya University undergraduate students from December 2010 to January 2011.

All undergraduate students who are registered for 2010/11 academic year in Haramaya University (both campuses) were considered for the study. Regular undergraduate students, who were not blind and who were not critically sick (to the extent of unable to read and write) during the time of data collection were included. Postgraduate, Extension, summer and distance education students were excluded.

Sample size was determined using single population proportion formula for cross-sectional study. Taking current prevalence of khat chewing 17.5 from study done among college students in north west Ethiopia(3) to obtain maximum sample size at 95 % certainty and a maximum discrepancy of ± 4 % between the sample and the population.

Adding 10% non-response rate, sample size became 347. Since the sampling was multistage, design effect of 2 was taken, and the total sample size was 764.

Regarding sampling procedure, first, students were divided in to two by campuses in to main campus (Haramaya) and Harar Campus. Then, they were further stratified based on year of study. Finally, systematic sampling technique was applied to select individuals in each year of study from the list of students' name in their respective batch. Students from each year of study were selected proportionally to their class size.

Data was collected using pretested structured self-administered questionnaire prepared in English and translated to Amharic. Dependent variables of this study included consistent condom use, number of sexual partner, age at first sexual intercourse and sex with commercial sex workers

Data was entered and cleaned using Epi-Info version 3.5.1. SPSS version 16 was used for statistical analysis. Descriptive statistics was used. Bi-variate and multivariate analysis were employed in order to infer associations and predictions. Odds interval which doesn't contain 1 was considered statistical significance.

Ethical clearance was obtained from Haramaya University. Participation was voluntary and they can withdraw from the study at any time without explanation. Full written informed consent was obtained from all participants.

3.1. Operational Definition

Substances: Any non-medical drugs used by study subjects such as alcohol, khat, tobacco, Cannabis, heroin, cocaine, and marijuana to alter their mood or behavior.

Life time prevalence of smoking: the proportion of students who had ever smoked cigarettes in their life time

Lifetime prevalence of alcohol drinking: the proportion of students who had ever used alcoholic drinks in their life time irrespective of the amount and type

Life time prevalence of khat chewing: the proportion of students who had ever chewed khat in their life time

Current prevalence of cigarette smoking: the proportion of students who are smoking cigarettes within 3 months preceding the study

Current prevalence of khat chewing: the proportion of students who are chewing khat within 3 months preceding the study

Current prevalence of alcohol drinking: the proportion of students who are drinking alcohol within 3 months preceding the study

Sexual risk behavior: sexual risk behaviors that students do. In this study it is defined as one of the following: not using condom (inconsistent use of condoms), having multiple sexual partner, starting sex before age 18 years and sex with commercial sex workers.

Consistent condom use: use of a condom during every sexual encounter

4. Result

Out of the total 764 students participated in the survey, questionnaires from 725 respondents were considered for analysis making the response rate 94.99%

Of the total 725 respondents, most, 706(97.6%) were youths and their age ranges from 18 to 27 years with a mean age of 21 and SD of ± 1.68 years. From the total participants, 438 (60.4%) were males. The previous residence for majority of respondents, 71% (519) were from urban setting and majority (85.2%) attended a public/governmental high school. Forty percent (294) of the students get a monthly pocket money of 100 to 299 birr. Table 1 shows the socio-demographic characteristics of the students.

Table 1. Socio demographic characteristics of Students, Haramaya University, 2010/11

Characteristics	Frequency (n=725)	Percentage
Sex		
Male	438	60.4
Female	287	39.6
Age group		
≤18	36	5.0
19-24	670	92.4
>24	19	2.6
Mean \pm SD=21 \pm 1.68		
Year		
Year I	246	33.9
Year II	197	27.2
Year III	201	27.7
Year IV & above	81	11.2
Religion		
Orthodox	375	51.7

Characteristics	Frequency (n=725)	Percentage
Muslim	176	24.3
Protestant	142	19.6
Other	32	4.4
Ethnicity		
Oromo	307	42.3
Amhara	209	28.8
Tigre	59	8.1
Gurage	44	6.1
Others	106	14.6
Marital status		
Never Married	670	92.4
Ever Married	55	7.6
School type		
Public high school	618	85.2
Private high school	78	10.8
Missionary high school	29	4.0
Pocket money(birr)		
None	47	6.5
<100	160	22.1
100-299	294	40.6
300-499	154	21.2
≥500	70	9.7
Residence		
Urban	519	71.6
Rural	206	28.4

4.1. Substance Use Behavior

The study revealed that 30.3% of the students chewed khat at least once in their lifetime and 20.3% reported that they currently chew khat (in the last 3 months). The frequency among males (39.7%) was higher compared to females (16.0%). The respondents were further asked their chewing pattern. The response indicated that about half of them (49.5%) chew khat occasionally (2-3 times per week) and 28.2% of respondents claimed chewing hat always (everyday).

Concerning alcohol drinking habits, 41.7% reported that they drank alcohol at least once in their lifetime while 17.5% said that they drank alcohol in the last three months. Among alcohol users, the majority (81.5%) were using alcoholic drinks occasionally. (See Tables 2 and 3)

Table 2. Proportion of students who ever used substances (khat, alcohol, cigarette and illicit substances)Haramaya University, 2010/11

Type of substance	Number	Percent
Khat	220	30.3
Alcohol	302	41.7
Cigarette	82	11.3
Illicit substance	28	3.9

Table 3. Prevalence of current substance use (in the last 3 months) among Haramaya university students, 2010/11

Type of substance	Number	Percent
Khat	147	20.3
Alcohol	127	17.5
Cigarette	66	9.1
Illicit substance	13	1.8

4.2. Reasons for Substance Use

Different reasons were mentioned by students for the use of drugs. The reasons mentioned for khat ever use were: to increase work performance (27.5%), to get personal pleasure (20.5%), to stay awake (17.5%), due to peer pressure (8.9%), to get relief from tension (7.5%) and other reasons (18.1%).

Among 302 students who reported taking alcohol, 220(66.9%) used alcohol to get personal pleasure, 56(18.5%) to get relief from tension and 51(16.9%) took it due to peer influence.

Reasons for cigarette smoking were: to get personal pleasure (43.9%), to get relief from tension (39.0%), to stay awake (30.5%), to increase academic performance (30.5%) and peer influence (22.0%).

Reasons for illicit drug use were: to get personal pleasure (57.2%), peer influences (32.1%), to stay awake (14.3%) and to increase pleasure during sexual intercourse (10.7%).

4.3. Factors Associated with Substance Use

Bivariate association showed a statistically significant association between lifetime prevalence of substance use and sex, year of study, religion and frequency of going to

church or mosque. After controlling for the effects of potentially confounding variables using multivariate logistic regression, sex, year of study and religion were found to be statistically significant predictors of lifetime substance use. Being male had strong association with lifetime substance use of at least one substance [AOR (95% CI) =5.06 (3.44, 7.43)]. The odds of substance use behavior increases with year of study; fourth year and above students having a greater odds [AOR (95% CI) =2.46 (1.33, 4.58)] followed by third year students [AOR (95% CI) =1.56 (1.02, 2.41)]. There was no statistically significant association between first and second year students with respect to substance use.

In the bivariate analysis, being a follower of Muslim and protestant religions was showed to have less odds of having substance use. This was reversed in the multivariate analysis and being a follower of Muslim religion had an increased odds of using substances [AOR (95% CI) =2.26 (1.49, 3.42)] while being a follower of protestant religion was protective against substance use [AOR (95% CI) =0.35 (0.20, 0.59)]. The association between frequency of going to church or mosque and lifetime substance use disappears in the multivariate analysis. . See table 4

Table 4. Lifetime Substance use variation with Socio-Demographic variables, Haramaya University, 2010/11

Characteristics	Lifetime substance use			
	YES	NO	Crude OR (95% CI)	AOR (95% CI)
Campus				
Main	341	284	1.25 (0.81, 1.90)	1.20 (0.74, 1.95)
Harar	49	51	1.00	1.00
Sex				
Male	281	157	2.92 (2.14, 3.97)*	5.06 (3.44, 7.43)*
Female	109	178	1.00	1.00
Year of study				
1 st year	121	125	1.00	1.00
2 nd year	93	104	0.92 (0.63, 1.34)	0.89 (0.58, 1.35)
3 rd year	122	79	1.59(1.09, 2.32)*	1.56 (1.02, 2.41)*
4 th & above	54	27	2.06(1.22, 3.49)*	2.46 (1.33, 4.58)*
Religion				
Orthodox	234	141	1.00	1.00
Muslim	92	84	0.66 (0.45, 0.94)*	2.26 (1.49, 3.42)*
Protestant	41	101	0.24 (0.16, 0.37)*	0.35 (0.20, 0.59)*
Others	23	9	1.54 (0.69, 3.42)	2.66 (0.62, 11.43)
Frequency of going to church/mosque				
Everyday	134	122	1.00	1.00
At least once a week	199	191	0.94 (0.69, 1.30)	0.24 (0.06, 1.87)
At least once a month	22	10	2.00 (0.91, 4.39)	0.33 (0.09, 1.15)
At least once a year	12	6	1.82 (0.66, 5.00)	0.68 (0.15, 3.02)
Never	23	6	3.49 (1.37, 8.85)*	0.42 (0.08, 2.03)
Marital status				
Never married	364	306	1.00	1.00
Ever Married	8	10	0.67 (0.26, 1.72)	1.29 (0.67, 2.49)
Residence				
Urban	284	235	1.14 (0.82, 1.57)	1.37 (0.92, 2.03)
Rural	106	100	1.00	1.00
School type				
Public High school	333	285	1.75 (0.83, 3.70)	0.96 (0.39, 2.31)
Private High school	45	32	2.10 (0.89, 4.98)	1.14 (0.42, 3.10)
Missionary High school	12	18	1.00	1.00

*Statistically significant at 95% CI

4.4. Sexual Behaviors of Respondents

Out of the total respondents, 243 (33.5%) of students had sexual experience. Of the 243 sexually active students, 179 (73.7%) were males and 64 (22.3%) were females. The median age at first sex for both males and females were 18 years with ranges from 14 to 24 years and with a mean age of 18.56 years.

From the 243 sexually experienced respondents, 177(72.8%) had their first sex before joining the university and the rest 66(27.2%) respondents after joining the university. Among the respondents who had sex after joining the university, 51(77.3%) had their first sex outside the university compound and the rest 15(22.7%) inside the university compound. The main reasons for initiating sex were related to personal interest or curiosity 103(42.4%), Promising word from partner for marriage 58(23.9%), peer pressure 52(21.4%), marriage 18(4.9%), sex for exchange of money 5(2.1%), forced sex 4(1.6%), to pass examination 3(1.2) and other reasons 8(2.5%).

The majority of the sexually experienced students (83.1%) had their first sex with their girlfriends/ boyfriends, 18(7.4%) with stranger, 18(7.4%) with their spouse, 6(2.5%) of males with commercial sex workers and 4(1.6%) of the respondents had their first sex with their teachers.

From 243 sexually active students, 160 (65.8%) had at least one of the risky sexual behaviors. i.e. 28(11.5%) had multiple sexual partners in the last three months, (108) 44.3% respondents use condom inconsistently, 86 (35.3%) had started sexual intercourse before the age of 18 years and 29(16.3%) of males had sex with commercial sex workers. The most common reason cited for not using condom was trust on partner (38.3%), followed by hating condoms (27.7%) and in love with partner (21.3%).

Among the sexually active students who were asked if they had symptoms of STI (genital discharge or ulceration), 10(4.1%) responded that they had the symptoms. From these students that had these symptoms, 6 sought medical care for the symptom they had and 4 of them ignored it.

Regarding use of contraceptive methods last time they had sexual intercourse, majority (72%) had used and the remaining 44(18.0 %) didn't used any. Pertaining the type of contraceptive methods, 132(54.3%) used condom, 25(10.3%) used pills, 18(7.4%) used Depo-Provera and 24(9.9%) used other methods. Among 64 sexually active female students, 15(23.1%) had once been pregnant and 1 student became pregnant twice. Concerning the outcome of pregnancy, 13(81.2%) ended in abortion whilst the rest 3 gave birth.

4.5. Factors Associated with Risky Sexual Behavior

Bivariate association was made among different variables and showed a statistically significant association between sexual experience and sex. In addition use of substances like Khat, alcohol, illicit drugs and cigarette smoking were found to be significantly associated with

having sex. Cigarette smokers had seven times more chance of having multiple sexual partners when compared to non-smokers (COR=6.96, 95%CI=2.69, 18.00). No factor had statistically significant association with age of sexual initiation.

Table 5. Percentage distribution of respondents by reported sexual practice, Haramaya University, 2011

Characteristics (n=725)	Number (%)	Total (%)
Ever had sex		
Yes	243	33.5
No	482	66.5
When was first sex		
Before joining university	177	72.8
After joining university	66	27.2
Age at first sex		
<18 years	86	35.4
≥18 years	157	64.6
Reasons for first sex		
Marriage	12	4.9
Personal desire	103	42.4
Peer pressure	52	21.4
Promising word from partner	58	23.9
For financial purpose (for money)	5	2.1
For passing examination	3	1.2
Other	10	4.1
First sex with whom		
Spouse	13	5.3
Boy/Girlfriend	202	83.1
Teacher	4	1.6
Stranger	18	7.4
CSW (for males only)	6	2.5
Number of sexual partners (lifetime)		
1 person	134	55.1
2 persons	45	18.5
3 or more people	64	26.3
Contraceptive method used during last intercourse		
None	44	18.1
Pills	25	10.3
Condoms	132	54.3
Injectable	18	7.4
Other methods	24	9.9
Number of pregnancy (females)		
Never been pregnant	49	75.4
1	15	23.1
2 or more	1	1.5
Outcome of pregnancy		
Live birth	3	18.8
Abortion	13	81.2
Genital symptom of STI		
Yes	10	4.1
No	233	95.9
Sex with casual partner		
Yes	45	18.6
No	197	81.4
Sex with commercial sex worker (males)		
Yes	29	16.3
No	149	83.7
Sex for economic benefit (females)		
Yes	10	15.6
No	54	84.4

All variables that have association (at significance level of 0.25) with the outcome variables in bivariate analysis were included in the multivariate regression model. After controlling for the effects of potentially confounding variables using multivariate logistic regression, being male and substance use such as khat chewing, alcohol drinking and cigarette smoking were found to be significant associated with risky sexual behavior. The odds of performing risky sex among males were 1.9 times higher

than that of females (AOR=1.89, 95% CI=1.18, 3.04). There was no significant association between risky sex and other socio-demographic variables in this study. Khat chewing had a higher odds of risky sexual behavior with (AOR= 2.58, 95% CI=1.58, 4.22). Alcohol drinking and cigarette smoking also increase the odds of risky sexual behavior with odds of (AOR=2.46, 95% CI=1.52, 3.98) and (AOR=2.22, 95% CI=1.19, 4.14) respectively. (Table 6 and 7)

Table 6. Association of socio-demographic variables with risky sexual behavior of Haramaya university students.

Variables	Risky sexual behavior		COR (95% CI)	AOR (95% CI)
	Yes (%)	No (%)		
Campus				
Main	147 (91.9)	72(86.7)	1.63 (0.95, 2.80)	1.23 (0.65, 2.33)
Harar	13 (8.1)	11 (13.3)	1.00	1.00
Sex				
Male	123(76.9)	56 (67.5)	2.56 (1.75, 3.75)*	1.89 (1.18, 3.04)*
Female	37(23.1)	27 (32.5)	1.00	1.00
Year of study				
1 st year	53 (33.1)	21 (25.3)	1.00	1.00
2 nd year	44 (27.5)	24 (28.9)	1.04 (0.67, 1.62)	1.23 (0.73, 2.05)
3 rd year	41(25.1)	24 (28.9)	0.99 (0.64, 1.53)	0.81 (0.48, 1.35)
4 th & 5 th year	22 (13.1)	14 (16.9)	1.58 (0.91, 2.73)	0.84 (0.42, 1.68)
Religion				
Orthodox	68 (42.5)	51 (61.4)	1.00	1.00
Muslim	45 (28.1)	16 (19.3)	1.38 (0.91, 2.09)	1.27 (0.71, 2.27)
Protestant	30 (18.8)	11 (13.3)	1.16 (0.73, 1.83)	1.76 (0.99, 3.12)
Others	17 (10.6)	5 (6.0)	2.55 (0.88, 7.36)	5.52 (0.95, 15.6)
School type				
Public high school	138 (86.2)	76 (91.6)	1.00	1.00
Private high school	19 (11.9)	3 (3.6)	0.93 (0.54, 1.62)	2.42 (0.66, 8.90)
Missionary high school	3 (1.9)	4 (4.8)	0.44 (0.15, 1.28)	0.58 (0.11, 2.97)

Table 7. Association of substance use with risky sexual behaviour of Haramaya university students

Variables	Risky sexual behaviour		COR (95% CI)	AOR (95% CI)
	Yes (%)	No (%)		
Khat ever use				
Yes	91 (56.9)	42 (50.6)	4.99 (3.49, 7.15)*	2.58 (1.58, 4.22)*
No	69 (43.1)	41 (49.4)	1.00	1.00
Alcohol ever use				
Yes	93 (58.1)	26 (31.3)	2.92 (2.06, 4.13)*	2.46 (1.52, 3.98)*
No	67 (41.9)	57 (68.7)	1.00	1.00
Tobacco ever use				
Yes	43 (26.9)	15 (18.1)	6.77(4.15,11.04)*	2.22 (1.19,4.14)*
No	117 (73.1)	68 (81.9)	1.00	1.00
Illicit substance ever use				
Yes	19 (11.9)	5 (6.0)	12.2 (4.8, 30.6)*	2.60 (0.87, 7.73)
No	141 (88.1)	78 (94.0)	1.00	1.00

5. Discussion

In this study an attempt has been made to assess the prevalence of different substance, magnitude of risky sexual behaviors and the association between substance use and risky sexual behavior.

5.1. Substance Use

The overall prevalence of "ever used drug" for at least one "drug" is 53.8%. The most commonly used drugs in descending order are: alcohol (41.7%), khat (30.3%),

cigarette (11.3%) and other illicit substances (3.9%). This is lower than a similar study on four Kenyan universities which was 69.8% (20) and Nigerian high school students.(21)

In this study the current prevalence of khat chewing was found to be 20.3%, which is comparable with study done among university students in North West Ethiopia, 17.5% (3) but lower than the study among Jimma University staffs which was 30.8%. (22)

The reasons given by the study participants for chewing khat were to increase academic (work) performance, to get

personal pleasure, to stay awake and due to peer pressure. This is in line with other researches done in Jima, Gondar and Butajira. (3, 11, 22)

The lifetime prevalence of khat chewing was 30.3%. This result is slightly lower than the result of study done on Jimma university medical students (23), but higher than college students in north west Ethiopia (3) and Jazan district of Saudi Arabia(24).

The prevalence rate of lifetime alcohol use in this study was 41.7%, which is slightly higher than Jima university medical students(23). It is apparent from the lifetime prevalence data that very few students had tried illicit drugs. This might be due to students didn't get these illicit drugs easily, and the possession and use of these drugs results in penalty under the law of the country.

5.2. Risky Sexual Behaviors

The mean age of sexual initiation (18.2 years) were comparable with other studies done among youths in Dire Dawa town and AAU students. (25, 26) However, the median age at first sexual debut of this study is greater almost by two years than the national survey result of EDHS (2005) which is 16.1 years.(27). This might be due to the difference in educational status of students with the general population. In this study, 33.5% of the participating students admitted having sexual experience which accounts 40.9% for males and 22.3% for females. This result is much lower than study done in GCMS but similar to the study among AAU students (25, 28).

The condom use rate during last intercourse among those sexually active students is 61.6%, but consistent condom use was reported by 55.7%. The result is much higher when compared to a study done among students of Gondar college of medical sciences, where 6.4% students used condom consistently(28). Those students who get a pocket money of >100 birr used condom more than those who get < 100 birr.

Sex with commercial sex workers is reported by 16.3% of male students, which is higher than the study among Gondar medical science students which was 7.8%.

There was a significant and linear association between alcohol intake and risky sex with those using alcohol having about 2.4 times higher odds compared to those not using it. This might be due to the nature of alcohol in decreasing inhibitions, altering rational decision making and increasing risk taking behavior. This result is consistent with the study done among in-school and out-of-school youths in Ethiopia (13). Use of substances other than illicit drugs also associated with risky sexual activities. Khat chewing and tobacco use were significantly associated with risky sex. This result is similar to the findings of similar studies done in different setup (2, 13, 16, 23).

Studies showed that there is a strong association between khat chewing and alcohol consumption, and the combined use of both drugs had an amplifying effect on sexual risk behaviors that predispose to HIV and other STIs(12). The association between illicit substance use and risky sexual

behavior disappears in the multivariate analysis. The relationship of risky behavior and illicit substance use was strong in many literatures.(1, 4, 15) But absence of relationship between illicit drug use and sexual behavior in this study could be as a result of small sample size which leads to small number of users of illicit substance or under-reporting of the use of these substances by students because of cultural or legal issues.

6. Conclusions

The prevalence of substance use among Haramaya university students is high. In this study 41.7% of students drunk alcohol, 30.3% chew khat, 11.3% smoked cigarette and 3.9% of students used illicit drugs at least once in their lifetime. The study also showed that the majority of the students were engaged in unsafe and risky sexual practices. About 65.8% of sexually active students' had one of the risky sexual behaviours. The use of Khat, alcohol and tobacco products is significantly and independently associated with risky sexual behavior among Haramaya University students.

Recommendations

Based on the findings of the study the following recommendations are made:

- 1 Universities should inform their students, especially freshman students, about the health and socioeconomic problems associated with substance use.
- 2 Haramaya University administration should improve the security in the campus compounds to control the use of substances inside the campuses and take the necessary measures to minimize and prevent sexual activities in the campus compounds.
- 3 Intervention activities to bring about behavioral changes among the students on the danger of use of Khat, alcohol and other drugs are recommended.
- 4 Students should be encouraged to practice premarital abstinence
- 5 Consistent use of condom for sex before marriage regardless of partner characteristics should be encouraged among students.
- 6 Further study needs to be conducted to explore in to the association between substance use and HIV infection among different groups in Ethiopia.

Limitation of the Study

One of the limitations of this study comes from the fact that the data collection technique is self-administered. Self-reported information is subjected to reporting errors, missed values and biases. Beside, cross-sectional nature of study limits the study to predict casual associations.

List of Abbreviations/acronyms

AAU: Addis Ababa University.
 AOR: Adjusted Odds Ratio.
 AIDS: Acquired Immunodeficiency Syndrome.
 COR: Crude Odds Ratio.
 CSW: Commercial Sex workers.
 DALYs: Disability Adjusted Life years.
 EDHS: Ethiopian Demographic and Health Survey.
 GCMS: Gondar College of Medical Sciences.
 HIV: Human Immunodeficiency Virus.
 IRB: Institutional Review Board.
 Km: Kilometres.
 MSP: Multiple Sexual Partner.
 PI: Principal Investigator.
 RH: Reproductive Health.
 SPH: School of Public Health.
 STD: Sexually Transmitted Disease.
 VCT: Voluntary Counseling and Testing.
 WHO: World Health Organization

Competing Interests

The authors declare that they have no competing interests

Authors' Contributions

AD contributes in the design, data collection, and data entry and also made the data analysis, interpretation of the data and write up of the manuscript. CM contributed to the interpretation and write up of the manuscript. AS made intellectual review and approval of the paper. All authors critically revised the manuscript and have approved the final manuscript.

Acknowledgment

We would like to extend my thanks to the School of Public Health, College of Health Sciences of Addis Ababa University for financing the study. Our special thanks and sincere appreciation also go to Haramaya University administration and health center staffs as well as supervisors and study participants for contribution to the success of the data collection. Finally, we would like to forward our gratitude to my instructors and all other staffs of the School of Public Health, my friends and my family for their support and contribution in any ways in my study.

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