Full Length Research Article

PREVALENCE OF SUBSTANCE ABUSE AND ASSOCIATED FACTORS AMONG UNIVERSITY STUDENTS, TIGRAY, ETHIOPIA, 2016

*Haftay Gebremedhin, Gebremedhin Gebreegziabiher and Berhe Desalegn

Department of Public Health, College of Medicine and Health Sciences, Adigrat University, Ethiopia

ABSTRACT

Background: Substance abuse is the taking of substances or a deliberate use of substances for the purposes other than its intended purpose. It is estimated that 9% of the global population aged 12 or older are classified with dependence on psychoactive substance such as alcohol. Substance abuse among Ethiopia adolescents is considerably rising. Therefore this study aimed that to assess prevalence of substance abuse and associated factors among university students, Tigray, Ethiopia, 2016.

Methods: Institutional based cross-sectional study was employed among university students and the data was collected from Feb-June/2016 using a self-administered questionnaire. A total of 471 Students were selected from the selected colleges of the university using a multistage sampling technique. The collected data was coded, entered, cleaned and analyzed using SPSS version 20. Logistic regression model was used to determine prediction levels of independent variables to the outcome variables and a variable having $P<0.05$ was considered as statistically significant variable in all tests.

Results: A total of 471 students were included in the study and making a response rate of 96.8%. Of these, 57.2% were males. Students who are substance abuse were 43.9%. Their friends who take substances in school [AOR=2.54, 95% CI (5.42, 15.02)] and family member who use substances abuse [AOR=1.78, 95% CI (3.34, 8.37)] were the factors that lead for students to use substance abuse.

Conclusion: There exists a significant proportion of substance abuse among university students. So, strengthening the current substance abuse education program and further revising strategies for substance abuse risk reduction in university students should be considered.

INTRODUCTION

Substance abuse is the taking of substances or a deliberate use of substances for the purposes other than its intended purpose without the supervision of a physician or a medical practitioner (Odeside *et al*., 2006). Use of substances such as alcohol, chat and tobacco has become one of the rising major public health and socioeconomic problems worldwide. Globally, there were about 190 million substance abusers, out of these substance abusers, around 40 million serious illnesses or injuries were identified each year (Rapeah *et al*., 2008). It leads to decreased academic performance, increased risk of contracting HIV other sexually transmitted diseases, or other psychiatric disorders such as lethargy, hopelessness, and insomnia (Volkow *et al*., 2005).

*Corresponding author: Haftay Gebremedhin,
Department of Public Health, College of Medicine and Health Sciences, Adigrat University, Ethiopia

Chat and alcohol use is linked to unprotected sex, putting young people at risk of unwanted pregnancy, abortion and HIV/ ADIS infection (United Nations and drug abuse control *et al*., 1987). Several studies indicate that substance use among Ethiopia adolescents is considerably rising (Wechsler) Now days, alcohol and chat are widely consumed among high school and college students in Ethiopia. Of the young segment of the Ethiopian population, college and university students are the most at risk of using alcohol and other substances such as chat and tobacco. Most often stimulant medications are increasingly used by college and university students as a means to improve academic performance (Kassaye *et al*., 2011). Information on substance abuse and associated factors among university students in Ethiopia is a little known. Having good awareness towards substance abuse is one of the main factors that promote healthy behaviors and reduce risk-taking. This indicates that there is a need to have information about substance abuse among university population for curbing

future epidemic in the country and to meet the GTP-2. The findings of this study might be useful in designing health education programs strengthening of youth friendly health service clubs that are targeted at university and It will also help for policy makers working on substance abuse among university students and also important as background or baseline information for researchers who are interested in this area.

METHODS AND MATERIALS

The Study was conducted among Adigrat university students in Adigrat town. Adigrat town is the capital city of Eastern zone, Tigray regional state which is 118 km far from the capital city of Tigray and 900 km from Addis Ababa. Based on the 2007 national census conducted by the Central Statistical Agency of Ethiopia (CSA), Adigrat town has a total population of 57,588, of whom 26,010 are men and 31,578 women. Establishment of the university was on the year 2011. Currently the total area of the University is about 260 hectares of land in two campuses. Adigrat University has a total number of students 13,095 with six colleges namely; College of Engineering and Technology (CET), College of Natural and Computational Sciences (CNCS), College of Medicine and Health Sciences (CMHS), College of Agriculture and Environmental Sciences (CAES), College of Business and Economics (CBE) and College of Social Sciences and Humanities (CSSH).The current study was employed from February 1-June 21 2016 and data collection period was conducted on April, 2016. Institutional based cross sectional study was used. The source population were all regular students at Adigrat University. The study population were all regular students who are attending second year and above from the randomly selected of three colleges. All students registered as second year and above were included in the study and Students who were critically ill with visual impairment and absent during the study period were eexcluded from the study. Sample size was computed using single population proportion formula with the estimated population parameters of prevalence 16.7%, level of confidence 95%, margin of error 5% and design effect of 2 with 10% of none response rate were considered to get maximum sample size of 471. Multi-stage sampling technique was used to select the study participants. From the total of six colleges in the university, three colleges were selected using lottery method. After getting students list from the university registrar, sampling frame were developed. Accordingly, the total sample size was proportionally allocated to the size of classes and finally study subjects were selected using systematic sampling technique by calculating interval (kth).

Measurements

The outcome variable for the study is substance abuse towards university students. Structured and pre-tested questionnaire, using self-administered was used to collect the information. It was first prepared in English and then translated to Amharic and then translated back for consistency. Information collected included socio-demographic characteristics of students, extent of substance use, and reason for substance use. The questionnaires were adapted by reviewing different literatures and considering the local situation of the study subjects. The data was collected using self-administered questionnaire by six high school students. Three bachelor GC students was assigned for supervision to check the overall data collection

process of daily activity, consistency and completeness of values and to give appropriate support during the data collection process. The principal investigators also checked the values for completeness, errors and ambiguities on daily basis. Students who refused to give their information were considered as non-respondents. To assure the quality of the data, training was given to the data collectors and supervisors by the principal investigators for two days on instruction for the methods, how to take informed consent, how to approach participants, ethical procedure and general information on substance abuse and the objective of the study. Five percent of the questionnaire was pre-tested before 5 days of the actual data collection in the non-selected departments to ensure clarity, wordings and logical sequence of the questions with a population supposed to have a similar socio-demographic characteristic with people of the study area. The pre-tested sample was not included in the study and some corrections and modification was made from the pre-test result. After data collection, data was stored in a secured place to maintain confidentiality and backup of the data was stored in different areas not to lose the data. Each questionnaire was coded separately before analysis.

Statistically analysis

The collected data was coded, entered, cleaned and analyzed using SPSS version 20. To determine the prevalence of substance abuse, one point was given for correct response and zero point for incorrect response. Descriptive statistics was used to the proportion of substance abuse. Frequencies and percentages were used to present categorical data. Mean (±standard deviation, SD) was used for normally distributed continuous data. Odds ratio was also used to look for strength and direction of an association for selected variables. Odds ratios (ORs), 95% confidence intervals (CIs) and P-value was calculated using a logistic regression model to determine association levels of predictors to the outcome variables. Crude ORs of predictor's substance abuse among university students were estimated using bivariate logistic regression analysis. A multivariate logistic regression analysis was used to estimate the adjusted OR of predictors to substance abuse by controlling confounding factors. A variable having P<0.05 was considered as statistically significant variable in all model. Before inclusion of predictors to the final logistic regression model, the multicollinearity was checked using VIF (Variance inflation factor) <10/Tolerance tests>0.1. The goodness of fit of the final logistic model was tested using Hosmer and lemeshowtest at a value of >0.05. Finally the results of the findings were presented by using text, graphs and tables.

Ethical considerations

The study was approved by Adigrat University, Department of public Health and formal letter of permission was obtained from the department. Official letter of co-operation from the above organization was written to respective Colleges. There is no potential risk that cause any harm to respondents. The importance of the study was explained to the participants of the study and oral consent was requested from the subjects included in the study immediately before the data collection.

Operational definition

Substance: Is defined as alcohol, chat, cigarettes and other illicit substances to alter mood or behaviour. Current use:

Having consumed any substance at least once in the past 30 days. Ever use: Having consumed any substance in life time. Substance abuse: Is defined as the abuse of alcohol, chat, cigarettes and illicit substance and fulfils the criteria (CAGE≥ 2).

RESULTS AND DISCUSSIONS

Socio-demographic characteristics

A total of 471 students were included in the study and making a response rate of 96.8%. Of these, 57.2% were males. Out of the total respondents, 432(94.7%) were in the age range of 18-23 years old. Out of the total respondents, (84%) were orthodox Christian followers (Table 1).

Extent of Substances use among university students

The respondents know their friends who take substances in your school 194 (42.5%). A significant proportions of the students 40(8.8%) have drug abuser family members (Table 2).

Reasons to start substance use

About 36.4% of the students start using substances due to peer influence. The prominent reasons for starting to use substance among users were to get relief from tension 33.1%, to increase academic performance 7.5%, due to religious practice 1.5%, and the rest 21.5% use substances for unknown reason (Table 3)

Table 1. Socio-demographic and economic characteristics of Adigrat university Students (n=456), Tigray, Ethiopia, 2016

Variables	Frequency (n=456)	Percentage (%)
Sex		
Male	261	57.2
Female	195	42.8
Age group		
18-23	432	94.7
24-29	18	3.9
30-35	4	0.9
>35	2	0.4
Religion		
Orthodox	383	84
Catholic	7	1.5
Muslim	26	5.7
Protestant	40	8.8
Study year		
Second year	235	51.5
Third year	188	41.2
Fourth year	33	7.2
Family residence		
Urban	258	56.6
Rural	198	43.4
Expense		
Father	202	44.3
Mother	80	17.5
Brother	27	5.9
Sister	13	2.9
Sponsor	7	1.5
More than one	127	27.9
Ethnicity		
Tigray	233	51.1
Amhara	151	33.1
Oromo	41	9
SNNP	21	4.6
Somali	10	2.2
Total	456	100

Table 2. Extent use of substances among university students (n=456), Tigray, Ethiopia, 2016

Variables		Frequency	Percents
Have you ever used substance other than for medicinal purpose?	Yes	202	44.3
	No	254	55.5
If yes for the above question, for how long did you use?	1-2yrs	116	57.7
	2-3yrs	28	13.9
	3-4yrs	25	12.4
	>4yrs	32	15.9
Ever use drugs	Yes	202	44.3
	No	254	55.5
Do you know friends who take substance in your school?	Yes	194	42.5
	No	262	57.5
How many of your friends take substances?	All	45	19.2
	3-4 friends	55	23.5
	1-2 friends	97	41.5
	None	37	15.8
Any family member who use drugs	Yes	40	8.8
	No	416	91.2

Table 3. Reasons to start substances use among university students (n=456), Tigray, Ethiopia, 2016

	Variables	Frequency	Percents
Why do students use substances?	To increase academic performance	34	7.5
	To get relief from tension	151	33.1
	Do to peer influence	166	36.4
	Due to religious practice	7	1.5
	I don't know	98	21.5
As far as you are concerned, why do students abuse substances in your college?	Drugs are cheap	13	2.9
	The school administration does not mind	42	9.2
	Students do not know the danger	190	41.7
	They help one to perform better	44	9.6
	They help one to get along with friends	75	16.4
	Other (specify)......	80	17.5
Do most students like to use the same drugs as their friends?	Yes	197	43.2
	No	259	56.8
Do friends encourage others in the school to take drugs?	Yes	256	56.1
	No	200	43.9
Where do students prefer taking drugs (place)	School compound	16	3.5
	Inside the class	9	2
	In the toilet	24	5.3
	Out of the school compound	347	76.1
	Others	60	13.2

Table 4. Commonly used substances among University students (n=456), Tigray, June, 2016

Variables		Frequency	Percents
Which substance do you use commonly? (n=200)	Alcohol	60	13.2
	Chat	34	7.5
	Tobacco(cigarette)	54	11.8
	Weed	14	3.1
	Alcohol and chat	31	6.8
	Chat and cigarette	5	1.1
	Alcohol, cigarette and chat	2	0.4
How often do you use? (n=200)	Often	60	30
	Sometimes	74	37
	Usually	66	33
Are these substances easy to get in your school?(n=200)	Yes	130	65
	No	70	35

Table 5. Proportion of substance use among Adigrat University students (n=456), Tigray, Ethiopia, 2016

CAGE questions		Frequency(n=456)	Percent
Have you ever felt you ought to cut down on your substance use? (n=200)	Yes	120	26.32
	No	80	17.54
Have people annoyed you by criticize your substance use?(n=200)	Yes	112	24.56
	No	88	19.30
Have ever felt guilty or bad about your substance use? (n=200)	Yes	105	23.03
	No	95	20.83
Have you ever used substance first thing in the morning to steady your nerves or get rid of hangover (eye opener) (n=200)	Yes	82	17.98
	No	118	25.88

Table 6. Factors significantly associated towards substance abuse among Adigrat University students (n=456) , Tigray, Ethiopia, 2016

Variables		Substance use		OR(95% CI)	
		Yes	No	Crude	Adjusted
Residence of the Participants	Urban	125(48.4%)	133(51.6%)	1.54(1.05,2.24)	1.59(0.29,8.76)
	Rural	75(37.9%)	123(62.1%)	1	1
Drug use other than for medicinal purpose	Yes	197(97.5%)	5(2.5%)	3.29(1.11,1.39)	5.54(0.48,9.21)
	No	3(1.2%)	251(98.8%)	1	1
Know friends who take substances in school	Yes	113(58.2%)	81(41.8%)	2.80(1.91,4.12)	*2.54(5.42,15.02)
	No	87(33.2%)	175(66.8%)	1	1
Family member use	Yes	25(62.5%)	15(37.5%)	2.29(1.17,4.48)	*1.78(3.34,8.37)
	No	175(42.1%)	241(57.9%)	1	1
Want to use the same drugs as their friends	Yes	107(54.3%)	90(45.7%)	2.12(1.45,3.09)	0.67(0.14,3.15)
	No	93(35.9%)	166(64.1%)	1	1

Commonly used substances

Among substances used in the University, alcohol was the commonest drug which comprised 13.2%, the next was tobacco (cigarette) which covered 11.8%, and chat was 7.5% (Table 4).

Prevalence of substance abuse among university students

Of the total respondents, 43.9 % of the students were substance abusers; of those, 26.3% of them try to cut down substance use and 24.6% annoyed by people on their habit of substance use, (Table 5).

Factors Significantly Associated Towards Substance Abuse

Residence of the participants, Drugs use other than for medicinal purpose, Know friends who take substances in school, substance use in school and want use the same drugs as their friends were the factors associated with substance abuse in the bivariate logistic regression analysis. The multivariate logistic regression analysis showed that, respondents who know friends who take substances in school were found to be 2.5 times more likely to use substance abuse than who did not know friends who take substances in school [AOR=2.54, 95% CI (5.42, 15.02), P=0.001]. Those respondents who have family member use of substances abuse were found to be 20% more likely to use substance abuse than who didn't have [AOR=1.78, 95% CI (3.34, 8.37), P=0.003] (Table 6).

DISCUSSIONS

In this study a significant proportion (43.9%) of students abused substances. This prevalence was higher than the report from students of Mekelle University 20.1 % (Abreha *et al.*, 2011) and the national findings obtained from National Survey on Drug Use and Health, 20.2% (Abreha, 2011); and it is lower than the report from undergraduate students in public Midwestern University, 48.1 % (Lemis *et al.*, 2008). This difference may be due to the difference in population under study area. The findings of this study revealed that the commonly abused drugs were alcohol 13.2%, cigarette 11.8%, and khat 7.5%. Apart the prevalence, this is in agreement with findings in students of Mekelle University, alcohol 16.6%, cigarette 10.8%, khat 8.8% was abused equally (Abreha *et al.*, 2011), in secondary school of Kenya in 2009 alcohol 42.9%, cigarette 19.8%, and khat 20.8% were commonly abused substances (Lemis *et al.*, 2008). Again studies in various parts of the country have noted that alcohol was the most commonly used psychoactive substance, which was similar with the result of this study (Gebreselassie *et al.*, 2013).

Current khat chewers in this study were 7.5% of the study subjects. This is lower than a report from Jazan region of Saudi Arabia in which the prevalence of khat use among high school students was 21.4% (Ageely, 2009), the study conducted among college students of North West Ethiopia 17.5% (Gebreselassie *et al.*, 2013), the study done among Haramaya University students 20.3 % (Kebede *et al.*, 2005). the study among Jimma University staffs which was 30.8% (Sian Griffith *et al.*, 2006). The possible explanations for the observed differences in khat chewing could be due to cultural differences, availability and cost of khat. The prevalence rate of cigarette use in this study was 11.8 %, which is lower than the study conducted among college students in North Western Ethiopia 13.1 % (Gebreselassie *et al.*, 2013), study done among Mekelle University students 17.5 % (Yeshigeta *et al.*, 2004), findings from secondary school of Nigeria 14.3% (Nevadomsky, 1973), report from Chinese University, 13% (Sian Griffith *et al.*, 2006). In contrast, it is higher than findings obtained from Western Kenya, 2% (Lemma, 2009). The discrepancy could be due to the population's prevailing social, cultural variations and study time difference in the respective countries. The reason to for students to be started substance/drugs is due to peer pressure, to get relief from tension and readily availability of substances. This is in agreement with studies conducted in Kenyan Secondary Schools (Nevadomsky, 1973).

In general, the difference indicated in the above discussion might be due to the population difference under study, and educational program between countries and the time the research was undertaken could also be contributing factors for this varying rate of substance use and abuse. Organizational, physical and behavioural property variables of campuses, including the type of residence, institutional size, location and campus community property variables could also be reasons to the variations. The study also showed that family use of substances [AOR=1.78, 95% CI (3.34, 8.37)] was strongly and positively associated with students to abuse substances. This is in agreement with study conducted among Addis Ababa high school students; there is statistical significant association between family use of substances /drugs with students to abuse substances /drugs (OdesideAo, 2006). This influence of the behaviour of families and friends suggests that interventions should be multi directional involving different sections of the population at the same time. The strength of this study was, focusing in adolescent university students and the confounders were controlled using a multivariate logistic regration model to increase the validity. The limitation of this study could be institution based study. So, in interpretation of this result, the above limitation should be considered.

Conclusion

A significant proportion of students were substance abusers. The most drugs used by the students were alcohol. Know friends who take substances in school and family members using substances were the factors identified in this study which determine their substances abusers. Substances use among university students demands special attention and emergency preventive measures to effectively reduce substance abuse among students and its consequences. Therefore, using university source media must be strengthened and kept up sustainable and to equip them not using any substance. Colleges should collaborate and develop a regular program for substance abusers who are willing to publicize their abusers-status in order to educate university students.

REFERENCES

Abreha, K. 2011. Psychoactive substance abuse and intention to stop among students of Mekele University. MPH thesia presented to the graduate studies of Addis Ababa University students.

Ageely, H.M. 2009. Prevalence of khat chewing in college and secondary school students of Jazan region. Saudi-Arabia Harm reduction, 6: 11.

Gebreselassie, G., Feleke, A., and Melese, T. 2013. Psychoactive substance use and associated factors among

Axum University students, Axum Town. North Ethiopian BMC public health, 13:693.

Kassaye, H., Sheriff, T.H., Ghimja, F., Tekw, F. Drug use among school students in Addis Ababa and Butajira.

Kebede, D., Alem, A., Enqusellassie, F., Brhanu, E., Abeba, Y., Alene, R., Lemma, W., Assefa, T., Gebremichael, T. 2005. Khat and alcohol use and risky sex behaviour among in school and out of school youth in Ethiopia.BMC public health, 5:109.

Lemis, M. Negsu, Judah N, Alice M: 2008. Drug dependence and abuse in Kenyan secondary schools, Strategies for intervention. *Academic Journals* October, 3(10): 304-308.

Lemma, W. 2009. Assessment of substance abuse among female and male high school students in Addis Ababa. MPH thesis presented to the school of graduate studies of Addis Ababa University Students.

Nevadomsky, J. 1973. Patterns self reported drug use among secondary schools students in Bendel state, Nigerian, Bulletins on narcotics, 33-42.

OdesideAo, 2006. Status of drug use/abuse in Africa: A review *International Journal of Mental Health*, 4:87-102.

Rapeah, M.Y., Munirah, Y. Latifah, O., Faizah, K., Norsimah, S., Mariyana, M., and Saub, R. 2008. Factors influencing smoking behaviours among male adolescents in Kuantan district. *Annal Dent Univ Malaya, 15*: 77-81.

Sian Griffith, S., Joseph, T. F. Laul, Julie K. W. Chow, S. S. Lee, Pauline, Y. M. Y. Kan and S. Lee. 2006. Alcohol use among Entrants to a Hong Kong University. Advance Access Publication Alcohol and Alcoholism, 41(5): 561.

United Nations and drug abuse control. 1987. The extent of drug abuse regional evaluation New York.United Nations Publication.

Volkow, N.D., Li, T.K. 2005. Drug and alcohol; Treating and preventing abuse, addiction and their medical consequences. Pharmacology and Therapeutics, 108:3-17

Wechsler, H., Rigotti, N.A., Glendhill-Hoyt, and Leeh. 1998. Increased level of cigarette use among college students- a cause for national concern. JAMA280: 1673-1678.

Yeshigeta, G., Abraham, H. 2004. Khat chewing and its socio-demographic correlates. *Ethiopian Journal of Health Development,* 18(3):179-184.

****