

# Prevalence of substance abuse among regular degree health science students in Sheba University College in Mekelle Town, Tigray - Ethiopia

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## ABSTRACT

**Background:** Substance abuse (SA) refers to the harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs. The most common substances which are usually abused are alcohol and tobacco. Herein, we assessed the prevalence of SA among regular degree health science students of the Sheba University College (SUC). **Materials and Methods:** A cross-sectional survey was carried out among 1076 SUC students using self-administered structured questionnaire. The simple sampling technique was used to select students. Descriptive statistics, bivariate, and multivariate analysis were done. **Results:** The overall prevalence of “ever used substance” for at least one was 45.5%. The most commonly used drugs in descending order were alcohol (25.1%), cigarette (11.4%), and khat (9.2%). Male participants, urban setting, peer pressure, personal pleasure, and academic dissatisfaction and pocket money were highly associated with SA. **Conclusion:** This study showed a lower magnitude (45.6% ever use and 21% still using) of SA among students’ compared to other studies. Even if a considerable decrease in SA among study subjects, the creation of awareness and health education should be continued to fully combat the problem of abuse.

**Key words:** Academic dissatisfaction, psychoactive substances, sociodemographic characteristics, substance abuse

## Introduction

Psychoactive substance use can lead to dependence syndrome, cluster of behavioral, cognitive, and physiological phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use.<sup>[1,2]</sup> There are many reasons adolescents use these substances, including the desire for new experiences, simple peer pressure alleviation of stress, social acceptance, lower educational level of parents, and the desire to attain high personality profile. Adolescents are “biologically wired”

to seek new experiences and take risks, as well as to carve out their own identity.<sup>[3,4]</sup> The global burden of disease attributable to alcohol and illicit drug accounts 5.4% of the total burden of disease.<sup>[5]</sup> Substance abuse (SA) is a significant public health issue in the world today. In addition to being a serious, health-threatening behavior, it is often associated with detrimental consequences and creates certain difficulties for not only the individuals who misuse the substances, but also their parents, families, school, peers, and society as a whole.<sup>[6]</sup> The prevalence of SA in university students may be different with the general population, since students are under pressure of heavy workload that may have a negative impact on their mental health.<sup>[7-9]</sup>

Globally, there are about 190 million substance abusers.<sup>[10]</sup> Moreover, on the long look, tobacco-attributable mortality

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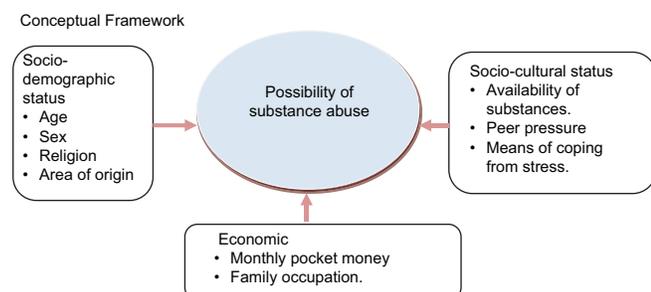
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is expected to increase globally from 14% in 1990 to 23% in 2020.<sup>[11]</sup> The most commonly abused substance is cocaine, and abusers are estimated to be 4.8 million as data hailing European and America. From this US accounts, an estimated 1.6 million people abused.<sup>[12]</sup> In America, Alcohol kills every year 35 people, and illicit drugs kill four people per every 100,000 people. 2/3 of countries have official responsibility for treating substance use disorders, and fewer than 50% have a specific budget for treating such disorders.<sup>[13]</sup> In Africa, many studies showed high rates of SA.<sup>[14-19]</sup> In Ethiopia in 1983, the lifetime prevalence rate of cigarette smoking among college students was reported to be 31.9%.<sup>[20]</sup> Alcohol was found to be a significant risk factor for HIV infection in the study population in counseling and testing centers in Addis Ababa.<sup>[21]</sup> In 2001, the lifetime prevalence among college students decreased to 13.1%. A study done among Ethiopian University instructors in 2001 also revealed a lifetime prevalence of 28.2% and current prevalence of 13.3%. Studies have also shown that the probability of dying from all causes is with 24% times higher for current male smokers of cigarettes than males who are nonsmokers. Similar studies also indicate that the risk of dying from all causes is about two times higher for current female smokers compared to those females who do not smoke.<sup>[22-24]</sup> A study done in some Ethiopian universities reported that the health and social problems from SA was highly observed.<sup>[25-29]</sup> In general, morbidity, health, and social problems from SA are still under or little emphasized in Ethiopian University students. The findings could have a potential importance for local decision makers, policy implications and could also deserve as a baseline for further study. (Conceptual Framework of factors associated with SA [Figure 1].

## Materials and Methods

### Study area and period

The study was conducted from May to June 2015 in Sheba University College (SUC) which is located in the northern part of Ethiopia 787 km far away from the capital city of Ethiopia. It is one of the oldest private University



**Figure 1:** Conceptual Framework of factors associated with substance abuse. Source: Gezahegn T. et al., 2014

colleges in the country. During the study, the University has four faculties which are Health science, business and economics, informatics, and engineering. There are five departments under health science, namely, pharmacy, public health, nursing, midwifery, and clinical laboratory which are the study carried on.

### Study design

An institution-based cross-sectional study was used.

### Source population

All regular undergraduate health science students at SUC were the source population for the study.

### Study population

All students who were randomly selected by simple random sampling technique from the SUC were source of population. Those regular undergraduate students, who are not blind and not critically sick (to the extent of being unable to read and write) during the time of data collection, were included.

### Sample Size determination

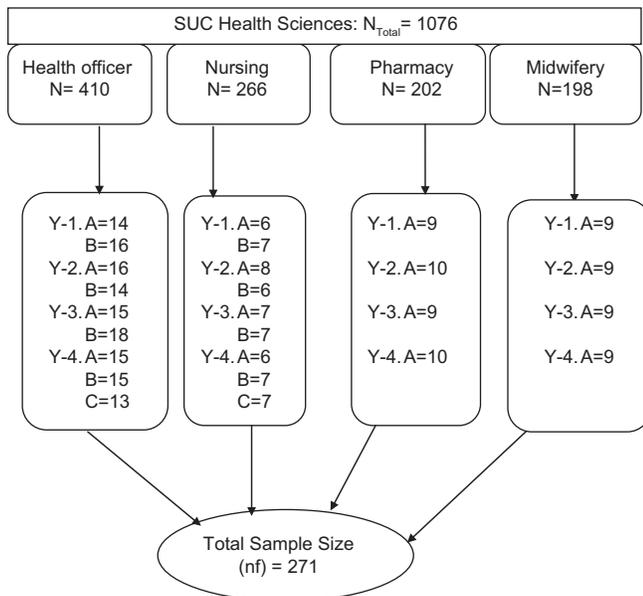
The sample size ( $n = 1076$ ) was primarily determined for the study of prevalence and factors associated with SA and attempt among SUC students. It was determined by taking the prevalence of SA among Mekelle university students 29.5%, 95% confidence level, marginal error of 5%, and 10% nonresponse rate. Using single population proportion formula, the sample size becomes 271.

### Sampling procedure

The simple random sampling technique was used to select the study participants. There are 4 faculties in the SUC. Our main target study was health science faculty. Then, from health sciences departments, we took all four departments; namely the pharmacy, public health, midwifery, and nursing departments. Then, total of 271 samples was proportionally allocated over four departments. Finally, proportionally allocated sample was selected using simple random sampling method from each department. Students from each year of study were allocated proportionally to their class size [Figure 2].

### Data collection procedure and tools

A structured questionnaire was used to collect data from the selected study population. The questionnaire was written in English, but translated into the local languages (Amharic and Tigrinya) during the data collection. It was pilot tested in some departments which are not selected for this study. Through this pretest clarity of the questions in the questionnaire was checked. The principal investigator and data collectors



**Figure 2:** Schematic presentation of sample size determination

were undertaken this pretest. Based on the feedback and findings of the pretest, necessary corrections and amendment on the questionnaire were done before the start of the actual data collection. The data collectors were second degree (master's) holders who have guided the students to complete the questionnaire. The data collectors explain each question to the students to help them understand the questions well and fill their own response to questionnaire. The principal investigators have followed and controlled overall data collection process.

### Study variables

#### Independent variables

Sociodemographic characteristics (age, sex, religion, marital status, and monthly pocket money), year of study, depression status, and type of high school attended.

#### Dependent variable

The dependent variable is SA.

### Data analysis

Subjects were assigned numbers as information is collected. Data cleaning was performed to check for accuracy, and consistencies and missed values and variables. Any logical and consistency error identified during data entry was corrected after revision of the original completed questionnaire. Descriptive statistics were done to describe the study population. Bivariate and multivariate analysis were employed to identify factors associated with the outcome variable. Odds ratio with 95% confidence interval was computed to assess the level of association and statistical significance.

### Data quality control

The questionnaire it was pilot tested in some departments which are not selected for this study. The data collectors were second degree (master's) holders who have guided the students to complete the questionnaire. The collected data were reviewed and checked for completeness before data entry. Necessary corrections were made on the spot. Cleaning, coding, and entering of the data were carried out carefully.

### Operational definitions

SA: Referred to as the use of at least one of the substances (alcohol, khat, cigarettes, and illicit drugs) in an individual's lifetime to alter mood or behaviour.

Current user: Use of substance at least once in the past month.

Ever use: Use of any of the substances at least once in a lifetime.

Illicit drugs: The use of psychoactive substances such as hashish, cannabis, and heroin, for which the production, sale, or use is prohibited.

### Ethical statement

Ethical approval was obtained from Institutional Research Ethics Review Committee of SUC. Participation was voluntary, and the students were told that they can withdraw from the study at any time without explanation and penalty or loss of benefit. Confidentiality was assured, and no personal details were recorded or produced on any documentation related to the study. Written informed consent was obtained from all participants.

## Results

### Sociodemographic characteristics

Of the total 271 students participated in the survey, questionnaires from 271 respondents were considered for analysis making the response rate 100%. Most of the respondents were youths and their age ranges from 18 to 30 years with a mean age of 21 and standard deviation of  $\pm 1.68$  years. Of the total participants, 165 (60.88%) were females. The previous residence for the majority of respondents, 186 (68.7%) were from urban setting and majority 253 (93.7%) were Tigre in their ethnicity. About 40% (110) of the students gets a monthly pocket money of <1000 ethiopian birr [Table 1]. The majority (84%) of the students were the age of 19–24 years. Likewise, about 89% of students were orthodox followers. Of study participant's family occupation, about 32.1% were a government employee followed by 31.2% merchants.

**Substance use behavior**

Of the 271 study participants, around 46% (124) were found to be substance abusers. The study revealed that 9.2% of the students chewed khat at least once in their lifetime, and 4% reported that they were currently chewing khat (from 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 (4.5%) chew khat occasionally (2–3 times/week), and 6.2% of respondents claimed chewing khat always (every day). Concerning alcohol drinking habits, 25% reported that they drank alcohol at least once in their lifetime while 12% said that they drank alcohol in the last 3 months. Among alcohol users, the majority (81.5%) were using alcoholic drinks occasionally [Table 2].

**The time in which students started to use abused substances**

Concerning the initiation time of substance use, 26% of participants started to use abused substances when they were elementary school students. 45.60% of the respondents started during secondary school life. 15.40% and nearly 11% of the respondents had started when they were at in preparatory school and college life, respectively [Figure 3].

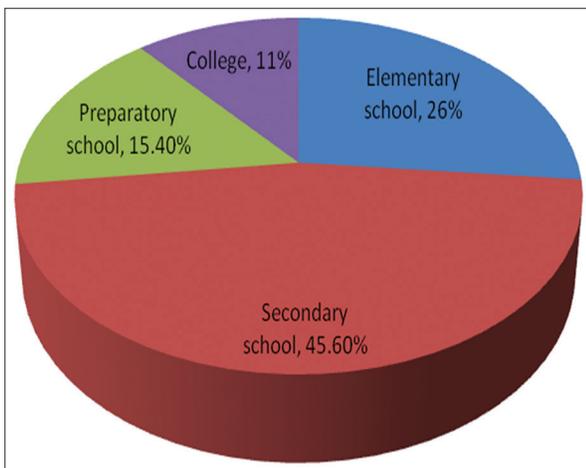
**Reason to use the substance**

Various reasons were reported by students for in the use of drugs. The reasons 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 31 students who reported taking alcohol, 21 (66.9%) used alcohol to get personal pleasure, 6 (18.5%) to get relief from tension and 5 (16.9%) took

it due to peer influence. Reasons for cigarette smoking among the 68 participants were to get personal pleasure 29 (42%), to get relief from tension 19 (29.0%), to stay awake 3 (3.5%), to increase academic performance 9 (13.5%), and peer influence 8 (12.0%).

**Table 1: Sociodemographic characteristics of students, Sheba University College, Mekelle Ethiopia**

Variable	Category	Frequency (n=271)	Percentage
Age in years	≤ 18	15	5.5
	19-24	229	84.5
	≥ 24	27	10
Sex	Males	106	39.12
	Females	165	60.88
Ethnicity	Tigray	253	93.7
	Afar	14	5
	Amhara	4	1.3
Religion	Orthodox	241	89
	Muslims	25	9
	Others	5	2
Residence	Urban	186	68.7
	Rural	85	31.3
Marital status	Never married	237	87.6
	Married	22	8.1
	Divorce	12	4.3
Family occupation	Government Employee	89	32.1
	Nongovernmental organization	23	8.1
	Merchant	85	31.2
	Farmers	33	12.6
	Private	41	15.9
	Pocket money	None	18
	<1000	110	40.6
	1001-1500	59	22.1
	1501-2000	58	21.2
	2000	26	9.6



**Figure 3: Time of initiation to use abused substances among Sheba University College Students in mekelle town, Tigray, Ethiopia**

**Table 2: Proportion of students who ever used substances and prevalence of current substance abuse (khat, alcohol, cigarette) among Sheba University College students**

Type of substance	Ever used		Current substance use	
	Number	Percentage	Number	Percentage
Any substance				
Yes	124	45.75	57	21
No	147	54.25	214	79
Khat				
Yes	25	9.2	11	4
No	246		260	
Cigarette smoking				
Yes	31	11.4	13	5
No	240	88.6	258	95
Alcohol use				
Yes	68	25.1	33	12
No	203	74.9	238	88

## Discussion

Our study showed that the prevalence of substance use for at least one substance was 45.5%. The most frequently used drugs were cigarette (11.4%), khat (9.2%), and alcohol (25.1%). A similar study in many African universities which was 69.8%.<sup>[17,18]</sup> The prevalence rate of lifetime cigarette use in this study was 11.4%, which is similar with the study conducted among college students in North Western Ethiopia 13.1%,<sup>[22]</sup> a study done among Mekelle University students, 17.5%,<sup>[25]</sup> and Secondary School of Nigeria 14.3%,<sup>[30]</sup> report from Chinese University, 13%. our finding is higher than findings obtained from Western Kenya, 2%. The discrepancy could be due to the population's prevailing social, cultural variations, and study time difference in the respective countries.

Our study showed that 9.2% of the participants were ever khat chewers. A similar study was done in Addis Ababa, 35.6%, the study conducted among college students in North Western Ethiopia 26.7%,<sup>[22]</sup> and in high school students in South-Western Ethiopia, 64.9%.<sup>[18]</sup> Current khat chewers in this study were 4% of the study subjects. This is lower than a report from the Jazan region of Saudi Arabia in which the prevalence of khat use among high school students was 21.4%,<sup>[30]</sup> the study conducted among college students of North West Ethiopia 17.5%,<sup>[22]</sup> the study done among Haramaya University students 20.3%,<sup>[24]</sup> the study among Jimma University staffs which was 30.8%.<sup>[21]</sup> The observed differences in khat chewing could be due to differences in sample characteristics, cultural differences in understanding of the amount of chewing and methodological differences.

In addition, the proportions of ever alcohol drinkers in this study were 25.1%. The finding of this study is lower than the study among the students of Mekelle university; 69.7%,<sup>[25]</sup> findings reported from students of Ambrose Alli University; Ekpoma, Nigeria represents 66% and in line with 61% among Chinese, University Students in Hong Kong. The difference in educational programs between countries could be contributing factors to this variable rate of alcohol consumption. In general, the differences indicated might be due to the population difference under study, and promotion of publicity. The difference in educational programs between countries and the time the research was undertaken could also be contributing factors for this variable rate of substance use and abuse. Organizational, physical and behavioral property variables of campuses, including the type of residence, institutional size, location, and campus community property variables could also be reasons to the variations.

## Conclusion

The present study showed a lower magnitude (45.6% ever use and 21% still using) of SA among students' compared to other studies. Our study also assessed the reason for substance use and to increase a work performance was the leading reason followed by personal pleasure. Although our finding showed the low proportion of SA comparing to other finding it is still a considerable problem in the study area. As our study focuses on undergraduate medical students, the findings would be helpful to initiate effective substance use control programs in health science schools and would also serve as a stimulator to conduct further studies on this topic in Ethiopia.

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## Conflicts of interest

There are no conflicts of interest.

## References

- Gouri KP, Sangeeta D, Trilochan S, Sourajit P. Prevalence and causes of substance abuse among undergraduate medical students. *Indian Med Gaz* 2014;276-82.
- Sahraian A, Sharifian M, Omidvar B, Javadpour A. Prevalence of substance abuse among the medical students in Southern Iran. *Shiraz E Med J* 2010;11:198-202.
- Oshodi OY, Aina OF, Onajole AT. Substance use among secondary school students in an urban setting in Nigeria: Prevalence and associated factors. *Afr J Psychiatry (Johannesbg)* 2010;13:52-7.
- Tesfaye G, Derese A, Hambisa MT. Substance use and associated factors among university students in Ethiopia: A cross-sectional study. *J Addict* 2014;2014:969837.
- Sekulic D, Ostojic M, Ostojic Z, Hajdarevic B, Ostojic L. Substance abuse prevalence and its relation to scholastic achievement and sport factors: An analysis among adolescents of the Herzegovina-Neretva Canton in Bosnia and Herzegovina. *BMC Public Health* 2012;12:274.
- Barrera M Jr., Castro FG, Bigla A. Ethnicity, substance use, and development: Exemplars for exploring group differences and similarities. *Dev Psychopathol* 1999;11:805-22.
- United Nations. Convention on Psychotropic Substances: Conference for the Adoption of a Protocol on Psychotropic Substances. Vienna; 1971.
- Andualem D, Seme A, Misganaw C. Assessment of Substance Use and Risky Sexual Behaviour among Haramaya University Students, Ethiopia. *Sci J Public Health* 2014;2:102-10.
- Kalayu M, Andualem M, Yeshigeta G. Effect of substance use on academic achievement of health officer and medical students of Jimma University, Southwest Ethiopia. *Ethiop J Health Sci* 2009;19:155-63.
- UNAIDS/World Health Organization. AIDS Epidemic Update, December 2001. Geneva, Switzerland: UNAIDS/WHO; 2001.

11. Anthony JC, Petronis KR. Early-onset drug use and risk of later drug problems. *Drug Alcohol Depend* 1995;40:9-15.
12. Resnicow K, Soler RE, Braithwaite RL. Development of a racial and ethnic identity scale for African American adolescents. *J Black Psychol* 1999;25:2:171-88.
13. George NA. Prevalence of substance abuse among senior secondary students In Mainland Local Government, Lagos. *Glob J Med Public Health* 2014;3:2277-9604.
14. Oladele AA, Olufunmilayo EA. Pattern of substance abuse among senior secondary school students in a Southwestern Nigerian city. *Int Rev Soc Sci Humanit* 2013;4:54-65.
15. Mamo DB, Abuhay DA, Gelaw BK, Tegegne GT. Assessment on the prevalence and contributing factors of social drugs utilization among university of Gondar regular undergraduate students. *Int J Pharma Sci Res* 2014;5:518-30.
16. Nyabadza F, Hove-Musekwa SD. Substance abuse in the Western Cape Province of South Africa: Insights through mathematical modeling. The quarterly update on epidemiology from the South African Centre for Epidemiological Modelling and Analysis, 2010.
17. White HR, Xie M, Thompson W, Loeber R, Stouthamer-Loeber M. Psychopathology as a predictor of adolescent drug use trajectories. *Psychol Addict Behav* 2001;15:210-8.
18. McGrath Y, Sumnall H, McVeigh J, Bellis M. Drug use prevention among young people: A review of reviews evidence briefing update (NHS). National Institute for Health and Clinical Excellence; 2006.
19. Statistics South Africa. The Youth of South Africa. Pretoria, South Africa: Statistics South Africa; 2001.
20. Kebede Y. Cigarette smoking and khat chewing among university instructors in Ethiopia. *East Afr Med J* 2002;79:274-8.
21. Luthar SS, Cushing G. Neighborhood influences and child development: A prospective study of substance abusers' offspring. *Dev Psychopathol* 1999;11:763-84.
22. Seme A, Mariam DH, Worku A. The association between substance abuse and HIV infection among people visiting HIV counseling and testing centers in Addis Ababa, Ethiopia. *Ethiop J Health Development* 2005;19:116-25.
23. Module in for ethino -suharan substance abuse H.center team. 2005. p. 12-4.
24. Brook JS, Brook DW, Richter L, Whiteman M. Risk and protective factors of adolescent drug use: Implications for prevention programs. *Handbook of Drug Abuse Prevention*. 2006;265-87.
25. Elliott DS, Huizinga D, Ageton SS. *Explaining Delinquency and Drug Use*. Beverly Hills, CA: Sage; 1985.
26. Assefa S, Damen HM, Alemayehu W. The association between substance abuse and HIV infection among people visiting HIV counseling and testing centers in Addis Ababa, Ethiopia. *Ethiop J Health Dev* 2005;19:116-25.
27. Newcomb MD. Drug use etiology among ethnic minority adolescents (Risk and protective factors). In: Botvin GJ, Shenki S, Orlandi MA, editors. *Drug Abuse Prevention and Multi-Ethnic Youth*. Thousand Oaks, CA: Sage; 1995. p. 105-29.
28. Deressa W, Azazh A. Substance use and its predictors among undergraduate medical students of Addis Ababa University in Ethiopia. *BMC Public Health* 2011;11:660.
29. Likawunt S, Mulugeta TA. Substance use and sexual risk behavior and factors associated with HIV transmission in Southern Ethiopia. *Int J Pharma Sci Res* 2012;3:1080-6.
30. Ageely HM, Prevalence of khat chewing in college and secondary (high) school students of Jazan region, Saudi Arabia. *Harm Reduct J* 2009;6:11. doi:10.1186/1477-7517-6-11.