

# Substance Use among Undergraduate Students at Mizan-Tepi University in Ethiopia: Prevalence, Associated Factors, and Its Effect on Health and Academic Performance

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## Research

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# Abstract

**Background:** Worldwide, substance use among undergraduate students is a major public health problem and over 29 million people worldwide suffer from substance-related disorders. The use of substances is a growing concern in Ethiopia, in a particular college and university students are the most at risk of substance use and their impacts on the younger generation have become a great concern. Despite some shreds of evidence are available regarding substance use, the problem is not well studied among these groups of the population. Therefore, this study aimed to assess the prevalence, associated factors, and health and academic effects of substance use among undergraduate students at Mizan-Tepi University in Ethiopia.

**Methods:** A cross-sectional study was conducted among 544 regular undergraduate students of Mizan-Tepi University in Ethiopia. Data were collected using a pre-tested self-administered structured questionnaire. The data analysis was done using SPSS version 20. The level of significance in the multivariable logistic regression analysis was declared at a p-value < 0.05.

**Results:** Of the 544 respondents interviewed, the lifetime and current prevalence of substance use among students in Mizan-Tepi University was 62.5% and 27.9% respectively. The most common reported lifetime and current substance use was alcohol drinking with 42.6% and 23% respectively. The study also found that being male (AOR=3.01, 95% CI [1.64-5.53]), being Muslim (AOR=3.13, 95% CI [1.64-5.96]), from urban residence (AOR=3.12, 95% CI [3.01-5.31]), having divorced/separated parents (AOR=3.08, 95% CI [1.64-5.79]), having family substance use (AOR=7.98, 95% CI [5.52-11.6]) and peer substance use (AOR=4.33, 95% CI [2.68-7.26]) were the factors significantly associated with current substance use.

**Conclusion:** The current prevalence of substance use was substantially higher. We can say that substance use is a public health problem among university students in Ethiopia. Higher education institutions should consider designing programs to control substance use among students to improve their student's health and academic performance. Parents should closely monitor the behavior of their children by communicating with teachers.

## Background

Substance use refers to the consumption of alcohol or psychoactive drugs not necessarily leading to addiction or dependence (1). The problem of substance use involves at all age levels but appears to be more dangerous and common in adolescence and young adults (2–6) and it affects health, impairs the quality of their life, and as the main source of crime (7, 8).

Substance abuse is an ongoing public health concern with an estimated 167–315 million people between the ages of 15–64 use substances globally (9). It became one of the most serious and rapidly growing phenomena, producing many terrible impacts on health, behavioral, and country's economy globally (10–13), a particularly high burden in developing countries (14).

Young people in higher learning institutions are a particularly exposed group in terms of substance use (15, 16). The prevalence among university students may be higher compared to the general population (17). Since students generally experience a completely new, unprecedented level of freedom at universities. They are also exposed to a wide range of new practices and choices. These factors help to increase the risk of substance use among university students (18).

Worldwide, substance use among undergraduate students is a major public health problem and over 29 million people suffer from substance-related disorders (19). Academic students are an at-risk population for substance-related problems (20), which negatively affect students' academic performance (21) and harms their mental health (17). At the beginning, substance use seems like a good thing and slowly turned to problem. To come out from that problem is often difficult. Therefore, the decision to get help is huge and it deserves the maximum support (22).

The factors associated with substance use are varied and may include age, gender, religion, marital status, level of study, feeding out of the university café, being from private preparatory school, getting higher monthly pocket money, parents educational level, low family income, status of parents union, family substance use, peer substance use, easy accessibility of substance, the demise of either or both parents, living without parents and depression (5, 12, 30, 31, 19, 23–29).

The use of substances is a growing concern in Ethiopia, in a particular college and university students are the most at risk of substance use (26) and their impacts on the younger generation have become a great concern (24, 32). Despite some shreds of evidence are available regarding substance use, the problem is not well studied among these groups of the population. Therefore, this study aimed to assess the prevalence, associated factors, and health and academic effects of substance use among undergraduate students at Mizan-Tepi University in Ethiopia.

## **Methods**

### **Study design, area, and period**

A cross-sectional study was conducted to assess the prevalence and determinants of substance use among undergraduate students of Mizan-Tepi University (MTU) in Ethiopia from June 1–30, 2018. Mizan-Tepi University was established in 2006 and has two campuses (Mizan campus and Tepi campus). The study was conducted in Tepi campus, which is found in Tepi town, sheka zone at 611 km and 881 km southwest of Addis Ababa, the capital city of Ethiopia, and Hawassa, the capital city of South Nations, Nationalities and Peoples Region (SNNPR) respectively. The campus has two colleges, one school, and 15 departments.

### **Populations**

All regular students of Mizan-Tepi University during the time of data collection were the source population of the study. Those students who studied at Tepi campus were the study population.

# Sample size determination and sampling techniques

The sample size was determined using a single population proportion formula with the assumption of the prevalence of substance used to be 62.4% (26), 95% confidence interval, 5% margin of error, 10% for non-response rate and 1.5 design effect. The final computed sample size was 595. A multi-stage stratified sampling technique was used. First, the total sample size was proportionally allocated to colleges/school and departments. Then from each department's proportional sample size was allocated for each year level (batch). Finally, a simple random sampling technique was used to select participants in each batch.

## Study variables

The dependent variable was substance use (khat/alcohol/cigarette). The independent variables were age, sex, religion, residence, family income, and educational status of parents, condition of parents, family substance use, and peer substance use.

## Operational definitions

**Substance:** Any non-medical drugs including alcohol, khat, and tobacco used to alter mood or behavior.

**Substance use:** the use of at least one of the following psychoactive substances (alcohol, khat, cigarettes) to alter mood or behavior. **Current use:** consuming any substance within the last one month/30 days. **Lifetime use:** refers to the use of any of the substances at least once in an individual's lifetime. **Family substance use:** refers to at least one of the family members (father, mother, or siblings) use a substance, who uses at least one of the substances (alcohol, chat, and smoking). **Peer substance use:** are groups of people of the same age, status, or interests, who use at least one of the substances (alcohol, chat, and smoking).

## Data collection instrument and procedures

The data were collected using a self-administered structured questionnaire adapted from World Health Organization (WHO) students' drug use survey questionnaire (33, 34). The questionnaire comprised of socio-demographic characteristics, socio-demographic, and substance use profiles of their family, prevalence of current and lifetime substance use, and substance use-related profiles of the respondents. It was prepared in English to the local language (Amharic) and back to English. The quality of data was assured by properly designing and pre-testing of the questionnaire. The pretest was done on 5% of the total sample size in Mizan-Aman polytechnic college and a necessary adjustment was made. The training was given to data collectors and supervisors regarding the objective and data collection procedure. All methods were performed in accordance with relevant guidelines and regulations and the data collection was done after ethical issues secured.

## Data processing and analysis

The data were checked for completeness then coded and entered into Epi Data manager software and analyzed using SPSS version 21. Binary logistic regression was employed to identify the association between dependent and expected independent variables. Independent variables significantly associated

with the dependent variable at a p-value of less than or equals to 0.25 in the bivariate logistic regression model were fitted into the multivariable logistic regression model to control the effect of confounding. Multi-collinearity between independent variables in the model was checked, and the variance inflation factor (VIF) was found acceptable (less than 2). The Hosmer-Lemeshow goodness-of-fit test indicated ( $P = 0.341$ ) that the model was good enough to fit the data well.

## Results

### Socio-demographic characteristics of the respondents

Of the 595, 544 students participated with a 91.4% response rate. The mean age was 22 years. The majority (87.5%) of the respondents were below 24 years old. More than half (52.9%) were orthodox religious followers. Nearly three-fourths (72.1%) were achieved GPA between 2.01 to 2.49 in the last semester (Table 1).

Table 1  
Socio-demographic characteristics of the respondents at MTU in southwest Ethiopia

Variables	Categories	Frequency	Percent
Sex	Male	358	65.8
	Female	186	34.2
Age	< 24 years	476	87.5
	$\geq 25$ years	68	12.5
Religion	Orthodox	288	52.9
	Protestant	168	30.9
	Muslim	88	16.2
Residence	Rural	270	49.6
	Urban	274	50.4
Last semester GPA	< 2.00	98	18
	2.01–2.49	392	72.1
	$\geq 2.5$	54	9.9
Respondents belong to	College of Natural and computational Science	215	39.5
	School of Computer Science	150	27.6
	College of Engineering	179	32.9

### Socio-demographic and substance use profiles of the family

The majority (72.4%) of parents were living together. Four hundred ninety-three (90.6%) and 158 (29%) of the families had < 5000 ETB monthly income and substance use respectively. Of 158 family substance use, 129 (81.3%) were fathers only (Table 2).

Table 2  
Parents socio-demographic and substance use profile of the respondents at MTU in southwest Ethiopia

Variables	Categories	Frequency	Percent
Condition of parents	Living together	390	71.7
	Divorced/separated	118	21.7
	Either one or both parents died	36	6.6
Educational status of parents	No formal education	90	16.5
	Formal education	454	83.5
Family monthly income	< 5000	493	90.6
	≥ 5000	51	9.4
Family substance abuse	Yes	158	29
	No	386	71
Family members used (n = 158)	Father only	129	81.6
	Mother only	9	5.7
	Both parents	8	5.1
	Siblings	12	7.6

### Prevalence of lifetime and current substance use

The lifetime and current prevalence of substance use among students at Mizan-Tepi University was 62.5% and 27.9% respectively. The most common reported lifetime and current substance use was alcohol drinking with 42.6% and 23% respectively (Fig. 1).

### Substance use-related profiles among user respondents

Nearly three-fourths (72.4%) of the respondents used substances for 2 years or more. One hundred-eight (71.1%) used substances at the rented house outside the university campuses. More than one-third (36.8%) of the respondents mentioned peer influence as a reason for their current substance use. Of the 152 current substance users, 96 (63.2%) had oral/gastric problems followed by 78 (51.3%) and 58 (38.2%) had a frequent loss of appetite and absenteeism in class after taking substances respectively (Table 3).

Table 3  
Substance use related profiles among user respondents at MTU in southwest Ethiopia

<b>Variables</b>	<b>Categories</b>	<b>Frequency</b>	<b>Percent</b>
Age at first experimentation (years)	< 15	6	4
	15–20	70	46
	≥ 20	76	50
Duration of abuse (years)	< 1	10	6.5
	1–2	32	21.1
	≥ 2	110	72.4
Abuse frequency	Daily	54	35.5
	Every other day	43	28.3
	Once a week	25	16.5
	Once a month	30	19.7
Place of substance use	At dormitory	18	11.8
	At grocery/cinema	26	17.1
	At rented house	108	71.1
Reason for substance use	Peer influence	56	36.8
	To get relief from stress	22	14.5
	To stay awake for reading	44	29
	To entertain	30	19.7
Effects of substance use (n = 152)	Oral/ gastric problem	96	63.2
	Loss of appetite	78	51.3
	Absenteeism in class	58	38.2
	Difficulty of learning	38	25
	Sleep problem	35	23
	Sexual problem	32	21.1
	Decrease performance	30	19.7
	Depression/anxiety	26	17.1
Plan to substance use	To continue	22	14.5
	To stop	44	29

Variables	Categories	Frequency	Percent
	I don't know	86	56.5

### Factors associated with substance use

After running a multivariable logistic regression analysis, being male (AOR = 3.01, 95% CI [1.64–5.53]), being Muslim (AOR = 3.13, 95% CI [1.64–5.96]), from urban residence (AOR = 3.12, 95% CI [3.01–5.31]), having divorced/separated parents (AOR = 3.08, 95% CI [1.64–5.79]), having family substance use (AOR = 7.98, 95% CI [5.52–11.6]) and peer substance use (AOR = 4.33, 95% CI [2.68–7.26]) were the factors significantly associated with current substance use (Table 4).

Table 4  
Factors associated with substance use among respondents at MTU in southwest Ethiopia.

Variables	Categories	Substance abuse		COR (95% CI)	AOR (95% CI)	P-value
		Yes	No			
Sex	Female	20	166	1	1	
	Male	132	226	4.85(2.01–6.42)**	3.01(1.64–5.53)	< 0.001
Religion	Christianity	76	281	1	1	
	Muslim	76	111	2.53(1.72–3.73)**	3.13(1.64–5.96)	0.001
Residence	Rural	42	228	1	1	
	Urban	110	164	3.64(2.42–5.48)**	3.12(3.01–5.31)	< 0.001
Condition of parents	Living together	84	306	1	1	
	Divorced/separated	60	58	3.60(2.34–5.54)**	3.08(1.64–5.79)	< 0.001
	Either one or both died	8	28	0.50(0.17–1.45)*	0.96(0.26–3.61)	0.952
Family substance use	Yes	94	64	8.31(5.44–12.7)**	7.98(5.52–11.6)	< 0.001
	No	58	328	1	1	
Peer substance use	No	50	284	1	1	
	Yes	102	108	5.36(3.67–8.55)**	4.33(2.68–7.26)	< 0.001

AOR, Adjusted odds ratio; CI, Confidence Interval; COR, Crude odds ratio; \*, significant at p-value < 0.25, \*\*, significant at p-value < 0.05

## Discussion

This study aimed to assess the prevalence, associated factors, and health and academic effects of substance use among undergraduate students at Mizan-Tepi University in Ethiopia. The prevalence of substance use among undergraduate students was 27.9%, 95% CI (24.1%-31.7%). This finding was consistent with 31.5% in Haramaya University (11) and 28.6% in Woliyta Sodo University (35) in Ethiopia, 31% in Sudan (14), and 29.1% in Imo state, Nigeria(19). It was lower than 43% in Jima University (36) and 46.3% in Debre Markos university (31) in Ethiopia. But it was higher than 16.7% in Adigrat University, Ethiopia (37), 17.5% in Nigeria (38), and 20.3% in Myanmar(29). The variation observed between the

current and previous studies could be the difference in the sample size, operational definition used, and the methodology as a whole. Besides, the socio-demographic, socio-economic, and lifestyle or behavioral factors difference between different population groups may create a great variation.

In this study, sex was significantly associated with substance use. Being male was 3 times increased odds of substance use than being women. This finding was in line with several studies conducted elsewhere (5, 11, 30, 31, 39, 12, 19, 23, 25–29). This could be because males are more likely to experiment with things in their life. The attitude of the community that considers female substance use as taboo and male substance use is not considered a big issue.

Respondents who are Muslim were 3 times increased odds of substance use behavior than Christianity followers. Being Muslim was significantly associated with substance use behavior. This finding was contrary to a study done at Haramaya University, Ethiopia (26). Despite, alcohol consumption was common among Christian students. However, the prevalence of chat chewing was high among Muslims. Since using at least one of substances (alcohol, chat, and cigarette) operationalized as a user of substance in this study. The increased prevalence of chat chewing among Muslims results in the high likelihood of Muslim students classified as substance users. This could be the reason for the variation observed between this study and the previous study in Ethiopia.

Respondents who come from urban residences were 3 times more likely to use substances than those who came from rural areas. Being an urban resident was statistically associated with substance use behavior. This could be the fact that students who came from urban areas are more likely to familiarize with substances (either using or observing someone use substance) due to the more accessibility of substance in urban than rural areas.

In this study having divorced or separated parents was significantly associated with student's substance use behavior. Respondents who had divorced or separated parents were 3 times more likely to use substances than those who had parents living together. This finding was consistent with a study done in Imo State, Nigeria (19). This could be explained by those students who had divorced/ separated parents who didn't get parental restriction and no one care for them to be disciplined. Besides, those individuals are more likely to become hopeless and depressed that prone them to experiment with substance to relieve their problem. Since an individual who had a feeling of hopelessness or sadness and depression are more likely to use the substance (26, 29, 39).

Respondents who had family member substance use were 8 times increased odds of substance use than those who didn't have. Having substance used family members was very strongly associated with the respondent's substance use behavior. This finding was consistent with previous studies done elsewhere (5, 11, 24–28). This could be the fact that children follow the behavior of their family. Since children are followed the footsteps of their families, any behavior that is performed within the family may be easily followed by children.

In this study, having a peer with substance abuse was strongly associated with the substance use behavior of the respondents. Respondents who had peer substance user were 4.3 times more likely to use substance than who don't have a peer with substance use. This finding was in line with previous studies conducted elsewhere (5, 24, 27–29). This could be because students may borrow or seem friend behavior. Any behavior of their friends may influence their behavior greatly.

## Limitation Of The Study

The authors acknowledge some limitations in this study. The depression and anxiety variables were not measured using a standard tool, rather the researchers use single-item questions for each variable to assess the conditions happen. Besides, the cross-sectional nature (snapshot approach of data collection) of the study design didn't allow ascertaining the case-effect relationship between the dependent and independent variables.

## Conclusion

The current prevalence of substance use was substantially higher. We can say that substance use is a public health problem among university students in Ethiopia. Higher education initiations should consider designing programs to control substance use among students to improve their student's health and academic performance. Parents should closely monitor the behavior of their children by communicating with teachers.

## Abbreviations

AOR: Adjusted Odds Ratio, CI: Confidence Interval, COR: Crude Odds Ratio, MTU: Mizan- Tepi University, SPSS: Statistical Package for Social Sciences

## Declarations

### **Ethics approval and consent to participate**

Ethical approval was obtained before starting data collection from Mizan-Tepi University Institutional Review Board (MTU-IRB). All study participants were informed about the purpose of the study, their right to deny participation, anonymity, confidentiality of the information. Written informed consent was also obtained before participation in the study.

**Consent for publication:** Not applicable.

**Availability of data and materials:** The data set is handled by the corresponding author and can be provided upon request.

**Conflict of interest:** The authors declare no conflicts of interest.

**Funding:** Not applicable

**Authors' contributions:** TY and DG are involved in the conception, design, acquisition of data, analysis, and interpretation of the results. TY drafted the manuscript, and then all authors approved it for publication.

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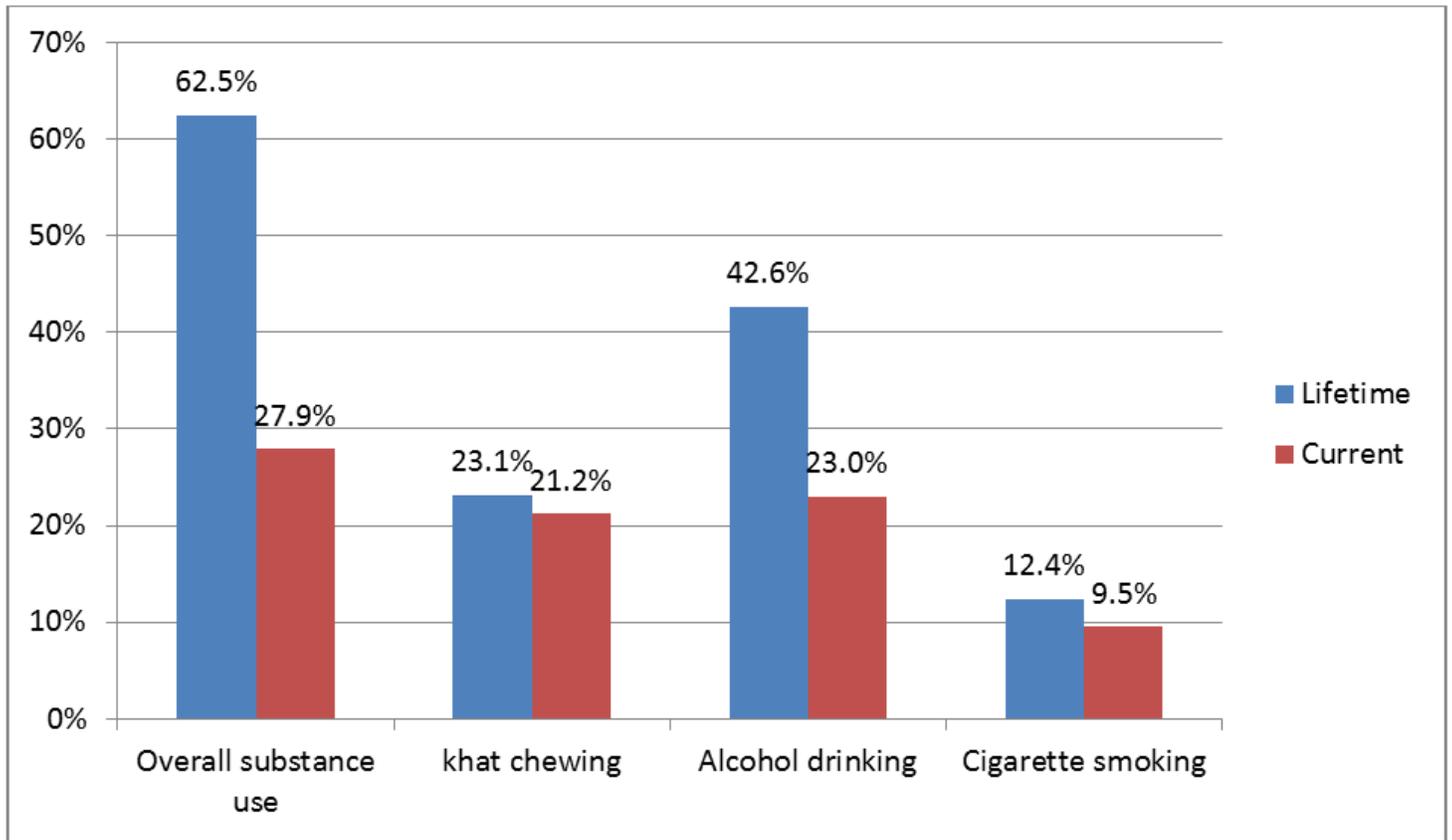
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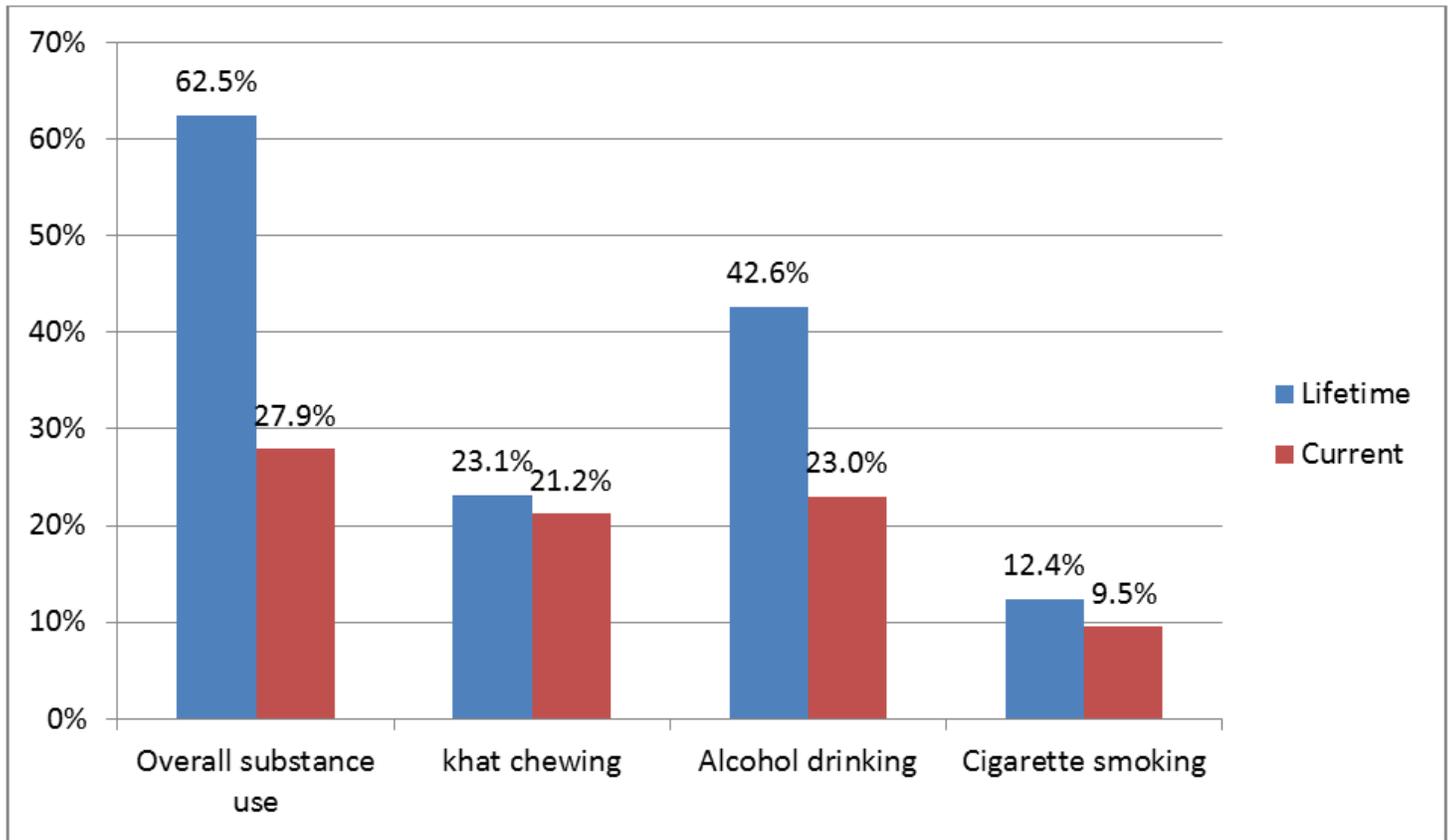
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## Figures



**Figure 1**

Prevalence of lifetime and current substance use among respondents at MTU in southwest Ethiopia.



**Figure 1**

Prevalence of lifetime and current substance use among respondents at MTU in southwest Ethiopia.