

## Research Article

# The Prevalence of Substance Use and Associated Factors Among Medical Interns of Jimma University, South West Ethiopia

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**Abstract**

**Background:** The use of substances, especially by medical interns may have an impact on behavior, safety and efficiency of the future doctors. However, despite a growing number of substance users, little attention has been given by the research community in Ethiopia. This study examined the prevalence of substance use and associated factors among medical intern students.

**Materials and methods:** A cross sectional study design was employed in all medical interns of Jimma University enrolled in the year of 2014/2015, using census survey data collection method. Analysis was done using descriptive statistics and chi-square test on SPSS version 20.0 software. P-value less than 0.05 considered statistically significant.

**Results:** The life time, in the last 12 months and current prevalence of substance use was 48.4, 47.8, and 43.0%, respectively; and the major reasons reported were: to get personal pleasure, peer pressure and to get relief from tension. Ethnicity ( $X^2$ , 8.04;  $P=0.04$ ), religion ( $X^2$ , 31.05;  $P=0.001$ ), having friends who use substance/s ( $X^2$ , 32.07;  $P=0.001$ ), were significantly associated with the current use of substance/s. Likewise, residence ( $X^2$ , 5.00;  $P=0.02$ ), ethnicity ( $X^2$ , 8.06;  $P=0.04$ ), having friends who use substance/s ( $X^2$ , 40.32;  $P<0.001$ ) and coming from an area where substance/s is/are commonly used ( $X^2$ , 5.15;  $P=0.02$ ), were significantly associated with the lifetime use of substances.

**Conclusion:** The prevalence of substance use among intern students was considerably high. Early exposure to substances often predicts future substance use, abuse and dependence with its medical, psycho-social and economic consequences. This necessitates strategic interventions aimed at reducing this problem without delay.

**ABBREVIATIONS**

JU: Jimma University; CHS: College of Health Sciences; SRP: Students Research Project; CBE: Community Based Education; EDHS: Ethiopian Demographic and Health Survey; IRB: Institutional Review Board

**INTRODUCTION**

Psychoactive substances such as khat, alcohol and cigarette are substances which when taken into the body have a major effect on the brain and can alter physical and psychological functioning [1]. Many people enjoy the psychological changes in mood and thoughts felt after taking psychoactive substances. There are many reasons why people start to use and continue to use substances. These substances may be taken to reduce stress and alleviate pain, or alternatively to stay alert, to stimulate the mind in order to study or to better perform some task, or simply

to have fun with friends [1]. Use of psychoactive substances has formed an integral part of human society for years but there are considerable differences in the nature of substances used and the reasons for their use. Worldwide, 48% of the total adult population (2 billion people) consumes these substances at least occasionally. Similarly, 33% (1.3 billion people) smoke tobacco and 5% of adults (200 million people) use illicit drugs [2]. The pattern of substance use involves the use of multiple substances, often with different pharmacological effects [2].

Young people including university students are likely to be the most at risk of using substances like alcohol, khat, tobacco and other drugs. This might be due to the fact that, joining university often leads to new opportunities, independence from family control, self-decision making and peer-pressure to use these substances [2]. It is generally acknowledged that several factors are involved in the initiation of substance use among young

people. Likewise, medical intern students use these substances for different reasons including gaining personal pleasure, improving academic performance, relieving stress etc. However, like other health science students, medical interns expected to fight against substance use and other problems associated with it in the community. Nevertheless, literature indicated that they may not be immuned from substance use [3]. Apart from other factors, prolonged staying in the university (six years), caring a big responsibility and stress may expose them to the different substance use and worth to be the focus of a study.

### The extent of substance use and its effects

The use of substances such as alcohol, khat, and tobacco has become one of the rising major public health and socioeconomic problems worldwide. The use of these substances involves devastating health, socio-economic and environmental consequences [4]. The problem of substance use has historically been linked to health professionals due to their close proximity to the drugs. This problem highly impairs the practice of medicine and patients safety because of their dependence on drugs [4-6]. Substance use like tobacco consumption has also been the main risk factor for chronic diseases such as cancers, chronic lung disease, diabetes and other cardiovascular diseases [7-10].

People in Ethiopia, including university students also use these substances and facing its consequences. The commonest substances used in Ethiopia are Khat, alcohol and tobacco/cigarette. Chewing khat leaves, which has an „amphetamine like“ effects, is practiced in a social activity by Yemenis, Somalis, Ethiopians and other East African communities both in their original countries and within the diasporas [4]. Alcohol consumption, khat chewing and cigarette smoking have also become common practices among high school and college/university students in Ethiopia [11-14]. The use of alcohol, khat and tobacco among these young people can be harmful, leading to decreased academic performance, increased risk of contracting HIV and other sexually transmitted diseases, or other psychiatric disorders such as depression, anxiety and psychosis [3]. No matter how often or how little people consuming, if they are drug user is causing problems in their life at work, school, home, or in their relationships, they are likely to have a drug abuse or addiction problem with their health and socio-economic consequences.

According to the Ethiopian Demographic and Health Survey (EDHS) 2011, the prevalence of alcohol use among men and women was 53% and 45%, respectively, and 11% of women and 28% of men ever chewed khat [15]. There is a strong link between khat chewing and excessive alcohol consumption, and it is believed to be one of the factors associated with unprotected risky sexual behavior, predisposing the youth for HIV infection and transmission [16-19]. As several studies indicated, substance use among Ethiopian high school and university students is considerably rising [11,12]. For instance, a study done in Addis Ababa University, reported that, 31.4% of students ever drunk alcohol, 14.1% ever chewed khat, 8.7% ever smoked cigarette [20]. The same study showed, being male was strongly associated with current alcohol use. Students whose friends currently consume alcohol were more likely to consume alcohol and whose friends' use tobacco more likely to smoke. A study done

in Axum University also showed a lifetime prevalence of khat chewing 28.7%, alcohol drinking 34.5%, and cigarette smoking 9.5% [21]. Another study done in Debre Markos, found out the life time prevalence of substance use to be 14.1% [22]. Similarly, a study done among college students in Gondar revealed a lifetime prevalence of cigarette smoking was 13.1% and 26.7% was chewing khat [23]. A study in Jimma University also showed prevalence of khat chewing, cigarette smoking, and alcohol intake to be 33.1%, 21.3%, and 36.4%, respectively [24].

People start to use substance for different reasons such as: peer pressure, as a way to deal with stress, parents use substance too, self-medication to deal with mental illness, loss of a loved one, teenage rebellion, to relieve stress...etc, [13,21]. A study done in Turkey showed that, amongst the junior and senior medical students, the most common reason reported was drinking alcohol for pleasure, (35.1 % and 50%, respectively), followed by social pressure (10.5% and 5.8%, respectively). 31.5% and 23.8% of residents and physicians, drink alcohol to relax after a tiring day respectively. The same study indicated 17.8 % and 22.5 % of residents and physicians used alcohol in order to relieve social distress respectively [25].

The above literatures reviewed and implicated that the use of substances has become one of the rising major public health and socioeconomic problems worldwide including in Ethiopia. It is highly affecting the most important part of the population “young generations”, that are expected to play a leading role in one’s country in the immediate future. The finding of this study will be essential in providing evidence based data about the magnitude and associated factors of substance use among medical interns and may highlight the direction for intervention by the concerned bodies. It will also be useful for policy makers and health planers and higher institutions for designing strategies to reduce and or eliminate such risky health behaviors.

University students are more vulnerable to these problems which may be due to new environment with poor parental protection, being young age and the need to explore life, peer pressure and absence of proactive programs. Apart from these conditions, medical interns relative to other students are in a better financial position to purchase these substances, they are also allowed to prescribe drugs and all these may persuade them to use substance/s and place their health at risk. Substance use behaviors among medical students have also important implications for the health of the general population; since interns are the future physicians, they are supposed to be important role models in terms of health related behaviors. This group of population should rather be identified as a crucial group for preventing substance use and there by its consequences including the risk to STIs and HIV AIDs [8-10].

The practice of medicine requires commitment, enthusiasm, tolerance and altruism, indicating that medical intern students deserve special attention in relation to alcohol and other drug use. Moreover, medical doctors training takes longer duration and is stressful, this may expose them to a different risky health behaviors including substance use. The fact that medical doctors are part of the important health work force in the health care system; they should be free from any health risk behaviors such as these (substance use), play an exemplary role and be responsible

for the health of the society. In Ethiopia, little is known about substance use and associated factors among medical intern students. Therefore, this study was aimed at assessing the prevalence of substance use (mainly: Khat, tobacco and alcohol) and its associated factors among medical intern students.

## MATERIALS AND METHODS

### Study area and period

The study was carried out in Jimma University, which located 346 KM southwest of the capital city, Addis Ababa. Jimma University is a public higher educational institution established in 1999. The College of Health Sciences is one of the six colleges in the university. It also comprises 18 departments, a specialized teaching hospital, administrative team and other different offices. The college is currently running post graduate and undergraduate programs and medicine is one of the undergraduate programs where medical intern students are belonged.

### Study design and period

A cross sectional study design was employed in conducted July-August, 2015, in all medical intern students (188) of Jimma University (JU), College of Health Sciences who were registered for the academic year of 2014/15. Since the population of the study were manageable all medical interns were considered using census survey (i.e., each and every unit of the study population is counted) method.

### Study variables

**Dependent variables (substance use):** Khat chewing, Alcohol consumption and or Cigarette smoking

**Independent variables:** Socio demographic characteristics such as age, residence, religion, marital status and ethnicity, financial support, peer pressure, parental modeling with substance use, coming from an area where substance is commonly used

### Operational definition

**Substances:** Any non-medical drugs used by study subjects including alcohol, khat, tobacco, to alter their mood or behavior

**Substance use:** using one or many psychoactive substances (alcohol, khat, cigarettes) to alter mood or behavior [14].

**Current use:** consuming any substance within the last one month/30 days

**Life time use:** refers use of any of the substances at least once in an individual's life time.

**Psychoactive substances:** Substances that can alter the consciousness, mood and thoughts of those who use them [26].

### Data collection procedures

**Data collection instruments:** Data collection instruments included: background variables, practice and reasons of substance use. The data were collected using pre-tested (on intern students in other department) and structured questionnaire adapted after reviewing relevant literatures [20-23]. The questions and statements were also designed in line with particular objectives.

**Data collectors' selection and training:** Four medical interns who were trained for a half day to maintain the quality of the data and principal investigator was supervising the data collection process. Data was collected through self administered, structured questionnaire.

### Quality control measures

The quality of the data was assured by using pre-tested questionnaires. Data collectors were trained for a half day on the study instruments, data collection procedure, the relevance of the study, objective of the study, confidentiality of the information, informed consent. The data collectors were under close supervision of the researcher to ensure adherence and maintain correct data collection procedures. Researcher was reviewing filled questionnaires at the end of data collection every day for completeness and take timely corrective measures.

### Data processing and analysis

The collected data were coded and entered in SPSS version 20:0 statistical package. Data cleaning, checking missing values and inconsistencies was done before the beginning of the analysis. In addition to descriptive statistics, chi-square test was employed to assess for association between dependent and independent variables of the study. The Statistical significance was declared at  $P < 0.05$ .

### Ethical considerations

Ethical clearance letter from Jimma University Institutional Review Board (IRB), collaboration letters from CBE office, permission from respective authorities, verbal and written consent from respondents" was obtained before the data collection. To achieve full co-operation, respondents were reassured about the confidentiality of their response. They were also ensured their voluntarily participation and right to take part or terminate at any time they wanted and told that their name will not be mentioned (anonymity) on the questionnaire.

## RESULTS

A total of 188 medical intern students were approached to participate in this study and 186 agreed to participate, making the response rate of 98.9 %. Majority 134 (72 %) of participants were 23-25 years of age, 150 (80.6 %) were male gender, 172 (92.5 %) single, 128 (68.8%), urban residents, 110 (59.1 %) Oromo ethnic groups and 100 (53.8%) were Orthodox religion followers. Similarly, 122 (65.6%) of participants obtained financial support from their family.

One hundred and twenty three (66.1 %) of participants had friends and 55 (29.6 %) had parents who use substances while, 130 (69.9%) of them come from an area where substance is commonly used (Table 1).

Out of the total participants, 90 (48.4 %) of them had used substances in their life time. Out of the total participants, 30 (16.1 %), 49 (26.34 %), 11 (5.9 %) of them had used khat, alcohol, and cigarette at least once in their life respectively. Similarly, 89 (47.84) of participants had used substances in the last 12 months of which, 31 (16.7 %), 47 (25.3 %), 11 (5.9 %) had used khat, alcohol and cigarette respectively (Table 2). The prevalence

**Table 1:** Socio-demographic characteristics of Jimma University Medical interns, (N=186).

Variables		Frequency	(%)
Age	23-25	134	72
	26+	52	28
Sex	Male	150	80.6
	Female	36	19.4
Marital status	Married	14	7.5
	Single	172	92.5
Residence	Rural	58	31.2
	Urban	128	68.8
Ethnicity	Oromo	110	59.1
	Amhara	50	26.9
	Gurage	13	7
	Others	13	7
Religion	Orthodox	100	53.8
	Muslim	31	16.7
	Protestant	42	22.6
	Others	13	7
Family financial support	Yes	122	65.6
	No	64	35.4
Having a friend who uses substance.	Yes	123	66.1
	No	63	33.9
Having parents who use substances (Parent Modelling)	Yes	55	29.6
	No	131	70.4
Coming from an area where substance is commonly used	Yes	130	69.9
	No	56	30.1

**Table 2:** Life time and last 12 month"s use of substances among Medical interns of Jimma University.

Substances	Life time use	Use in the last 12 months
	No. (%)	No. (%)
Khat	30 (16.1)	31 (16.7)
Alcohol	49 (26.34)	47 (25.3)
Cigarette	11 (5.9)	11 (5.9)
Total	90 (48.40)	89 (47.84)

of current substance use was 80 (43.01 %). Out of the total participants, 25 (13.4%) of study subjects reported that they had used khat, 45 (24.2%) used alcohol and 10 (5.4%) used cigarette. Moreover, many of the participants used these substances weekly. Some participants also reported that they have been using a combination of substances. Likewise, 14 (7.5 %), of participants reported to use khat and alcohol while 10 (5.4 %) of them were using khat, alcohol and Cigarette as a combination of substances use (Table 3).

Participants were asked their reasons why they were using substances currently and the major reasons reported by the study participants were: to get personal pleasure 40 (21.5 %), due to peer pressure 16 (8.6 %), and to get relief from tension 15 (8.1%). While the rest of participants reported that they use substances: due to academic dissatisfaction 7(3.8 %), family role modeling 6 (3.2%) and to increase academic performance 4 (2.2 %), (Figure 1).

In this study, ethnicity ( $X^2$  8.04;  $P= 0.04$ ), religion ( $X^2$  31.05;  $P \leq 0.001$ ), having friends who use substance/s ( $X^2$ , 32.07;  $P \leq$

0.001), had statistically significant association with the current use of substance ( $P<0.05$ ), (Table 4). Likewise, statistically significant association was observed between, residence ( $X^2$ , 5.00;  $P= 0.02$ ), ethnicity, ( $X^2$  8.06;  $P=0.04$ ), having friends who use substance/s ( $X^2$ , 40.32;  $P \leq 0.001$ ), and coming from an area where substance is commonly used ( $X^2$ , 5.15;  $P= 0.02$ ), with the lifetime use of substance ( $P <0.05$ ), (Table 5).

## DISCUSSION

The use of substances has become a public health problem in the world [15]. Several studies also indicated that, substance use among Ethiopian youngsters is considerably rising [20-24]. Substances such as, alcohol, khat and cigarette are also widely consumed among high school and university students in Ethiopia [5-7,10-12,14,16]. The life time prevalence of substance use in this study was 90 (48.4 %), which is lower when compared with the study done in Haramaya University that identified the life time prevalence of substance use 62.4% [14], however, slightly higher than a study done in Axum University, Northern Ethiopia, where the life time prevalence of substance use was 45.9% [21]. Whereas, the study done in Debre Markos, found out the life time prevalence of substance use to be 14.1% [22]. Concerning the lifetime prevalence of each substance use, this study identified 30 (16.1 %) of participants used khat, 49 (26.34 %) used alcohol and 11 (5.9 %) used cigarette. In line with this, a study done in Addis Ababa University indicated that, 31.4% ever drunk alcohol, 14.1% ever chewed khat, 8.7% ever smoked cigarette [20]. Similarly, a study done among college students in Gondar revealed the lifetime prevalence of cigarette smoking 13.1% and 26.7% of them chewed khat [23]. The reason for this variation might be due to the difference in sample size, participant category (our participants were medical interns), availability of substances and in some areas like Haramaya, substances use might be socially and culturally acceptable.

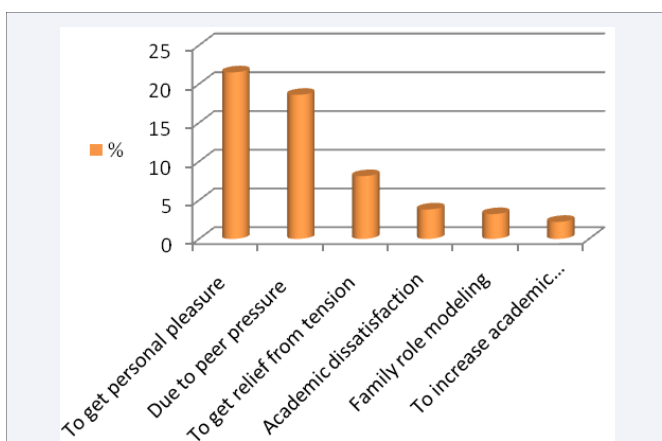
The prevalence of in the last 12 months substance use in this study was, 89 (47.84%). Concerning the types of substance used by the participants, 31 (16.7 %) used khat, 47 (25.3 %) alcohol 11 (5.9 %) had used cigarette while, a study done in A.A University showed, alcohol was consumed by 22% and khat use was reported by 7% of the students [20]. This variation especially on khat use between these two studies might be due to the fact that khat is relatively more available and accessibility in this study area. In our study the overall prevalence of current substance use was 80 (43.01 %), which is nearly comparable with the study done in Axum University that showed the current prevalence of substance use 44.8 % [21]. In contrast to this, the 2011 Hawasa university study identified that the current prevalence of substance use was 35.5 % [27]. When the current prevalence of each substance is considered, in this study 25 (13.4%) of participants reported to use khat, 45 (24.2%) alcohol and 10 (5.4%) smoked cigarette and many of them used these substances weekly. The study also identified 14 (7.5 %) used khat and alcohol while 10 (5.4 %) of them khat, Alcohol and Cigarette as a combination of substances uses. In line with this, the study done in Haramaya University showed that the current use of khat, alcohol and cigarette was 23.6 %, 20 % and 10.8 % respectively [14]; while a study done in University showed that 22 % of the students consumed alcohol, 7 % used khat, and 1.8% of them smoked cigarette [20]. Variation

**Table 3:** Current substance use and pattern among medical interns of Jimma University.

Frequency of Substance Use	Every day	twice a week	2-3 times a week	weekly	Monthly
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Khat	1(0.5)	2(1.1)	3(1.6)	19(10.2)	0 (0%)
Alcohol	3 (1.6)	5(2.7)	4(2.2)	25(13.4)	8 (4.3)
Cigarette	3 (1.6)	3 (1.6)	1(0.5)	2(1.1)	1(0.5)

**Table 4:** Factors associated with the current substance use among Medical interns of Jimma University.

Variables		Current use		X <sup>2</sup>	PV
		Yes	No		
Age	23-25	58	76	0.01	0.9
	26+	22	30		
Sex	Male	64	86	0.03	0.84
	Female	16	20		
Marital status	Married	8	6	1.23	0.26
	Single	72	100		
Residence	Rural	19	39	3.61	0.05
	Urban	61	67		
Ethnicity	Oromo	40	70	8.04v	0.04*
	Amhara	28	22		
	Gurage	4	9		
	Others	8	5		
Religion	Orthodox	51	49	31.05	≤ 0.001*
	Muslim	14	17		
	Protestant	4	38		
	Others	11	2		
Having a friend/s who use/s substance/s.	Yes	71	52	32,07	≤ 0.001*
	No	9	54		
Having parents who use substances (Parental modeling)	Yes	29	26	3	0.08
	No	51	80		
Coming from an area where substance is commonly used.	Yes	60	70	1.74	0.18
	No	20	36		
Family financial support	Yes	53	69	0.02	0.87
	No	27	37		

**Figure 1** Reasons of current substance use (alcohol, khat and or cigarette smoking) among medical interns of Jimma University.

was observed among these studies especially on khat use, which might be due to the difference in its accessibility and the socio-cultural environment of the settings.

Participants were reported their reasons why they use substances and the three major reasons in our study were: to get personal pleasure, peer pressure and to get relief from tension. The study done in Haramaya university also indicated the major reasons for chewing khat were: to increase academic performance (45.4%) , to get personal pleasure (25.8%), to get relief from tension (23%), to stay awake (16.2%), due to peer influence (16.2%), and due to academic dissatisfaction (10.3%) [14]. A study done in Turkey showed that, 35.1 % of junior and 50% of senior medical students reported, the most common reasons for drinking alcohol was for pleasure followed by social pressure accounted 10.5% and 5.8%, respectively [25].

In this study, ethnicity, religion and having friends who

**Table 5:** Factors associated with lifetime substance use among medical interns of Jimma University.

	Variables	Life time use of substance		X <sup>2</sup>	P.V
		Yes	No		
Age	23-25	65	69	0.003	0.958
	26+	25	27		
Sex	Male	74	76	0.278	0.598
	Female	16	20		
Marital status	Married	8	6	0.465	0.495
	Single	82	90		
Residence	Rural	21	37	5.007	0.025*
	Urban	69	59		
Ethnicity	Oromo	47	63	8.062	0.045*
	Amhara	32	18		
	Gurage	4	9		
	Others	7	6		
Religion	Orthodox	57	43	8.719	0.069
	Muslim	15	16		
	Protestant	7	35		
	Others	11	2		
Having a friend/s who use/s substance/s.	Yes	80	43	40.328	< 0.001*
	No	10	53		
Having parents who use substances (Parental modeling)	Yes	32	23	3	0.083
	No	58	73		
Coming from an area where substance is commonly used.	Yes	70	60	5.152	0.023*
	No	20	36		
Family financial support	Yes	56	66	0.877	0.349
	No	34	30		

use substance/s, had statistically significant association with the current use of substance ( $P < 0.05$ ). Likewise, residence, ethnicity, having friends who use substance/s, and coming from an area where substance is commonly used, showed statistically significant association with the life time use of substances ( $P < 0.05$ ). A study done by Addis Ababa University also found statistically significant association between having friends who use substance/s and life time substance use [20].

## CONCLUSION

In this study, the prevalence of substance use among intern students was considerably high. The three major reasons reported were: to get personal pleasure, peer pressure and to get relief from tension. Residence, ethnicity, having friends who use substance/s, and coming from an area where substance is commonly used, had statistically significant association with the lifetime use of substances ( $P < 0.05$ ). Considering medical, psycho-social and economic consequences of substance use, the findings of this study have serious implications which necessitate strategic interventions aimed at reducing this problem without delay. We would also like to recommend that the university environment including teachers should be supportive and none threatening towards their students so as to avoid unnecessary tension and stress.

Finally, in our study social desirability bias, collecting data using self-reported use of substances may lead to underreporting and underestimate substance use. Since this is cross sectional study, we can't claim cause and effect relationship and

generalizability. However, it can be extrapolated to other students of similar setting and socio-demographic characteristics.

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## AUTHORS' CONTRIBUTIONS

ED- Conceptualized, designed the study; collected, analysed, interpreted the data and drafted the manuscript. MS- Designed the study, interpreted the data and edited the manuscript DW- Designed the study, collected, interpreted the data and edited the manuscript. BT- Conceptualized, designed the study, analysed, interpreted the data and drafted the manuscript.

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