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# Magnitude of substances use and associated factors among regular undergraduate students of private higher education institutions in Adama town, Oromia, Ethiopia

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# Abstract

**Background:** Psychoactive substances are those substances which have various natural or synthetic compounds that act on the nervous system causing change in the function that regulate thoughts, behavior and emotions. Abuse of such substances involves increasing the risk of injuries, aggressions and the risk of unsafe sexual behaviors. The problem is even worse when it happens among young people such as students of higher educational institutions.

**Objectives:** The objective of this study was to determine the magnitude of substance use and factors associated among regular undergraduate students of private higher education institutions from June 2018 up to August 2018 in Adama Town, Oromia, Ethiopia, Method: Institutional based cross-sectional study was conducted. Study participants (596) selected using systematic random sampling technique. Data collected using pre-tested self- administered modified WHO Model core questionnaire. The collected data cleaned, coded and entered to Epi-Info 7.2 computer software and analyzed by SPSS version 21.Descriptive statistics used to summarize variables as appropriate. Binary logistic regression used to select variables for multivariable analysis.

**Result:** A total of 596 students participated in the study. The response rate was 100%. Three hundred eighty nine (65.3%) participants were female, Four hundred seventy two (79.2%) were in the age group 18-24 years. Based on this study magnitude of substance use at least for one substance in the last 12 months among the study participants was 33.9% with 95%CI (29.9, 37.6), The most commonly used substance in descending order was Cigarette (7.0%), Khat (6.4%) and Alcohol (3.4%). Based on this study finding all substance use (Cigarette,

Khat and Alcohol) together counted (17.1%). Female participation had high significance, family members using substance, believing substance use as good and knowing the risk of substance use also had significance. Based on this study associated factors for substance use showed that to increase work performance 10.2%, to minimize tension 9.7% and due to peer influence 8.7%. Pattern of substance use showed most of the participant's use substance weekly 14.4%, monthly 7.7%, daily abusers 7.0% and other occasional users were 5.2%.

**Conclusion:** This study showed magnitude 33.9% for at least one substance use for the past 12 months. Family history of students using substance had more significant. Showing the risk of Substance use among study subjects, the creation of awareness for family members and consistent health education should be continued to fully address the problem of using substance.

Keywords: Adama, associated factors, substance use, undergraduate students

# 1. Introduction Background

History of substance use is as old as history of mankind. Human beings have been used the different parts of plants as medicine for reliving different health conditions. Substance abuse is becoming a serious ongoing public health problem in which it affects every community and family in some way. It interferes with an individual physical and mental health, social situations and responsibilities of young generation. Its use among adolescents can be harmful, leading to decreased academic performance, increased risk of contracting HIV/AIDS including Sexually Transmitted Diseases and Psychiatric Disorder<sup>[1]</sup>. Globally substance abuse becomes a hot and sensitive issue of discussion and spreading at an alarming rate in young generation, especially in higher institutions; where there are intensive academic activities are more intended <sup>[2]</sup>. Substance use among college and university students remains an important area of research due to an implication of early substance dependence on the future of the young generation <sup>[3]</sup>.

Psychoactive substance is any chemical substance which, when taken to the body, alters its function physically and/or psychologically. Psychoactive substance abuse is a maladaptive pattern of substance use leading to significant impairment or distress which can be recurrent substance use resulting in a failure to fulfill major role obligation at work, school or home (e.g., repeated absence, poor work performance related to substance use; substance related absences, suspensions or expulsion from school; neglect of children or household); persistent substance use in situations in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by substance use); frequent substance related legal problems (e.g., arrests of substance related disorderly conduct);or continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of substance (e.g., arguments with spouse about consequences of intoxication, physical fight (DSM IV)<sup>[4]</sup>.

There are many reasons that adolescents use substances, including the desire for new experiences, simple peer pressure to relieve of stress, social acceptance, lower educational level of parents, and the desire to attain high personality profile <sup>[5]</sup>.

Substance abuse was a major health issue such as Khat (Fresh Leaves and shoots of Catha edulis), Cigarette and Alcohol have been used for long time by human beings and brought a leading cause of public health issue. The health of young people is the most important factor in the promotion and preservation of the health of the population as a whole because it determines the overall level of population of health in short term <sup>[6]</sup>.

Substance abuse associated with a wide range of negative health consequences and affecting socio-economic of the community globally. Use of substance happens in all levels of society but more spreading in young generation (1). Globally there were about 190 million substance abusers out of these substance abusers around 40 million serious illness or injuries were observed each year. Substance abuse increasing as period goes. Current research showed that the use of substances have extensively increased particularly in developing countries<sup>[7]</sup>.

The consequences of substance abuse ranges from causing accidents, injuries, and violence's to chronic illness such as dependence, cardiovascular diseases, HIV/AIDS, Hepatitis and Variable Cancers. More over Physical and Psychological problems resulting in increasing health care costs. This all significantly leads to social, educational, criminal justice and loss of productivity costs worldwide <sup>[8]</sup>.

Substance abuse among youth has been worldwide epidemic that influences negatively on the health sector as well as the family and society. Early student life is a time of tremendously high motivation to confirm to the behaviors, values and attitudes that are valued by the youth culture. They observe their peers behavior and alter their own behavior with their peers norms and expectations. This compliance with perceived peer norms can however lead to increased cigarette smoking, alcohol drinking and drug use <sup>[9]</sup>.

University study is a period when students experience independence and freedom from direct adult and family supervision, self-decision making, and intense academic pressure, share living quarters with strangers form new social groups, balance social engagement with academic and other life responsibilities, and may exposed to normative values valued by the use culture that differ from parental values <sup>[10]</sup>.

The magnitude and associated factors of substance use among young adults are not well known, especially in private higher education institutions of regular undergraduate students.

There are few studies regarding the prevalence of substance abuse and associated factors in some private and public universities, in which there is no study published in my area. Therefore, this study will be intended to fill this gap by assessing the magnitude and associated factors, assist the institutions to develop appropriate plan and intervention to reduce the problem and can serve as baseline for those who wish to conduct study on this area.

Substance use is a major Public Health issue. University students are important to every nation and their wellbeing and health are essential to national development. This study will be an input to researchers because it identifies the magnitude of substance use and associated factors among regular undergraduate students in private higher education institution in Adama Town.

The study improves coordination and cooperation by raising public awareness. Policy makers and Government officials will give a priority area in order to keep the young generation more productive. By having the magnitude and associated factors of substance use among young generation as their wellbeing is crucial to all societal level. There by, it focuses on protecting young people, reduce injuries and deaths from substance use related hazardous situations. The study brings an input by determining the associated factors on substance use in private higher education institutions of under graduate regular students.

# 2. Objectives

# 2.1 General objectives

To determine magnitude of substance use and associated factors among regular undergraduate students from June 2018 up to August 2018 in private higher education institutions in Adama Town.

# 2.2 Specific objectives

- Determine magnitude of substance use among regular undergraduate students-in Adama private higher education institutions
- Assess factors associated with the substance use among regular undergraduate students-in Adama private higher education institutions

# 3. Methods

# 3.1 Study Design and Period

Descriptive Cross sectional quantitative Study design was conducted from June 2018 to August 2018 at East Shoa Zone Oromia Region, Adama Town, Ethiopia.

# 3.2 Source and Study Population

# Source Population

All Regular Undergraduate Students of Private Higher Education Institutions in Adama Town were the Source of Population for the Study.

# Study Population

Study population for this research was all regular undergraduate students enrolled in Adama General Hospital Medical College, Genes Land College, Royal College and Unity University in Adama Town.

# **Inclusion and Exclusion Criteria**

# Inclusion Criteria

All students, within age group  $\geq 18$  years were included in the study.

# 3.3 Sample size determination and Sampling TechniquesSample size determination for the magnitude

The sample size (N=15267) primarily determined the magnitude of substance use among regular undergraduate students in private higher education institutions in Adama. Before sample size determination similar study done on different researches reviewed. The prevalence of substance use and associated factors was taken from study conducted in Mekelle town, Sheba University 2016, which was 45.5% utilized to determine sample size <sup>[5]</sup>. The required sample size of the study were determined by

using single population proportion formula considering the following assumption from: 95% confidence interval and 5% margin of error,

Where:  $\mathbf{n}$ = sample size required for the study, =standard normal distribution (=1.96)

**P**=the prevalence of at least one substance abuse = margin of error (5%)

# Sampling Techniques

From a total of 9 colleges (N=15267) private higher education institution students by lottery method 04 colleges were selected. From those selected colleges using systematic random selection by proportionate for each department list of students used by applying k, k+n, actual sample size (n=596) found.

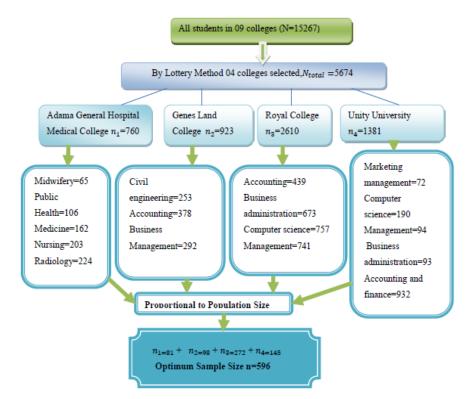


Fig 1: Sampling Technique

# 3.5. Study VariablesDependent Variables

Substance Use

# • Independent Variables

Socio demographic factors, Family related factors and Economic Factors

# 3.6. Operational Definition

Substance Use: referred to as the use of at least one of the substances alcohol, cigarette and khat in an individual's life time to alter mood or behavior.

Current User: Use of the substance at least once in the past 12 months.

Ever Use: Use of any substance at least once in a life time

# 3.7. Data collection

Data collected by self-administered questioner that includes tools used to determine the magnitude of substance use and associated factors among regular undergraduate students of adama private higher education institutions. Data collected by trained TVET students for a period of 05 days. For each college one day used by having four data collectors, supervisor and one data entry clerk.

# **3.8. Data quality assurance**

The questioner designed and modified appropriately. The questioner translated to local language (Amharic and Ormiffa) to be understood by all participants and translated back to English. Training was given for data collectors and supervisors. Pre-test done three days before the start of the actual data collection at study area with 5% of the actual sample size at Rift Valley University Adama main campus. This was to avoid inconsistency and ambiguity.

The data collectors supervised and the filled questioner monitored daily by the supervisors and principal investigators for any challenging situations.

# 3.9. Data processing and analysis

Socio demographic related factors (age, sex, religion, ethnicity, pervious residence, living alone, marital status). Family related factors (family history of substance use, family history of marital

status, family educational status), Socio cultural (Peer influencing factor, means of coping from stress and availability of substance) Economic related factors (pocket money).

#### 3.10. Ethical consideration

Ethical clearance was obtained from Rift Valley University Department of Public Health. The data collectors clearly explained the aims of the study for participant. Information collected after obtaining signed written consent from each participant. The right was given to the study participants to refuse or discontinue participation at any time they want and the chance to ask anything about the study. For the purpose of anonymity respondent's name not used at the time of data collection and all other personal information kept entirely anonymously and confidentiality were assured throughout the study period. Data collectors put their signature for they could obtain signed written consent for the participants. The principal investigator has commitment that findings used later based on the study objectives.

# 3.11. Data Dissemination

The final report of the study submitted to Rift Valley University Department of Public Health. The result presented during thesis defense, as a partial fulfillment of MSC in Public Health. The result submitted for participated colleges and to be published for Journals.

#### 4. Result

**4.1. Socio-Demographic characteristics of study participants** Total of 596 study participants were involved with response rate of 100%. Three hundred eighty nine (65.7%) were females. The participants' age was non-normally distributed and median age of participants was 22 years with inter quartile range of 21-23 years. Majority of the participants, 472 (79.2%) were in age category of 18 to 24 years. The majority of participants 320 (53.4%) were Orthodox religion followers. Out of the participants the marital status 88.1% were single followed by 7.4% married. The participant living condition was calculated as living with family was 68.3% and living alone was 24.0%.

From Total participants 273 (45.7%) were from Royal College. The previous place of residence for the majority of respondents 217 (36.3%) were from Eastern part of Ethiopia. The prominent family occupational status was 137 (22.79%) Government employed, followed by 132 (22.1%) farmers. Families educational status in which fathers 94 (15.7%) and mothers 112(18.8%) were illiterate. Fathers 133 (22.3%) and Mothers 176 (29.5%) were at Primary educational level. Reports based on having pocket money, respondents answered "yes" were

 Table 1: Socio-Demographic Characteristics of Adama Private Regular Undergraduate Higher Education Institutions (n=596) Oromia, Ethiopia, 2018.

391(65.6%).

Variables	Frequency (n=596)	Percentage (%)
	Sex	
Male	207	34.7
Female	389	65.3
	Age Group (Years)	
18-24	472	79.2
25-31	108	18.1
32-38	15	2.5
39 and above	1	0.2
·	Ethnicity	•
Oromo	254	42.5
Amhara	169	28.3
Tigrae	62	10.4
Guragae	61	10.2
Other*	50	8.4
·	Religion	•
Orthodox	320	53.7
Muslim	118	19.8
Protestant	117	19.6
Catholic	27	4.5
Other**	14	2.3
·	Previous Residence	
North Ethiopia	87	14.6
South Ethiopia	71	11.9
Central Ethiopia	179	30.0
East Ethiopia	217	36.3
West Ethiopia	42	7.0
<u> </u>	Marital Status	•
Single	526	88.1
Married	44	7.4
Separated	20	3.4
Divorced	6	1.0

Other\* includes Gamo, Harari, Afar and Siltae, Other\*\* include Waqefeta and Joshwa wittiness.

### 4.2. Magnitude of Substance use

Among the participants, 596 (33.9%) used at least one substance in the last 12 months. Therefore the magnitude of addict-able substance use among private college students was 33.9%; (95%CI: 29.9, 37.6), the study showed that 42(7.0%) of the participant had habit of smoking for the past 12 months. The study revealed 38(6.4%) chewed khat and concerning alcohol drinking habit, 20(3.4%) reported drank for the past 12 months. Concerning all substance use (Khat, Alcohol and Cigarette) showed that 102 (17.1%) used all together for the past 12 months.

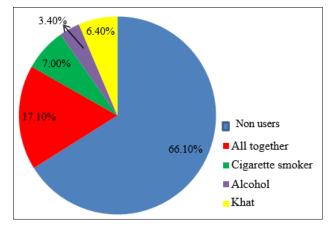


Fig 2: Pie Chart Showing Types of Substance Use

#### 4.3. Pattern of Substance use

The participants were further asked about their habit of substance use. The report showed that 86(14.4%) used weekly and 46 (7.7%) monthly, 42 (7.0%) used daily and the rest other occasionally were 28(4.7%).

# 4.4. Reason for using substance

Based on the participants respond, different reasons were mentioned for using substance. The respond for chewing khat were as follows, to minimize tension 13 (6.8%), to increase work performance 11(5.8%) and due to peer influence was 2(1.0%). Out of those participants who reported drank alcohol 10 (5.2) due to peer influence, 6(3.1%) were to minimize tension and 3(1.6%)to increase work performance. Regarding all substance use respondents reasoned to increase work performance 61(10.2%), to minimize tension 58 (9.7%), because of peer influence 52 (8.7%) and with other reasons were 31 (5.2%).

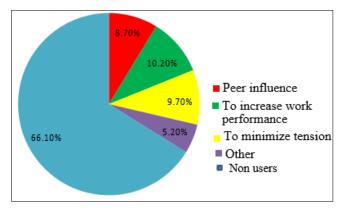


Fig 3: Pie Chart showing reason of substance use

#### 4.5. Factors associated with substance use

Initially different variables such as Age, Sex, and Marital Status, Family history of substance use, having pocket money, family occupational status, believing substance use as good and knowing the risk of substance use were considered for bivariate analysis. In the bivariate analysis the following variables showed a statistically significant association with substance use: Sex, knowing the risk of substance use, having family history of substance use and believing substance use was good. These variables were taken and analyzed together using multivariate logistic regression model.

After controlling for the effects of potentially confounding variables using multivariate logistic regression model, sex being female, knowing the risk of substance use, having family history of substance use and believing substance use as good were found to be statistically significant predictors of substance use. Being female had strong association with substance use [AOR 2.19, 95% CI: 1.34, 3.58]. Those students who had no family history of substance use [AOR 0.14, 95% CI: 0.09, 0.22] were less likely to use substance than those students with family history of substance use. The Odds of not knowing risk of substance use [AOR 0.38, 95% CI: 0.23, 0.64] were less likely to use substance than those who knew the risk. Students who didn't believe substance use as good [AOR (95% CI), 0.13 (0.07, 0.23)] were more likely to use substance than who believed substance use was good.

<b>Table 2:</b> Bivariate and Multivariable logistic regression analysis showing factors associated with at least one substance use for the last 12 months
among regular under graduate students of private higher education institutions in Adama Town, Oromia Ethiopia, 2018.

Variables	Substance Use for the last 12 months		Odds Ratio					
	Yes	No	COR (95%CI)	AOR (95%CI)				
	Sex of the participants							
Male	94	113	1:00	1:00				
Female	108	281	2.16 (1.52,3.08)*	2.19 (1.34, 3.58)*				
Pocket money of the participants								
No	48	157	0.47 (0.32,0.69)*	0.65 (0.39, 1.07)				
Yes	154	237	1:00	1:00				
Know the risk of substance use								
No	41	173	0.33 (0.22, 0.48)*	0.38 (0.23, 0.64)**				
Yes	161	221	1:00	1:00				
	Participants family history of substance use							
No	58	316	0.10 (0.07, 0.15)*	0.14 (0.09, 0.22)**				

### International Journal of Psychology Research

	Yes	144	78	1:00	1:00	
Believing substance use was good						
Γ	No	111	369	0.08 (0.05, 0.14)*	0.13 (0.07, 0.23)**	
Γ	Yes	91	25	1:00	1:00	

\*Statistical significance, **NB**: \*p-value < 0.05, \*\*p-value < 0.001, 1: Reference

Note:-variables not entered in the model because they were not found significant in bivariate analysis.

#### 5. Discussion

This institutional based cross sectional study showed the overall magnitude of substance use for at least one substance was 33.9%. The most commonly used substance in descending order was 17.1% all substance abuse, 7.0% cigarette smoking,6.4% Khat Chewing and 3.4% were alcohol drinking. Study done at Adigrat University commonly used substance was alcohol 8.7%, followed by Khat 6.7% and cigarette 6.0% [19], in which in this study the first substance to be used was cigarette, followed by khat and alcohol be the last which is relatively higher than this study <sup>[19]</sup>. Based on study done at Hawassa university undergraduate students substance use for the past 12 months were 40.8% alcohol abuse, 20.3% were Khat chewers followed by 11.9% cigarette smokers which is higher than this study <sup>[16]</sup>. Sex, family history of substance use, knowing the risk of substance use and believing that substance abuse was good were found to be statistically significant predictors of substance abuse.

This study showed being male was more protective from substance use when we compare it with other studies done in different researches <sup>[10, 16]</sup>. The overall prevalence of substance use at least for one substance was 33.9%. This is lower than a similar study done in University of Ethiopia which was 62.4% <sup>[15]</sup>. Study done in Mekele Sheba University showed 45.5% for at least one substance which is higher than this study <sup>[5]</sup>. Based on the previous studies which were done in University Debre Markos Poly Technique the overall prevalence of substance use was 14.1% which less than this study <sup>[8]</sup>. This difference may be due to the difference in population size under the study area.

Based on this study participants who chewed khat reasoning for using substance to minimize tension were 9.7% whereas study done in University students in Ethiopia showed to get relief from tension 16.2% which is higher than this study [15]. Bishoftu Rift valley university study showed that the reason of using substance was to relief stress 35.9% and peer influence was 46.2% in which it is higher from this study <sup>[20]</sup>.

#### 6. Strength and limitations of the study strength of the study

- Primary data were collected by trained data collectors TVET students and two days training were given for data collectors including pre-testing data collection tools.
- The sample sizes for the current study were optimum sample size which is 596.
- Private college based data collection and probability simple random sampling method were used that represent regular undergraduate students of private higher education institutions.
- Strict confidentiality was maintained through coding of the questionnaire anonymously.

### Limitation of the study

 The study data collection was on the way of the students for summer vacation and having graduating class made unable to get data on the required time limit.

#### 7. Conclusion and Recommedation

The findings of this study shows that the overall magnitude of substance use at least for one substance is thirty three point nine percent in which substance use is a serious problem among private undergraduate students. The most commonly used substance was all substance use followed by cigarette, khat and alcohol. Being male became protective which I could not found in other researches, those participants who knew the risk of substance use and family history of substance use were the factors affecting students to abuse substance. Based on this study student who were together with their families were more protected of using substance in which living with family was sixty eight point three percent.

### **Family Education**

Family education and awareness based on their substance use if possible to avoid or minimize using substance in front of their siblings. Good family and young generation education relevant to change substance using behavior. The study finding shows having pocket money was very big number 65.6% in which offering pocket money should be with controlling method.

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