Substance use and Associated Factors among MaddaWalabu University Undergraduate Students, Southeast Ethiopia

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Abstract

Background*: Substance use among Ethiopian adolescents is considerably rising; particular in college and university students. However, the magnitude of substance use and the factors associated with it has not been well investigated in the country. The main purpose of this study was to identify substance use prevalence among MaddaWalabu University undergraduate Students.*

Methods: *A cross sectional study design was employed using self–administered structured questionnaires. Data were collected from a sample of 605 undergraduate students in the University. The data were analyzed using SPSS version 20. Descriptive and Inferential statistics were used for data presentation. Determinant factors for substance use were checked for significance association using Chi Square, One way ANOVA and Logistic regression with significance level set at $p < 0.05$.*

Results*: The findings of this study shows that socio-demographic variables were determinant factors for substance use of the study participants. Among students who were ever users of one of the substances: tobacco, alcohol, cannabis, sedatives or Khat; it was seen that females are close to males in the use of these substances. There is statistically significant difference in age group ($\chi^2 = 9.69$, $df = 3$, $p<0.05$). Compared to the final year students, second year students were 4 times more likely to have used one of the substances and first year students were also at high odds of being a substance user (2.6, AOR).*

Conclusion: *Compared the second year students, first year students were at significant risk of ever using any one of the substances. This trend is alarming. Tobacco consumption or Khat use has been significantly associated with socio-demographic variables. Use of opiates were also reported. Hence it is important to carry out educational campaigns about addiction and its prevention.*

Keywords - *Substance use, Undergraduate Students, Associated factors*

I. BACKGROUND OF THE STUDY

Globally around 190 million drug users were reported. Out of these substance abusers, 40 million serious illnesses or injuries were identified each year accompanied by huge financial and social burden on the community [1, 2]. Some studies from Ethiopia and neighboring counties have investigated the magnitude and pattern of Psychoactive Substance use among university students. Khat is one of the most commonly abused Psychoactive Substance use in countries like Ethiopia, Yemen, Kenya, Uganda, and other Arabic countries. For instance, lifetime prevalence of khat use is reported to be 28.4% among Axum University students of Ethiopia [3] and 23.1% for university students of Jazan region, Saudi Arabia [4]. One study reported that 2.8% of university students in Eldoret Kenya used Marijuana, [5].

According to a study conducted by [6] the use of tobacco, alcohol and illicit drugs peaks between the ages of 18 and 25 years during which many young people are enrolled in colleges or universities. College students are at particular risk for binge drinking, both of which occur at higher levels among college students than among non-enrolled students of the same age. The use of tobacco and illicit drugs is also are prevalent on college campuses, although use is not as high as among young people who do not attend college. The mean age at first intoxication was not associated with age or gender. In contrast, younger age was associated with earlier ages of onset for all of the illicit drug classes [7]. Available studies clearly indicate that young persons are dying from preventable diseases in Africa because of lack of knowledge and poverty [8,9].

HIV prevalence in African countries continue to be high. In this situation, injection drug use habit is a serious issue as HIV transmission risk is high among people who inject drugs (PWIDs). Injection drug use

has not got any attention in Ethiopian Demographic survey, 2016 [10]because it was non-existent. However, it is slowly entering into Ethiopia and is spreading. Recognizing this and taking remedial measures is an urgent policy issue. Injecting Heroin now occurs in most large towns in Kenya and Tanzania [11,12] and is increasing in Cote d'Ivoire, Kenya, Mauritius, Morocco, Nigeria, Egypt, Mozambique, South Africa and Tanzania [11,12,13]. Ethiopia borders Kenya and drug trade is penetrating through the porous borders. According to UNODC world drug report, 2013 prevalence of heroin use is 0.22% in Kenya. Given the paucity of data, the rates could be much higher. HIV transmission among PWIDs in Kenya is 18%, three times that of general population [14]. It is in this context that the study findings of University students' use of drugs has prompted attention.

II. METHODS

An institutional based cross-sectional survey was carried out among 605 regular undergraduate students of MaddaWalabu University in March, 2016 randomly selected from 5,960 students at the university. The list of students were obtained from the Madda Walabu University Registrar Office.Madda Walabu University is one of the newly established Public universities, started in 2007. It is at Bale Zone, Oromia regional State, at a distance of 430 km from Addis Ababa, the capital of Ethiopia. The university has two campuses: the main campus in Robe Town and Medicine and Health Sciences College campus in Goba Town and as well as the College of Business and Economics in Shashamanne town.

Data were collected using self-administered questionnaire. Questionnaire was translated to the local languages (Afan Oromo and Amharic) and translated back to English by different linguistics experts. A two days training were given for data collectors on how to collect data and its procedure. Instructors from different schools in the university supported the data collection as supervisors. Data collection facilitators were fluent speakers of both Afan Oromo and Amharic language. The collected data from the participants were analyzed using SPSS.20.

A. The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

According to [15] the respondents who filled on the ASSIST inventory are categorized as mild users, moderate users and heavy users based on their total score on ASSIS. Participants with ASSIST specific substance participation scores three or less (10 for alcohol) are at low risk of problems associated among the use of substance involved and considered as mild users. Average variety scores between 4 (11 for alcohol) and 26 for a substance are suggestion of risky or harmful use so as to substance and categorized as moderate users of a specified substance. Patients with scores in this range are at moderate risk of damage from their current pattern of substance use. A score of 27 or higher for any substance suggests that the patient is at threat of dependence on that substance. It is most likely to the occurrence of health, social, financial, legal and relationship problems as a consequence of their substance abuse and participants in this range.

III. OPERATIONAL DEFINITION

Substance: Any non-medical psychoactive stimulants used by study subjects such as alcohol, khat, Cannabis, cocaine, cigarette shisha

***Substance Use*:** Taking any of the three commonly used psychoactive substances: alcohol, cigarette and/or khat in the past 30 days.

Substance Abuse: - The term refers to the misuse and abuse of legal substances such as alcohol, tobacco, khat, over-the –counter drugs, prescribed drugs, indigenous plants, solvents and inhalants, as well as the use of illicit drugs

***Lifetime/Ever-use*:** Students' use of the particular substance at least once in their lifetime.

IV. RESULTS

Table1: Socio-Demographic Variables of the study

		n	%
Sex	Male	452	74.7
	Female	153	25.3
Residential status	Urban	239	39.5
	Rural	361	59.7
Age	16-20	194	32.1
	21-25	353	58.3
	26-30	47	7.8
	31-35	11	1.8
Academic year level	I	244	40.3
	II	203	33.5
	III	138	22.7
	IV	20	3.6

Table 1 shows the general information of the individual respondents based on their demographic characteristics. It indicates that 605 undergraduate

students of were included in the study; 452(74.7%) of the participants were male, whereas the rest 153(25.3%) participants were female. As it is clearly showed the frequency of participants in terms of age, the range of the majority of the respondents 353(58.3%) age is between 21 and 25 years. On the other hand, 194 (32.1 %) of them were in 16-20 years age category. Finally, 47(7.8%) respondents' age is between 26 and 30, and the rest very few respondents age range 31-35, accounts for 11(1.8%).

Table2: Classification of students' Substance Use based on Their Total Score on ASSIST among Undergraduate Madda Walabu University Students

Substances	ASSIST Classification					
For alcohol	Low Users (< 10)		Moderate Users (11-26)		High Users (> 27)	
	F	%	F	%	F	%
Alcoholic beverages (beer, wine, spirits, etc.)	537	89.1	31	5.4	35	5.5
For other substances / drugs	Low Users (< 3)		Moderate Users (4-26)		High Users (> 27)	
	F	%	F	%	F	%
Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	536	88.9	41	6.9	26	4
Cannabis (marijuana, pot, grass, hash, etc.)	593	98.3	10	1.7	-	-
Cocaine (coke, crack, etc.)	602	99.8	-	-	1	0.2
Amphetamine-type stimulants (speed, meth, ecstasy, etc.)	600	99.5	3	.3	-	-
Inhalants (nitrous, glue, petrol, paint thinner, etc.)	601	99.8	1	.2	-	-
Sedatives or sleeping pills (diazepam, alprazolam, flunitrazepam, midazolam, etc.)	596	98.8	6	.6	1	.3
Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)	600	99.5	3	.3	-	-
Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)	604	99.8	-	-	-	-
Chat or Khat	533	88.4	33	5.5	37	5.8
specifiy others	600	99.8	1	.2	-	-

In relation to frequency of participants in terms of residential status of family/foster, those from urban resident were 239(39.5%) and a large number of the respondents were rural resident 361 (59.7%). With regard to, academic year level, year I participants accounted for the majority of the respondents 244(40.3%) while, year II, year III and year IV students respectively were 203(33.5%), 138 (22.7%) and 20(3.6%). Moreover, admission type indicates that, regular students accounts for the largest number of respondents 523(86.4%) as compared to extension students 82(13, 5%) that participated in the study [Table 1].

Based on the principle of ASSIST in the current study, the participants were categorized as low users, moderate users and heavy users. The summary of this categorization is presented in Table 2.

The above table shows that although most of the students' substance abuse score were in the category of low users that have an effect on personal, social, economic, psychological and other health related problems since their current pattern of substance abuse in the majority of the substances, there were a small number of students who were at threat of health and other associated problems due to their recent pattern of substance abuse, especially the table shows that 31(5.4%)of participants were reported as the moderate alcohol user and 35(5.5%) of them reported that they severely or heavily consumed alcohol. Similarly, tobacco products were used moderately 41(6.9%) and 26(4%) severely as reported by the students.

Furthermore, sedatives drugs used 6(0.6%) moderately and 1(.3%) severely while khat users reported 33(5.5%) of respondents chew chat moderately and 37(5.8%) at severe.

Table 3: Ever use of any Substance by male and female respondents (n=153)

Items	Male		Female		Total	
	n	%	n	%	n	%

Tobacco Products	49	44.5	22	51.2	71	46.4
Alcoholic Beverages	59	53.6	19	44.2	78	51.0
Cannabis	8	7.3	6	14.0	14	9.2
Sedatives or Sleeping Pills	4	3.6	4	9.3	8	5.2
Khat	55	50.0	21	48.0	76	49.7

Among students who were current users of one of the substances: tobacco, alcohol, cannabis, sedatives or Khat, it was seen that the number of female students is closer to that of males.

Majority of the females and almost half of the males were using tobacco products. Alcohol use was similar with more males consuming alcohol (53.6%) and 44.2% female students were drinking alcohol.

Substance Use Pattern shows that majority of the female students are using the substance. Higher percentages among female students are using Cannabis compared to the parentage using the substance among males. Similar is the case with sedatives.

Table 4: Chi square on Age Range Life time Khat use among Undergraduate Madda Walabu University Students

Age range	Yes	%	No	%	Total
16-20	19	3.17	172	28.71	191
21-25	50	8.35	301	50.25	351
26-30	1	0.16	46	7.67	47
31-35	3	0.5	7	1.61	10
Total	73	12.16	526	88. 18	599

x^2=9.69; p<.0.02

Table 4 depicts the result of complied cross-tabulated status of lifetime use and relationship across age ranges of participants. 8.35% of the participants between age range 21-25 reported life time khat use, followed by participants between age range 16-20. In addition, the table indicates that there is statistical difference among the age groups(χ^2 = 9.69, df = 3, p<0.05). Significantly, students between age range of 21-25 years;that is those in early adulthood had experienced lifetime chat use compared to other age groups.

Table5:ANOVA of Academic Year Level and Age Range of Respondents Lifetime drug use among Undergraduate Madda Walabu University Students

		SS	MS	F
Academic Year				
Lifetime Tobacco Use***	Between	19.45	6.48	7.15
	Within	544.55	0.9	
	Total	564.01		
Lifetime Alcohol Use***	Between	12.95	4.31	4.33
	Within	598.53	0.99	
	Total	611.49		
Lifetime chat Use***	Between	11.58	3.86	3.95
	Within	586.49	0.97	
	Total	598.07		
Age				
	Between	31.85	1.67	1.78
Lifetime Khat Use***	Within	545.07	0.94	
	Total	576.93		

** P<.05

Table 5 indicates that there was a statistically significant difference between frequency of lifetime tobacco use and academic year level of students. Similarly, academic year of the students also played a significant role in lifetime alcohol use. In addition, lifetime Khat use was significantly dependent upon academic year of the students, F (3,601) =3.95 .p<.01. On the other hand, the above table also showed that age of the students has a significant effect on lifetime khat use, F(19,579) = 1.78.p<.05.

Factors associated with substance use

Table 6: Logistic Regression Substance Use and Non-use among Undergraduate Students of Madda Walabu University

Variables	n(%)	UOR (95%CI)	AOR(95% CI)
Sex			
Male	153(25.3)	**1.0**	**1.0**
Female	4 52(84.6)	1.069 (0.71-	1.201(0.76-

		1.61)	1.88)
Age 15-20 years 21-25 years 26-30 years >30 years	194(32.1%) 353(58.3%) 47(7.8%) 11(1.8%)	**1.0** 0.861 (0.579-1.279) 0.70 (0.33-1.51) 0.259 (0.032-2.074)	**1.0** 0.784(0.51-1.20) 0.725 (0.316-1.661) 0.253 (0.03-2.09)
Residential Status Urban Rural	239(39.5%) 361(59.7%)	**1.0** 0.994(0.683-1.446)	**1.0** 0.927 (0.616-1.395)
Academic Year Frist Second Final	244(40.33%) 203(33.55%) 158(26.12%)	2.88*(1.637-5.08) 4.0049*(2.264-7.083) **1.0**	2.628*(1.46-4.73) 4.098*(2.30-7.301) **1.0**
Students CGPA CGPA_1 (2-2.5) CGPA _2 (2.51-3.0) CGPA _3 (3.01-3.5) CGPA _4 (3.51-4.0)	141(24.96%) 303(53.63%) 68(12.04%) 53(9.38%)	**1.0** 1.188 (0.738-1.911) 1.091(0.548-2.171) 1.41(0.68-2.87)	**1.0** 1.265(0.773-2.071) 1.117(0.549-2.273) 1.44(0.681-3.051)

CGPA: Cumulative Grade Point Average; UOR: Unadjusted Odds Ratio; AOR: Adjusted Odds Ratio

Logistic regression was carried out to identify the covariates contribution to substance use. Only year of study was seen to have to have significant impact on their current use of substances. The first year and second year students were using either one of the substances compared to final year students. Hence final year students were considered as the reference category. Compared to the final year students, second year students were 4 times more likely to have used one of the substances (tobacco, alcohol, chat, sedatives or cannabis) and first year students were also at high odds of being a substance user (2.6, AOR).

V. DISCUSSION

The finding of this study revealed that the most commonly abused drugs were alcohol 12.9% ,khat 12.6% ,Tobacco 11.7% ,and cannabis 2.3% . This result was similar with the study finding from Mekele University students, which were indicated that alcohol 16.6%, khat 14.8% and cigarette and cannabis 8.8% were commonly abused substances[3,16] found that the use of alcohol, khat and tobacco among adolescents can be harmful and, can lead to decreased academic performance, increased risk of contracting HIV and other psychiatric disorders, such as hopelessness and depression.

Though use of cannabis and other opiates or prescription drugs are very small in the study population, its use in itself is a matter of concern. Studies indicate that the use of oral drug begins early and within a few years they graduate to injections. For many substances, the average age at initiation in 2016 was younger than age 20, with average ages of 17.4 years for alcohol, 18.0 years for cigarettes, 18.2 years for inhalants, 19.3 years for marijuana, and 19.6 years for any hallucinogen [6,17]. A recent study found that the mean age at first intoxication was not associated with age or gender. In contrast, younger age was associated with earlier ages of onset for all of the illicit drug classes[7].The number of PWIDS in Kenya indicates that if preventive and educative measures are not implemented in the neighboring country of Ethiopia, the number of oral and injection drug users will rise in the coming years beyond control reaching epidemic proportions [13,18,19]. As one of the preventive interventions to reduce HIV transmission, substance especially opiate use should receive the attention of policy makers and educators. Evidence to date implies that intervening at an earlier age to assist youth to avoid or delay substance use initiation is important for averting HIV transmission [20,21].

Youth have a tendency to experiment with smocking and drugs. The odds of being substance user was four times more among second year students compared to final year students and 2.6 times more among first year students. The age of initiation is getting younger. For example, a study in Australia found that while only 14% of those in the 1940-1944 birth cohort reported having used cannabis at some point in their lives, this figure was 63% among those born between 1975-1979. More recent birth cohorts were significantly more likely to report using licit and

illicit drugs at a younger age. Over half (56%) of those in the 1980-1984 birth cohort reported alcohol use by age 15 years, compared to 16% of those in the 1940-1944 birth cohort. Similarly, almost a third of those in the 1980-1984 birth cohort (31%) reported cannabis use by age 15 years, compared to under 4% of those born between 1940-1959[22,23]. Younger age substance use initiation was also found in studies from developing countries. Systems should be established whereby students going to clinics in the University can be identified as substance users and thus appropriately advised [24- 26].

Peer pressure, being a great motivator, interventions is using peers to educate about the harms of substance use. Although no significant difference was seen in academic performance of substance users and non-users, the significant risk factor that University life is providing to be a substance user has to be taken seriously. As substance use increases, disgruntled faculty at the behavior of student's increases but substance use being limited right now, associations may not be evident. Year of study is significant predicator of substance use. This may be indicative of a substance use catching up in the universities in the recent years. It is not only smoking, but also opiates and sedatives that are being used by both male and female students. So special attention has to be given to educating these students about addiction as well as taking preventive measures. It is better to give attention to this problem before half of the youth of the country are fighting addiction and wasting their productive years. This also affects the economy of the country as whole.

VI. CONCLUSION

This study has demonstrated a high prevalence of substance use among Madda Walabu University students. Compared the second year students, first year students were at significant risk of ever using any one of the substances. This trend is alarming. Tobacco consumption or Khat use has been significantly associated with socio-demographic variables. Uses of opiates were also reported. Hence it is important to carry out educational campaigns about addiction and its prevention.

VII. ETHICAL APPROVAL

The ethical approval for this study was provided by the ethical research review committee of Madda Walabu University. A supportive letter obtained from the University Research Directorate was given to all schools/institutes in the University for obtaining permission to do the study in the schools. Explaining the purpose of the study, informed consent was obtained from all participants. All the information given by the respondents has been used for research purposes only, and confidentiality was maintained by omitting the names of the respondents. There is no approval number and the University work with letter of permission written from University Research Directorate to all schools, all departments and the subjects' oral consent.

Availability of data and Materials

Data supporting the findings are in the manuscript, additional data available up on request.

Abbreviation

AIDS: Acquired immunodeficiency syndrome; CSA: Central Statistical Agency of Ethiopia; CVD: Cardiovascular diseases; DACA: Drug Administration and Control Authority of Ethiopia; HIV: Human immunodeficiency virus; STD: Sexually transmitted diseases; US: United States; WHO: World Health Organization.

AIDS: Acquired immune deficiency syndrome, ANOVA: Analysis of Variance, HIV: Human immune deficiency virus, MOH: Ministry of health, N R P:Non-regular partner, RP: Regular partner, STD: Sexually transmitted disease, SPSS: Statistical Packages for Social Sciences, WHO: World health organization, HAPCO: HIV and AIDS Prevention and Control, USA: United State of America ,UNAIDS: United Nations HIV/AIDS Program, UNFPA: United Nations population Activity, UNICEF: United Nations Children's Fund. AOR Adjusted Odds Ratio, UOR Unadjusted Odds Ratio

Competing interests

The authors declare that there are no financial and non-financial competing interests

Authors' contributions

AG conceived and designed the study. AG and MP analyzed the data, and prepared the manuscript. All authors have read and approved the final manuscript.

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