

Assessment of Substance Abuse and Associated Factors among Secondary School Students in Ambo Town, Ethiopia, 2018

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Abstract

Background: Substance abuse is widespread all over the world among adolescent and young adult during the last 25 years. It becomes one of the most threatening and challenging social and public health problem.

Objective: To assess prevalence and factors associated to substance abuse among high school students, Ambo Town, 2018.

Methodology: An institution-based cross-sectional study was conducted among 508 randomly selected students from two secondary and two preparatory schools found in Ambo Town, Ethiopia. The sample size was calculated using a single population proportion formula and proportionally allocated to student in the classroom. A pre-tested structured questionnaire, FGD and key informant interview were used to collect the data. The data were analyzed using SPSS version 21.0.

Result: The overall current prevalence of substance abuse among the respondents was 79 (16%). Specifically, 52 (10.5 %) were khat abusers, 13 (2.6%) were alcohol abusers, 19 (3.8%) were cigarette abusers and 5 (1.01%) were abuse shisha. Being a male, living in divorced/separated family, and living with peers/friends currently using substance, family drug use, having friends who take drugs in the school, Peer pressure and having a lot of pocket money showed a significant association with substance use behavior of respondents.

Conclusion: The current study shows high prevalence of substance abuse. Factors like male gender, poor parent child relationship, living through high level of family conflict, parental drug use, peer pressure, readily availability of drugs, pocket money, psychological factors, influence of mass media and living environment were significantly associated with substance abuse.

Keywords: Substance abuse; Ambo; Ethiopia

Introduction

Background

Substance use is having consumed any abused substance at least once in the life time while substance abuse is a maladaptive pattern of substance use which lead to clinically significant impairment or distress, as manifested by one (or more) of the following within a 12 month period: (a) Recurrent substance use resulting in a failure to fulfil major role obligations at work, school or home; (b) recurrent substance use in situations in which it is physically (c) Repeated substance related legal problem (d) Persistent use despite recurrent social/interpersonal problems caused or exacerbated by the effects of a substance [1]. The history of the human race has a strong correlation with the utilization of drug use. Since earliest time, herbs, roots, leaves and plants have been used to relieve pain and help control disease. However, some drugs synthesized out of these substances have been found to act on the brain and alter mood in ways that are not always socially approved, such as a feeling of euphoria (a "feeling of elation"), restlessness, nightmare, hallucinations, and delusions [2].

Use of substances such as alcohol, khat, and tobacco has become one of the rising major public health and socioeconomic problem worldwide which is high among high school and college students. Substance abuse and problems arising from it are increasing all over the world and currently becoming one of the most threatening and challenging social and public health problems [3]. A substance abuse is an international problem, especially in developing countries. It is a serious problem by itself and by far it is also an aggravating factor for economic crises and hence contributing for poor development and playing a significant role for our poverty. This abuse is believed to be associated with increasing in amounts consumed, frequency of use and groups involved. This gives evidence that the people mostly affected are the young and strong who can contribute effectively to the economic development of the country. It is a matter of grave concern to educational stakeholders, medical practitioners, sociologists, counselors and parents. It is a national and international sensitive challenge that needs urgent attention due to the alarming rate of involvement of the youth [4].

Use of substances such as alcohol, khat, and tobacco are becoming a major public health and socioeconomic problem worldwide which is high among high school and college students. These problems are currently becoming one of the most threatening and challenging social and public health problems [3,4]. A substance abuse is an international

problem, especially in developing countries it is a serious problem by itself and by far it is also an aggravating factor for economic crises and hence contributing for poor development. People mostly affected by substance are the young and strong who can contribute effectively to the economic development of the country. It is a matter of grave concern to educational stakeholders, medical practitioners, sociologists, counselors and parents. It is a national and international sensitive challenge that needs urgent attention due to the alarming rate of involvement of the youth [5].

About 230 million people or 5 percent of the world's adult population are estimated to have used an illegal drug at least once in 2010. Alcohol, Khat and tobacco users are 27 million, which is 0.6 percent of the world adult population [4]. One out of 20 people between the ages of 15 and 64 years, had used an illicit drug in 2013. The magnitude of the world drug problem becomes more apparent when considering that more than 1 out of 10 drug users is suffering from drug use disorders or drug dependence [6].

Alcohol

A study on high school students in Ethiopia, Dire Dawa, showed the prevalence of lifetime and current alcohol drinking is 34.2% and 19.6% respectively. Ethiopian Demographic and Health Survey [7] reported that 35% of women and about half of men (46%) reported drinking alcohol at some point in their lives. Among both women and men, consumption of alcohol increases with increasing age. Alcohol consumption is higher in urban than in rural areas (43% versus 33% among women and 57% versus 43% among men) [6]. The proportion of women who consumed alcohol on 6 or more days in the last 30 days has increased since 2011, from 48% to 50%.

Khat

Khat (*Cathaedulis*) is commonly chewed for its psychostimulant and euphoric effects in Africa and the Arabian Peninsula. Khat has been used for many years in Ethiopia; particularly, in the eastern part of the country. Among students, khat is used as a source of strength, energy, and means of relaxation and removal of tension during stressful period and in the process of studying. Khat chewing houses/bets are everywhere and attract all segments of the population, especially the youth [8]. A study done among high school adolescents in Eastern Ethiopia showed that the prevalence of khat chewing was 34.9% [9]. Another study in Dire Dawa showed the prevalence of lifetime and current chewing of khat was 18.4% and 10.9% respectively [10]. According to EDHS [7] 12% of women and 27% of men report having ever chewed khat. The percentage of women who chewed khat for 6 days or more in the last 30 days increased from 43% in 2011 to 65% in 2016 and among men, the proportion increased from 56% to 64% [11-14].

Cigarette

Cigarette smoking is commonly observed behaviors among teenagers. Most smokers begin smoking during childhood and adolescence. The use of Cigarettes is the most widely practiced habit in the world today [15]. Globally, direct tobacco smoking causes the death of more than 5 million people in a year. In the next two decades the annual death toll from tobacco is expected to rise to over 8 million, with more than 80% of those deaths projected to occur in low-and middle-income countries [16]. In 2013, an estimated 66.9 million Americans aged 12 or older were current users of a tobacco product.

This represents 25.5% of the population in that age range [17]. Tobacco smoking also is becoming an important public health problem in the developing countries [18]. There is a high prevalence of cigarette smoking in Africa. The prevalence rate of cigarette use was 42.8% in Kenyan college students [19]. Among 15 years old adolescents in Zambia was 20.5%, and even higher (37.2%) among males younger than 12 years old in used to smoke tobacco [20]. Another study in Nairobi documented a 32.2% prevalence of lifetime smoking [21]. A study in Harer, Eastern Ethiopia found to be 12.2% prevalence of cigarette smoking among school adolescents [22].

Cannabis is a generic term used to denote the several psychoactive preparations of the marijuana plant. They include marijuana leaf, hashish (derived from the resin of the flowering heads of the plant), and hashish oil. Cannabis intoxication produces a feeling of euphoria, lightness of the limbs and usually increased sociability. It impairs driving and the performance of other complex, skilled activities; it impairs immediate recall, attention span, reaction time, learning ability, motor coordination, depth perception [23]. In 2013, an estimated 24.6 million Americans aged 12 or older were illicit drug users. This estimate represents 9.4 percent of the population aged 12 or older. Marijuana was the most commonly used illicit drug in 2013. There were 19.8 million past month users in 2013 (7.5 percent of those aged 12 or older). The 2013 rate was higher than the rates in 2002 to 2011 (ranging from 5.8 to 7.0 percent). Marijuana was used by 80.6 percent of illicit drug users in 2013 [24].

Reasons for drug use

Drug use during adolescence is common. On this particular age, adolescents become probing to try so many new things. The initial factor that seems to influence adolescents' experimentation with drug use seems to be curiosity. Adolescents use drugs for many reasons such as to feel good, to reduce stress, or to feel grown up. For some adolescents, drugs offer a relief from internal discomfort, such as feelings of depression, as a way to deal with the stress of interpersonal conflict and to fit in a social group [25]. The economic, social and cultural transition in Ethiopia due to globalization created a ground for increased and socially disruptive use of drugs. Increasing youth involvement in substance abuse is a major threat to national development, family stability and social security. Despite the great responsibilities of students, abusing substance are serious problems that put their life in danger.

Substance abuse problems become important issue that affect the school youths which are the future task force and hope of the society. Studies on drug abuse practices and the associated factors among students in Ethiopia are scarce. In addition, most studies use individual factors as a predictor to substance abuse behavior while the behavior of a student is influenced by a multitude of factors as well as the reasons for increased trend in prevalence of substance abuse from time to time is not yet researched. In order to tackle and reduce substance abuse problems among secondary and preparatory school students, its prevalence and multitude of its determining factors and its consequence need to be researched. As far as the knowledge of the researcher, there is a research gap on this area particularly in Ambo town. Therefore, understanding the determinants of substance abuse behavior, the reasons for increased in prevalence of substance abuse and associated factors are crucial. Thus, it is the purpose of this study to explore and describe substance abuse practices, its prevalence and associated factors among Ambo town secondary and preparatory school students.

Even though, a few studies were conducted at different areas of Ethiopia this study was done at Ambo town where no study was conducted about substance abuse at all. It obvious that this study done in small city; the finding of which cannot generalized at national level but can contribute if systematic review done by another researcher and also it can help local leader to know magnitude of substance abuse in the town which they use to design intervention strategies in reduce its magnitude.

Significance of the Study

Substance abuse needs the attention of teachers, health workers, parents, Religious leaders and the community at large because it affects the social, educational, health, and other related sectors. This study explored the prevalence of substance abuse and contributing factors. Since the most vulnerable group of the society is the youth (secondary school youth), it has given due consideration to carry out the study and based on the findings attained, important suggestions was made against drug issues.

It was hoped that the findings of this study assist teachers, school administrators, parents and other concerned bodies to come up with appropriate intervention strategies, which help to curb the drug problem among students in schools in Ambo town in particular and elsewhere in general. It is also useful in contributing to the general body of knowledge in this area. The investigators have a firm belief that the result of this study might help to create awareness among school authorities on what motivated the students to substance abuse, the extent to which the youth at Ambo Town secondary and preparatory school students are engaged in and to take relevant action. It is expected that the information generated serve to inform all agencies interested in addressing substance abuse problems among secondary students and its effects on society. In addition to this, the study result was provided points for policy makers, school administration, teachers, health workers, parents and other decision makers on the prevalence of the problem faced by substance abusers and tries to address the need for adopting a better intervention and plans to tackle the problem.

Materials and Methods

The study was conducted in Ambo town from October 20-November 10, 2018. Ambo town is the capital city of West shoa zone and it is found at a distance of 114 km to the west of Addis Ababa, the capital city of Ethiopia. According to Ambo Town Administration office in 2016, the total population of the town was 53,400 males and 54,600 females. There are 4 secondary and 2 preparatory schools (GO and private) with a total number of 7,248(4091 male and 3157 female) and there are 5,425 students (2874 male 2551 female) in the selected schools.

Sample size determination and sampling technique

Sample size was determined by using single proportion formula with an assumption of: $P=30.1$ (prevalence of Drug Abuse among Secondary School Students in Harari, Oromia) $CI=95\%$, Marginal error= 5% [14]. Then the sample sizes become:

$$n = \frac{Z_{1/2}^2 P(1-P)}{d^2} = \frac{(1.96)^2 \times (0.30) \times (1-0.30)}{(0.05)^2} = 323$$

Since target population is less than 10,000(7248) correction formula was used

$$nf = \frac{n}{1 + (n/N)} = 307$$

Then 10% non-response rate and 1.5 design effects was considered, the final sample size became 508.

To get study population first two secondary and one preparatory school were randomly selected and the calculated sample size was proportionally allocated for each school based on. After the study classes were determined the student were selected from the already selected classes. Finally, each study participant was selected using lottery method after having their list from the school principal and the rest were selected systematically.

Data collection method

The questionnaire prepared for this purpose has four sections: socio-demographic part, factors related to the family, issues concerning school environment and matters related to participant's substance abuse. Data was collected using self-administered structured questionnaire. In order to supplement the obtained data, especially for the second objective, focus group discussion was used.

A total of four FGDs were held by selecting one FGD from each school and in one FGD there are about six students participated. Additionally, school heads from each selected schools were inter about consequences substance abuse on student performance and suggests about what should be done on the issues.

Data Analysis

For quantitative data

The collected data were coded, cleaned and entered into Epi DATA 3.1 software and exported to SPSS computer software version 21 for final analysis. Descriptive data was prepared using tables. A binary logistic regression was done to identify associations between the dependent and independent variables. Variables at p-value of <0.2 were transported to multivariable logistic regression model to identify factors independently associated with substance abuse behaviors and to control confounders between variables. The degree of association between dependent and independent variables were measured using adjusted odds ratio with 95% confidence interval at significance level of <0.05 . Students who used substance at least once in their life prior to data collection is considered as user of the substance while those students who persistent taking of any of the psychoactive substances(alcohol, cigarette, cannabis, hashish, shisha and khat) which lead to interference with their routine activities is considered as substance abuser.

For qualitative data

The qualitative data were coded and analyses thematically. The results were presented in narrative way and triangulated with quantitative data.

Ethical and legal consideration

Ethical clearance was obtained from Research and Ethical Committee of College of Medicine and Health Sciences of Ambo University. Permission was asked from Ambo town education office

and the respective school directors. Data collection was conducted after verbal consent was taken from each selected participant after explanation of the purpose of the study. Also affirmation that they are free to withdraw consent and to discontinue participation at any time was made clearly. Privacy and confidentiality of collected information was ensured through use of anonymous data collection tools.

Results

Socio-demographic characteristics

Out of the total 508 students participated in the study, 494 respondents were completed the questionnaire which made the response rate 97.3%. Of the total 494 respondents, 260(52.6%) were age ranged from 14 to 18 years and 217 (43.9%) from 19 to 22 with a mean age of 17.63 (SD ± 1.79 years). From the total participants, 296 (59.9%) were males, 361 (73.1%) were Oromo's by ethnicity, 223(45.3%) were Orthodox & 203 (41.1%) were protestant religion, 382(77.3%) were originally from urban area and majority of them 157(31.8%) and 139(41.1%) were grade 11 and grade 12 students respectively (Table 1).

Variable	Values	Frequency	Percent
Sex	Male	296	59.9
	Female	198	40.1
Age in year	14-18	260	52.6
	19-22	217	43.9
	>22	17	3.4
Grade/Educational level	Grade 9	89	18
	Grade 10	109	22.1
	Grade 11	157	31.8

Religious	Grade 12	139	28.1
	Orthodox	224	45.3
	Protestant	203	41.1
	Muslim	32	6.5
	Catholic	12	2.4
Place of origin	Wakefata	23	4.7
	Urban	382	77.3
Ethnicity	Rural	112	22.7
	Oromo	361	73.1
	Amhara	70	14.2
	Gurage	37	7.5
	Tigire	26	5.3

Table 1: Percentage distribution of Socio-demographic characteristics of Ambo Town secondary and preparatory schools students (n=494), Oromia, Ethiopia, January, 2019.

Socio-demographic characteristics and conditions of the family

Majority of the study participants family (87.9%) were living and, about 76.3%) of the students were living with parents, brothers and sisters. Regarding to parental education 29.6% completed high school, 38.7% of them were Government employees and 67.2% of family earns more than 5000 Birr months (Table 2).

Variables	Values	Frequency	Percent
Conditions of the family	Living together	434	87.9
	Divorced/Separated	33	6.7
	Either one or both parents dead	24	4.9
	No response	3	0.6
	With both parents, brother & sister	377	76.3
	With father only	21	4.3
	With mother only	28	5.7
	With relatives	33	6.7
	With peers/Friends	26	5.3
	Alone	9	1.8
Educational status	Illiterate	72	14.6
	Primary school completed	109	22.1
	High school completed	146	29.6
	Diploma holder	50	10.1

	1st degree holder	63	12.8
	2nd degree holder & above	54	10.9
Family Monthly Income/in Birr/	Low (<2000)	38	7.7
	Middle (2000-5000)	124	25.1
	High (>5000)	332	67.2
Family occupation	Merchant	175	35.4
	Housewife	39	7.9
	Government employee	191	38.7
	NGO employee	21	4.3
	Daily laborer	36	7.3
	Private Employee	32	6.5

Table 2: Percentage distribution of Socio-demographic characteristics of the respondents' family (n=494), Oromia, Ethiopia, January 2019.

Percentage distribution of substance use and abuse

About 38.3% of study participants use drugs and drink alcohol accounts the most (35.4%), 81(16.4%) smoke cigarette and 18(3.6%) smoke shisha. Males are major user (25.7%). Sixteen percentage of study participants were abuse substance. The most abuse substance was khat (10.5%) (Table 3).

Variables	Values	Frequency	Percentage
Any substance			
Sex	Male	127	25.7
	Female	62	12.6
Khat			
Sex	Male	102	20.6
	Female	32	6.5
Alcohol			
Sex	Male	111	22.5
	Female	64	12.96
Cigarette			
Sex	Male	67	13.4
	Female	14	2.8
Shisha			
Variables	Values	Substance abuse	
Any substance		Frequency	Percentage

Sex	Male	72	14.6
	Female	7	1.4
Khat	Yes	52	10.5
	No	82	16.6
Alcohol	Yes	13	2.6
	No	162	32.6
Cigarettes	Yes	19	3.8
	No	62	12.6
Shisha	Yes	5	1.01
	No	13	2.6

Table 3: Percentage distribution of substance use and abuse among Ambo Town secondary and preparatory schools students (n=494) by sex, Oromia, Ethiopia, January, 2019.

Drug use behavior and experiences of respondents

With respect to lengths of time of drug use; 2.2% were used for less than 12 months while 11.7% were used for 12-18 months. Regarding the frequency of drug use, 58 (11.7%) use daily, 35 (7.1%) use three time a week. Among the 494 respondents, 21 (4.3%) were started using drugs at age less than 11 years and majority of them 115 (23.3%) were started using drugs at the between 12-14 years with a mean age of 13.84 (SD ± 2.224 years) and 168(34%), 86(18.0%) were used with friends and parents respectively (Table 4).

Variables	Frequency	Percent
Length of time since start		

How long you have been using drugs?	<12 Months	11	2.2
	12-18 Months	58	11.7
	18-24 Months	46	9.7
	24 Months and more	78	15.8
Frequency of drug use			
How often do you take drugs?	Daily	58	11.7
	Three times a week	35	7.1
	Twice a week	14	2.8
	As needed	88	17.8
Age of start			
Age interval in year	<11	21	4.3
	12-14	115	23.3
	>15	58	11.7
With whom do take drugs			
Friends	yes	168	34
	no	21	5.1
With parents	yes	86	18
	no	103	20.9
With anyone	yes	22	4.7
	no	169	34.2
Alone	yes	24	4.9
	no	165	33.4

Table 4: Percentage distribution of substance use behavior and experiences among Ambo Town secondary and preparatory schools students (n=494), Oromia, Ethiopia, January, 2019.

Reasons to use different Substances

Major reasons of start using substance were peer pressure (33%), accepted by friends (32.8%) (Table 5).

Variables	Values	Frequency	Percent
Peer pressure	Yes	165	33
	No	24	4.9
To get relief from stress	Yes	23	4.7
	No	166	33.2
Having a lot of pocket money	Yes	39	7.9
	No	150	30
Availability and Affordability of drugs	Yes	104	20.6
	No	85	17.2

To be accepted by friends	Yes	162	32.8
	No	27	5.5
Influence of mass media and Advertisement	Yes	41	8.3
	No	148	30
To increase intelligence	Yes	53	10.3
	No	136	27.5
To stay awake	Yes	58	11.7
	No	131	26.5
Parents take drugs	Yes	119	24.1
	No	70	14.2
To have pleasant relaxation	Yes	132	26.7
	No	57	11.6

Table 5: Reasons to start substance Use and Abuse among Ambo secondary and preparatory schools students (n=494), Oromia, Ethiopia, January, 2019.

Prevalence of drugs abuse, perceptions and experience of respondents

About 83.2% of the respondents replied that drugs are harmful and 16% of respondents reported they cannot perform their routine activities without using drugs (Table 6).

Variables	Values	Frequency	Percent
Do you perceive drugs as harmful?	Yes	411	83.2
	Maybe	22	4.5
	No	36	7.3
	Don't know	25	5.1
Perform routine activities without using drugs	yes	415	84
	no	79	16
Failed to do what was normally expected to do during the past three months.	yes	79	14
	no	415	84.76
Tried and failed to control, cut down or stop using drugs during the past three months.	yes	72	14.6
	No	415	85.4
Had a strong desire or urge to use drug.	Never	385	77.9
	Once or Twice	30	6.1
	Daily or Almost Daily	79	16
Experience of any of health, social and legal problems during the past three months	yes	79	16
	No	415	84
Get annoyed when people comment about your drug use.	yes	63	12.8
	No	431	87.2

Need an eye-opener to get started in the morning.	yes	70	14.2
	No	424	85.8

Table 6: Prevalence of drugs Abuse, perceptions and experiences among Ambo Town secondary and preparatory schools students (n=494), Oromia, Ethiopia, January, 2019.

Analysis of factors associated with substance use and abuse

Bivariate logistic regression analysis was done to see the association between substance abuse and different variables. A variable with p value less than 0.2% were transported to multivariate logistic regression analysis and the predictors of substance abuse were identified at a p value less than 0.05.

Availability and affordability of drugs

Many factors have statistically significant association with substance abuse when analyzed using bivariate logistic regression. Accordingly, drug availability and affordability has statistically significant association when analyzed using bivariate logistic regression. Respondents who had an access to drugs were 2.20 times more likely to abuse drugs than those who were not at p-value less than 0.05 and 95% CI (COR 2.20, 95% CI 1.397-4.89). One of key informants said that ‘Drugs are rampant and available everywhere. Students can get those drugs around their living environment and around their school without going nowhere and these initiate the students to use and abuse drugs’.

Family Background and Socio-Economic Status

Parental child relationship and family conditions

Parent child relationship and family conditions had significant association with respondents’ drug abuse behaviors. Respondents who were living with their peers/friends were 3.56 times more likely to use

drugs compared to respondents who were living with their parents (AOR 3.56, 95% CI 2.67-5.94) as well as respondents who were living in divorced/separated family were 1.55 times more likely use drugs compared to respondents whose family were living together (AOR, 1.55, 95% CI 1.37-4.81). Respondents who don’t have positive parental role modeling were 4.37 times more likely to use drugs compared to respondents who had positive parental role modeling (COR 4.37, 95% CI 2.21-6.65) and those living through high levels of family conflict were 2.93 times more likely to use drugs compared to who were living in a stable family (COR 2.93, 95% CI 1.66-5.17).

Family drug use

Respondents whose family use drugs were 4.46 times more likely to use drugs than respondents whose family do not use drugs (AOR 4.46 , 95% CI 2.11-9.46) (Table 7).

16 years FGD discussants said that ‘*All of my families drink alcohol especially during the hold day and it is not surprising to drink alcohol for me. It is normal to drink alcohol and culturally accepted to drink, especially local drinks*’

Also other discussant expressed his feeling before he started using drugs as: “*When I was 15, my mother and my father used to take drugs at home and I became curious and wanted to test the drugs. So when they went out I began to test it. Also my father often sent me to the shop where khat and cigarette was sold to buy for him. All these contribute to my drug use behavior*”.

Variables	Values	Substance use		COR [95% CI]			AOR [95% CI]		
		Yes	No						
Sex	Male	127	169	1.65	(1.13	2.41)*	3.57	(1.91	6.66)*
Age	Female	62	136	1	-		1	-	
	14-18	99	161	1	-				
	19-22	83	134	0.993	(0.685	1.43)			
	>22	7	10	0.878	(0.324	2.38)			
Grade	9	31	58	1.3	(0.749	2.25)	-		
	10	45	64	0.989	(0.594	1.64)			
	11	56	101	1.25	(0.784	2.01)			
	12	57	82	1	-				
With whom do you live at present?	With Both parents ,brother & sister	136	241	1	-		(1.57	5.94)*	
	With Father only	7	14	1.13	(0.445	2.86)			

	With Mother only	14	14	0.564	(0.261	1.21)	3.56		
	With relatives	14	19	0.766	(0.372	1.57)			
	With peers/Friends	12	14	1.52	(1.45	5.88)*			
	Alone	6	3	0.282	(0.069	1.15)			
Parent child relationship	Democratic	108	202	1	-		1	-	-
	Autocratic	49	90	0.982	(0.646	1.50)			
	Indulgent	22	12	0.292	(0.139	1.73)			
	Neglective	10	1	0.053	(0.621	2.89)			
Condition of your family	Living together	157	277	1	-		1	(1.37	4.81)*
	Divorced/Separated	18	15	2.12	(1.37	4.76)*	1.55	-	
	Either one or both parents dead	11	13	0.67	(0.293	1.53)	-		
	No response	3	0	0	0	-			
Positive parental role modeling	yes	137	275	1	(2.21	6.65)*	-		
No	52	30	3.48						
Living in high levels of family conflict	Yes	40	34	2.14	(1.66	5.17)*	-	-	
	No	149	271	1					
Do your parents use drugs	Yes	100	47	6.18	(4.72	13.70)*	4.46	(2.11	9.46)*
	No	89	258	1			1		
Having friends who take drugs at school	Yes	112	51	7.24	(5.57	11.54)*	4.57	(1.61	12.98)*
	No	77	254	1			1		
Presence of khat House around school?	Yes	100	93	2.51	(1.86	3.84)*	-	-	
	No	45	105	1					
Peer pressure	Yes	165	190	4.16	(1.06	9.94)*	5.79	(1.43	9.49)*
	No	24	115	1			1		
To get relief from stress	Yes	25	23	1.87	(1.72	19.16)*	-	-	
	No	164	282	1					
Having a lot of pocket money	Yes	41	18	4.42	(2.65	11.90)*	4.59	(1.94	10.84)*
	No	148	287	1			1		
Availability and Affordability of drugs	No	104	109	2.2	(1.36	4.88)*			
	No	85	196	1					
Influence of mass media and	Yes	41	18	4.42	(1.23	5.03)*			
	No	148	287	1					
To increase intelligence	Yes	52	28	3.74	(1.97	7.50)*			
	No	137	276	1					
To stay awake	Yes	58	34	3.53	(1.34	4.78)*			
	No	131	271	1					

Variables	Values	Increased of prevalence drug use		COR [95% CI]			AOR [95% CI]		
		Yes	No						
Poor school rule and regulation police implementation	yes	305	6	9.82	(7.91	22.79)*	8.3	(6.44	16.45)*
	No	66	117	1			1		
Poor parental control	yes	270	9	9.74	(4.48	19.04)*	7.69	(3.09	19.14)*
	No	101	114	1			1		
Poor child-family relationship	yes	247	8	8.52	(3.49	17.28)*	-	-	-
	No	124	115	1			1		
Absence of drug police on school curriculum	yes	276	11	9.47	(5.21	19.13)*	4.56	(1.80	11.57)*
	No	95	112	1			1		
Increased availability of drugs everywhere.	yes	294	9	8.2	(3.88	29.37)*	9.04	(3.49	23.30)*
	No	77	114	1			1		
Mass media and Advertisement	yes	282	10	9.68	(3.91	19.07)*	-	-	-
	No	89	113	1			1		

*p value <0.05.

Table 7: Multiple Logistic regression analysis of factors associated with substance use and abuse among Ambo Town secondary and preparatory schools students (n=494), Oromia, Ethiopia, January, 2019.

Pocket money

Having a lot of pocket money is also another socio-economic factors associated with drug abuse. Respondents who had a lot of pocket money were 4.59 times more likely to use drugs compared to those who don't have a lot of pocket money (AOR 4.59, 95% CI 1.94-10.84).

Living environment

The presence of khat houses/bets around the school is another risk factors associated with students' drug use behavior. Respondents who now the presence of khat houses/bets around their school were 2.51 times more likely to chew than who do not now (COR 2.51, 95% CI 1.86-3.84). *"4 of the FGD discussants said that there are khat houses around their school and they can get it easily without going anywhere and usually using/chewing there"*

Having friends who use drugs at school is also another factors associated with students' drug use behavior. Respondents having friends who use drugs in the school were 4.57 times more likely to abuse drugs than who do not have friends who use drugs at school (AOR 4.57, 95% CI 1.61-12.98). *"One of the FGD discussant said that before I started chewing chat and cigarette smoking, all of my friends were used to it and as long as I had been with them for long time I had developed the desire to use drug and later on I engaged on using it"*.

Socio-Demographic Factors

Sex

Sex is one of the demographic factors associated with substance use behavior of respondents. Accordingly, male respondents were 3.57 times more likely to use substances compared to female respondents (AOR 3.57, 95% CI 1.91-6.66).

Psychological factors

Psychological factor is a personal factors associated with substance abuse behavior of respondents. Specifically, to get relief from stress, to increase intelligence and to stay awake are factors associated with substance abuse. Accordingly, respondents with stress were 1.87 times more likely to abuse than those without stress (COR 1.87, 95% CI 1.72-19.16). With respect to increase in intelligence, respondents who thick khat can increase intelligence were 3.74 times more likely to chew khat than those who do not (COR 3.74, 95% CI 1.97-7.50) whereas respondents who think khat made them to stay awake were 3.53 times more likely used to chew khat than who do not (COR 3.53, 95% CI 1.34-4.79).

"One of the FGD discussant said that he used to drink alcohol to forget his problem while the other 5 discussants said that they were used to chew khat in order to increase their intelligence and to stay awake and to study for a long hours".

Peer influence

Peer pressure was regarded as the other risk factor for drug abuse. Respondents who had encountered peer pressure were 5.79 times more likely to abuse drugs than those who do not encountered such peer pressure (AOR 5.79, 95% CI 1.43-9.49). A student in focus group discussion said: *"I sometimes stealthy go out from school to join my friends at khat house to chew khat with them. Then I kept sneaking out from class and go to the khat houses."* Also other FGD discussant has also mentioned that the interest he had to try the drug before she started it as: *"Before I started using drugs, I used to watch my friends using various drugs and they convinced me to try it and I was so interested and wanted feel the feeling they gained."*

Influence of mass media and advertisement

Mass media and advertisement of drugs were other factors which influence drug abuse behaviors of student. Accordingly, respondents who followed mass media which advertise drugs were 4.42 times more likely to use drugs than who did not follow (COR 4.42, 95% CI 1.23-5.03). These is also supported by one of the key informant's idea *'mass media and drug advertisement were one of the influencing factors which initiate students to engage on drug use'*

When factors associated with substance use and abuse were adjusted for confounding factors: Sex(AOR 3.57, 95% CI 1.91-6.67), living in divorced/separated family (AOR 1.55, 95% CI 1.37-4.82), living with peers/friends currently(AOR 3.56, 95% CI 1.57-5.94), family drug use(AOR 4.46, 95% CI 2.11-9.46), having friends who take drugs in the school(AOR 4.57, 95% CI 1.61-12.98), Peer pressure(AOR 5.79, 95% CI 1.43-9.49) and having a lot of pocket money(AOR 4.59, 95% CI 1.94-10.84) showed a significant association with substance use behavior of respondents (Table 7).

Students perception about magnitude of drug use in the school

With respect to the magnitude of substance use/abuse in the school, the respondents were asked whether drug use is increasing. Among respondents 370 (74.9%) were said it is increasing because of different reasons. Among these reasons, 310 (62.8%) replied that it is because of poor school rule and regulation police implementation, 278 (56.3%) were replied that it is because of poor parental control, 254(51.4%) were replied that it is because of poor child-family relationship, 286(57.9%) were replied that it is because of absence of drug police on school curriculum, 302(61.1%) were replied that it is because of increased availability of drugs everywhere and 291(58.9%) were replied that it is because of Mass media and Advertisement (Table 7).

Bivariate logistic regression analysis was done to see the association between the increased prevalence of substance use and different variables and variables with p value <0.05 were transported to multivariate logistic regression analysis and the predictors for increased prevalence of substance use at a p value less than 0.05 were identified.

Accordingly, poor school rule and regulation implementation police (COR 8.82, 95% CI 7.91-22.79), poor parental control (COR 9.74, 95% CI 4.48-19.04), poor child-family relationship(COR 8.52, 95% CI 3.49-17.28), absence of drug police in school curriculum(COR 9.47, 95% CI 5.21-17.13), increased availability of drugs everywhere(COR 8.20, 95% CI 3.38-29.37) and mass media and advertisement (COR

9.68, (95% CI 3.91-19.07) had significant association with reasons for increased prevalence of substance use in the school/community.

When factors associated with substance use were adjusted for confounding factors: Poor school rule and regulation police implementation(AOR 8.30, 95% CI 6.44-16.45), Poor parental control (AOR 7.69, 95% CI 3.09-19.14), absence of drug police in school curriculum (AOR 4.56, 95% CI 1.80-11.57) and Increased availability of drugs everywhere (AOR 9.04, 95% CI 3.49-23.30) showed a significant association with reasons for increased prevalence of substance use in the school (Table 7).

Discussion

The overall current prevalence of substance use and abuse among the respondents were 189 (38.3%) and 79 (16%). respectively. Specifically, 134 (27.1%) chew khat, 175 (35.4%) drink alcohol, 81 (16.4%) smoke cigarette and 18 (3.6%) smoke shisha while 52 (10.5%), 13 (2.6%), 19 (3.8%), 5 (1.01%) were abusers of khat, alcohol, cigarette and shisha respectively. A study done at Addis Ababa among Ayer Tena secondary school students stated that 4.20% chew khat, 0.80% drink Alcohol, 0.80% smoke cigarettes and 5.90% smoke cannabis which is lower than the finding of the present study. This might be due to the difference in study period and area [26].

Study conducted at Harari Region on drug abuse among secondary school students showed that, 96 (30.1%) chew khat, 55 (17.7%) smoke cigarette and 83 (25.5%) of them drink alcohol which is higher than the present study finding. This difference might be due to the difference in cultural variation and study setting [27]. The result of the study in Asella Town among school youth showed that alcohol was most commonly abused substance (20.9%) followed by khat 11.2%), smoking cigarettes 2.6% and shisha 1.6% which study findings except alcohol [28].

Study conducted on Substance Abuse among students learning at Public Secondary Schooling Kenya revealed that 29.2% had abused alcohol, 8.3% had abused cigarettes, 7.1% had abused Khat and 4.6% had abused Marijuana. Another study conducted in Kenya on factors influencing substance abuse indicated that (59.1%) bhang abusers, (33.8%) tobacco abusers, (16.7%) alcohol abusers and (12.3%) miraa abusers. In both studies the prevalence of substance abuse is when compared to this study which might be due to cultural and geographical variations [29,30]. The prevalence of substance abuse among secondary school students in Kisumu town, East Kenya revealed that alcohol (54%) was the drug most abused by most of the respondents followed by marijuana/bhang (21%), khat/miraa (17%) and tobacco (7%) which might be due to cultural , geographical variations [31,32] easy availability different drugs in Kenya [33].

The prevalence of substance abuse among secondary school students in urban setting in Nigeria showed that, 33 (8.9%) drink alcohol, 11 (3.0%) smoke cigarette and 12 (3.3%) cannabis users which is higher than alcohol and illicit drugs prevalence of this study and lower in cigarette abuse prevalence which might be due cultural variation attributed to different drugs between study population [34]. The results of the study among male secondary school students in Saudi Arabia showed (38.3%) smoke cigarettes, 9.3% drink alcohol, 8.8% abuse illicit drugs and 4% of the students chew khat which is higher than this study result except for khat which may be due to the difference in the study population, cultural and economic variation of respondents [35].

In a study of drug abuse among street children conducted in India on prevalence and pattern of substance abuse, smoking tobacco users were most common (48.9%), followed by alcohol users (40.6%), solvent users (31%), tobacco chewers (28.8%), cannabis users (14.9%), and other substance users (1.5%) which is higher than this study which might be due to the difference in study population. In this study Alcohol, Khat and cigarette were the commonest abused drugs. The present findings showed that, being male; parent child relationship, living through high level of family conflict and parental drug use, peer pressure, readily availability of drugs, a lot of pocket money, psychological factors, influence of mass media and living environments were strongly and positively associated with students substance abuse behavior which is similar with the study done in Addis Ababa, Harari Region and Kisumu East Sub County of Kenya among secondary school students [36-39].

In this study, being a male is statistically and positive associated with substance abuse behavior of students which is similar with the finding of the study among Debre Markos Poly Technique college students. This is also in agreement with the studies conducted among Addis Ababa secondary school students, Bale Zone Preparatory school students and Kenya secondary school students [40-44].

Parent Child Relationship and Family Conditions

Parental child relationship and family condition were significant factors influencing students' substance abuse behavior. Students who don't have a good family relationship, living in separated/divorced parents, living with family who use drug and living with their peers/friends were more likely engaged on substance abuse in this study are more likely to abuse substances. It is similar with the finding of the study conducted in Addis Ababa and Harari Region [45,46]. This is also consistent with the finding of the study on secondary school in Kisumu town east, Uasin Gishu East sub-county [47,48].

Family drug use

Respondents whose family use drugs were 4.46 times more likely to use drugs than those whose family do not use drugs which is similar with the result of the study conducted among Bale Zone preparatory school students. The finding of the study among Kenya secondary school students on the Preconditioning Factors to Drug Use and Abuse is in agreement with this study. There was significant association between uses of drugs and whether the respondents' family member use drugs. The odds of student taking any drugs were 2 times higher if any of their family member was taking drugs (OR 1.89, 95% CI: 1.192-2.996 which is in line with the finding of this study [49-51].

Drug availability and affordability

In Kenya secondary school, students were indulge to drug use due to the availability of drugs [52]. The study among secondary school students in Harari Region, Ethiopia, revealed that drug availability is one of the factors influence drug abusing behavior of students [53]. It is also consistent with the finding of the study on substance abuse among Debre Markos Poly Technique College and Mekelle University students. All are in line with present study [54,55].

Pocket money

In other studies Use of drugs was positively associated with amount of money given to the student per term as pocket money. The more

pocket money a student received per term, the higher the chances of abusing drugs which is in line with the finding of this study [56,57].

Living environment

The presence of khat house/bet around the school and having friends who use drugs in the school has significant association with drug use behavior of students in this study which is similar with the finding of the study conducted among secondary school students in Harari Region [14]. The odds of student taking any drugs were 4 times higher if their best friend was taking drugs (OR 3.597, 95% CI: 2.022-6.398), which is consistent with this study [58]. In Kenya, urban students are more prone to drug abuse than their rural counterparts. The environment in which one lives has been confirmed to influence drug abuse [53]. The results of another study in Kenya implies that location of wines and spirit shops near to the school was significantly increases chances of secondary school learners engaging in substance abuse [58]. Similar finding was identified in the present study.

Psychological factors

Psychological problems were among one of the factors influencing substance abuse behavior of respondents in this study which is similar with the result of the study done among Mekelle University [8]. To get relief from stress or tension is one the factors associated with substance use among Rift Valley University College students and University Students of Ethiopia which is also similar with this study [59]. It is found that most of students drink alcohol to fight depression in Harari Region [14]. The result of the study among Nigeria students also showed that, Psychological factors (to banish pain or discomfort, to attain euphoria, fantasy or to escape from unpleasant reality, out of curiosity, boredom, to alleviate fear) was also found to be one of the factors initiating substances abuse among secondary school students in Nigeria [37]. In addition, study in Kenya showed that student indulge in substance abuse to cope with stress [42].

Peer influence

This study indicated that, there was significant association between drugs abuse and peer influence which is consistent with the finding of the studies among secondary students in Addis Ababa and Harari Region [11,14]. The result of the study among Debre Markos Poly Technique College and Mekelle University students also revealed that peer pressure was the most prominent factors influencing drug abuse behavior of students [8,10]. Peer pressure was the major responsible factor for substance abuse among secondary school students in Kenya which is also in line with this study [4]. Another study result among secondary school in Kenya also showed that the odds of student taking any drugs were 4 times higher if their best friend was taking drugs was statistically significant at p value 0.001 [54]. In addition, the result of another study among secondary school in Kenya indicated that a larger proportion (68%) of the respondents cited peer pressure as the major cause of drug and substance in schools [55].

Mass media and drug advertisement

Drug advertisements were found to have struck a positive first impression among the students. Most students got the impression that it was fun to use the drugs which is similar with the finding of this study [4]. There was significant association between access to internet and drug abuse among secondary school students in Kenya [54].

Conclusion

The current substance use and abuse prevalence of Ambo Town secondary and preparatory student is high. The most commonly abused drugs by students were khat, alcohol and cigarette. The present findings show that, being male; parent child relationship, living through high level of family conflict, parental drug use, peer pressure, readily availability of drugs, having a lot of pocket money, psychological factors, influence of mass media and living environment were significantly associated with students' substance abuse whereas age, religion, family education level, family income, knowledge about drugs and grade level were not significantly associated with substance abuse. Poor school rule and regulation police implementation, poor parental control, absence of drug police on school curriculum and increased availability of drugs everywhere had significant association with increased prevalence of substance use in the school.

Availability of data materials

We have used standardized assessment tool.

Competing interests

The authors declare that they have no competing interests.

Author's contributions

MM and TK contributed to the conception, supervise data collection, analysed and interpreted the data, and prepared the manuscript. AB and AM contributed to proposal and manuscript preparation. All authors read and approved the final manuscript.

Ethics Approval and Consent to Participate

Ethical clearance was obtained from Research and Ethical Committee of College of Medicine and Health Sciences of Ambo University. Permission was asked from Ambo town education office and the respective school directors. Data collection was conducted after verbal consent was taken from each selected participant after explanation of the purpose of the study. Also affirmation that they are free to withdraw consent and to discontinue participation at any time was made clearly. Privacy and confidentiality of collected information was ensured through use of anonymous data collection tools.

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