



Prevalence of Substance Use and Associated Factors Among Preparatory Students of N/Wollo Woldia Town, North East Ethiopia, 2015

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Abstract

Background: Use of Substance like cigarette, khat, shisha and alcohol is becoming a serious ongoing public health problem, which is especially affects young people and also common among the youth of Ethiopia. However, its prevalence and associated factors have not been addressed well yet. Thus, this study aimed to assess the prevalence and associated factors of substance use among preparatory school students in woldia, north east Ethiopia, 2015.

Methods: An institutional-based cross-sectional study was conducted among 502 randomly selected students from 1500 preparatory school students in woldia, northeast Ethiopia, March 2015. The sample size was calculated for both prevalence and associated factors. A pretested structured and semi structured questionnaire was used to collect the data. The data were analyzed using SPSS version 20. Bivariate and multivariate logistic regressions were employed to identify the associated factors of substance use.

Results: The overall current prevalence of substance use among the respondents was 34.6% (174). Specifically, 23.5% (118) and 23.5% (118) of the respondents chewed khat and smoked cigarette, respectively. Father, siblings, and best friends of user respondents had an association with 95% CI (5.3 (2.988, 9.399), 6.145 (3.612, 10.454), 7.421 (4.318, 12.755) respectively with substance use.

Conclusion: The prevalence of substance use was high and Family (father and/or sibling (s) Who uses substance (s), and respondents' best friend were the predictors of the substance use of the students.

Keywords: Students; Town; North East; Ethiopia

Introduction

Statement of problems

Substance use is a broad term to cover the taking of all psychoactive substances within which there are Stages: drug-free (i.e. Non-use), experimental use, recreational use and harmful use, which is further Sub-divided into misuse (taking of a drug which harms or threatens to harm) and dependence [1]. Preparatory students are in adolescent ages group and are a key window for both substance use and the development. Circuits governing judgment and self-inhibition are still maturing, causing teenagers to act on impulse, seek new sensations, and be easily pulled by their peer and draw them to take risks [2]. There are three types of substance use behaviors. Use, abuse, and dependence. Substance use is becoming a serious ongoing public health problem [3,4].

Globally, there were about 190 million substance users. Out of these substance users, around 40 million serious illnesses or injuries were identified each year. It is estimated that 90% of the global population aged 12 or older are classified with dependence on psychoactive substances [5].

People's reasons for using these substances vary, depending on their personal history, health, family background, and social setting. For most youths, using substance is considered as a method of increasing energy and elevating mood in order to improve work performance [6,7]. However, there are many Harmful effects with any psychoactive substance use. Early initiation of substance use is found to be with an increased risk of developing addiction and adulthood dependence, decreased academic performance, increased risk of contracting HIV and other sexually transmitted

diseases, Criminal activity, a neglect of social responsibilities or other psychiatric disorders such as lethargy, hopelessness and insomnia [8].

Substance use among school adolescents are common practice now a days in the developing world [9]. Khat (*Catha edulis*) has been used in African countries for centuries as a mild stimulant [10]. In sub-Saharan Africa, Recent trends indicate that the use of substances have dramatically increased [11].

In Ethiopia, different studies show different prevalence and trend. Substance use is becoming common and daily practice among adolescents. Studies among preparatory students in different regions of the country showed within the range of 14% to 47.9% [12,13].

Although substance uses have become common practices among high school and preparatory students in Ethiopia, only few studies available, especially no studies in woldia north east part of Ethiopia. Thus, this study assessed the prevalence and associated factors of substance use among preparatory school students in the study area.

Justification of the study

Substance use have become common practices among high school adolescents throughout the country. The prevalence of substance use is different from place to place and time to time [7,12,13,20]. Therefore Current Information on substance use and its associated factors have a significant input to design an intervention strategy for health problems of substance use.

Thus, this study assessed the prevalence and associated factors of substance use among preparatory school students in woldia.

Objectives

General objective

To assess prevalence and associated factors of substance use among preparatory students of woldia town, north east Ethiopia

Specific objective

- o To determine prevalence of substance use
- o To identify associated factors of substance use

Materials and Methods

Study design

Institution based cross-sectional study was conducted.

Study area and period

The study was carried out at Woldia preparatory school from 22/3/2015 to 23/3/2015. Woldia, the capital town of North Wollo, which is located in North east part of the Amhara Regional State. Woldia is located 521 Kilometre, North east of Addis Ababa, and 360 Km from the Regional capital city, Bahir Dar (s.woldia transport office). The population of Woldia is estimated about 67,760. In Woldia town there is one preparatory school where the study was conducted, as well as one secondary and higher school. In the academic year of 2014/2015, there were a total of 1508 students from grades 11 to 12 attending their education.

Population

Source population

Woldia preparatory school students.

Study population

Woldia preparatory school students.

The Inclusion criteria

woldia preparatory school students who were available during data collection period.

Exclusion criteria

Woldia preparatory school students.

Sample size determination

Sample size was determined for objective one and objective two. By using simple proportion formula with an assumption of: $P = 47.9\%$ $CI = 95\%$, Marginal error = 5% [13] for the first objective and by using odd ratio for the second objective.

Therefore, the largest value is = $479 + 5\%$ non-response = 502

Sampling procedure

Using the student roster from the register of school as Sampling frame and by assuming homogeneity concerning substance use between grade 11 and 12, study subjects were selected randomly by computer generating random number.

Variables of the study

Dependent variable

- o Substance use (yes, no)
 - o Independent variables
- o Age
- o Sex

Sample size determination for objective one						
No	Fore objective one	$n = \frac{\left(\left(\frac{z^{\alpha}/2\right)^2 \times p(1-p)\right)}{(d)^2}$			prevalence	source
		P = 47.9% D = 5% Study on high School students wereta				
1		1.96*1.96*0.479*0.521/0.002 = 479				
Sample size determination for objective two						
	Factors	Exposed	Unexposed	OR	Sample size	
A	Friend substance use	25.1 (yes)	74.9 (no)	2.14	398	>>
B	Siblings use	20 (yes)	809 (no)	2.72	318	>>
C	sex	26 (yes)	74 (no)	1.52	400	>>

Table a

- o Residence
- o Religion
- o Ethnicity
- o Educational status of father
- o Educational status of mother
- o Occupation of the father
- o Occupation of the mother
- o Family hx of substance use (mother, father, sibling)
- o Friend's hx of substance

Operational definitions

- o **Substance:** The four commonly used psychoactive substances: Alcohol, cigarette, shisha and khat that produces changes in mood, thinking, feeling, and/or behavior that can Cause dependence.
- o **Substance use:** Taking any of the four commonly used psychoactive substances (alcohol, cigarette, shisha and/or khat)
- o **Current substance use:** Taking of any of the four commonly used psycho active substances within 30 days prior to data collection.
- o **Alcohol:** consuming of any of locally available alcohols (Areki, local beer (Tela), Teji, Bira).

Data collection procedures

Data collection instrument and procedure

Data were collected using self-administered questionnaire. Three supervisors were trained and involved during data collection. Supervisors were nurse professional and data collection was performed on 22/3/2015 to 23/3/2015.

Data quality control

A pre-test was conducted with 23 high school adolescents who were attending their education in kobo preparatory students and necessary modifications made prior to the main study. The completed questionnaires were checked for clarity, consistency and completeness daily. Consequently, amendments and corrections

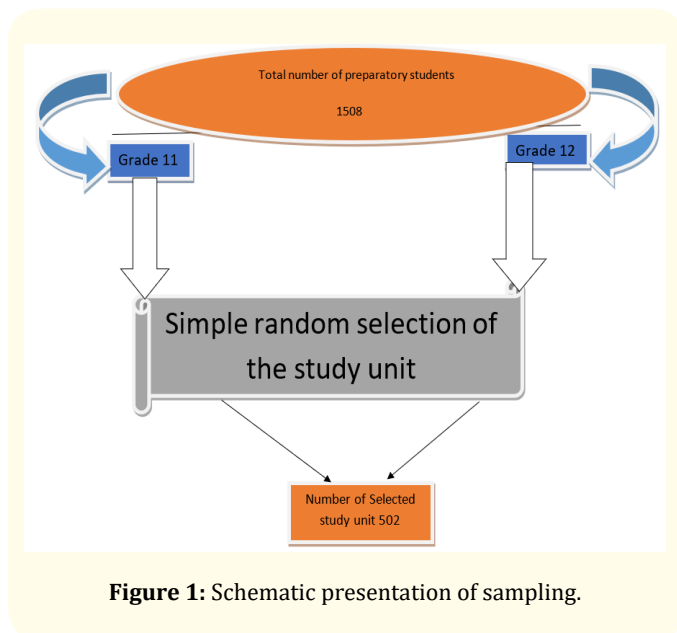


Figure 1: Schematic presentation of sampling.

were made. In addition, 10% of the entered data were randomly selected and cross-checked for reliability and accuracy. Because of the sensitive nature of the questions asked, respondents were made to sit apart to avoid answers being seen by peers.

Data processing and analysis

Data were entered and coded in EPI INFO version 7. And then exported to SPSS Version 20 for analysis. The entered data were cleaned for construction and categorization of the variables. Logistic regression was used to identify associated factors with substance use. Variables with a Bivariate p value less than 0.02 were.

Fitted in to multivariate models to control for possible confounders.

Ethical considerations

Ethical clearance was obtained from Ethical review Board of university of Gondar. Permission letter were obtained from North Wollo Zonal health department, and the town Health office had sent letter of permission to the school in which the actual data collection had been undertaken. The purposes and importance of the study was explained, and informed consent had secured from each participant. Confidentiality had been maintained by coding during analysis and by excluded the name of participants during data collection. Participant's involvement in the study was on voluntary basis; participants who were unwilling to participate in the study and those who wish to stop their participation at any stage had informed to do so without any restriction.

Results

A total of 502 questionnaires were distributed, of which 500 were filled correctly and completely with response rate of 99.6%. Three hundred twenty (63.7%) of the samples were males. The mean age of the participants was 18.53 ± 2.05 years. The majority of respondents 419 (83.5%) were Amhara. Out of the total respondents, 359 (71.5%) were Orthodox followers. The place of residence for the majority of respondents, 346 (68.9%) were from urban setting. The prominent family occupation was government employer 156 (31.1%), followed by farmer 147 (29.3%). About family's educational status, fathers of 36.7% and mothers of 45.8% of the respondents was elementary, whereas fathers of 33.8% and mothers of 26.8% of the respondents were diploma and above (Table 1).

Sex	Frequency	Percentage (%)
male	320	63.7
female	182	36.3
Age		
16 - 19	326	64.9
> = 20	176	35
Grade		
11	265	52.8
12	237	47.2
Ethnicity		
Amhara	419	83.5
Tgrie	55	11
Oromo	28	5.6
Religion		
Orthodox	359	71.5
Muslim	123	24.5
Others	20	3.9
Residence		
Rural	156	31.1
urban	346	68.9
Fathers occupation		
Farmer	148	29.5
Merchant	146	29.1
Government employer	156	31.1
Daily labourer	38	7.6
Mothers occupation		
House wife	281	56
Merchant	89	17.7
Government employer	101	20
Daily labourer	15	3
Educational status of fathers		
elementary	184	36.7
High school	94	18.7
certificate	54	10.8
Diploma and above	170	33.8
Educational status of mothers		
elementary	230	45.8
High school	73	14.5
certificate	68	13.5
Diploma and above	131	26.1

Table 1: Socio-demographic characteristics of woldia preparatory school students (n = 502), Amhara, Ethiopia, March 23, 2015.

Prevalence of each Substance

The overall current prevalence of substance use among the respondents was 34.6% (174) 95% CI (30.5, 39). Specifically, 23.5% (118) Khat chewers, 23.5% (118) Alcohol consumers, 5.2% (26) shisha smokers, and 3.3% (17) were cigarette smokers. At the time of data collection there were 102 (20%) one substance users, 46 (9.16%) two substance users, 22 (4.38%) three substance users and 4 (0.8%) four substance users (Table 2).

		Frequency	Percentage (%)
Using any substances	Yes	174	34.6
	No	328	65.4
Cigarette smoking	Yes	17	3.3
	No	485	96.6
Shisha smoking	Yes	26	5.2
	No	476	94.8
Khat chewing	Yes	118	23.5
	No	384	76.5
Alcohol smoking	Yes	118	23.5
	No	384	76.5
Number of substance user	1	102	20.3
	2	46	9.16
	3	22	4.38
	4	4	0.8

Table 2: Current prevalence of each Substance Use among woldia preparatory students (n = 502), Amhara, Ethiopia, March 27, 2015.

Chat users and alcohol consumers were the higher prevalence whereas cigarette smokers and shisha smokers were lower in number during the study period (Figure 2).

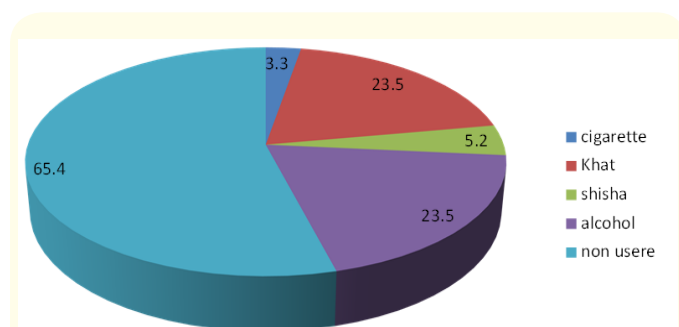


Figure 2: Magnitude of each substance users comparing from the total respondents among woldia preparatory students, Amhara, Ethiopia, 2015.

Frequency and amount of substance used by the respondents

From a total of 118 khat chewers, 10 (8.4%) chewed sometimes, 79 (67%) chewed once per a week and 29 (24.5%) chewed two times per a week. From Alcohol consumers, 46 (39%) consumed sometimes, 46 (39%) consumed once per a week and 26 (22%) drunk two times per a week. Among shisha users, 13 (50%) used sometimes, 3 (11.5%) used once per a week and 10 (38%) used two times per a wee.

From cigarette smokers, 10 (58.8%) used below five cigarettes per a day and 7 (41%) used five to ten cigarettes per a day.

Reasons to start substances use

Different reasons were mentioned for using of substances. Among 118 khat chewers, 31 (26.2%) said to relief stress, 62 (52.5%) replied to keep alert while reading and 25 (21.2) said to relax with friends. The reasons mentioned for alcohol drinking were 47 (39.8%) to relief stress, 64 (54.2%) to relax with friends, 7 (5.9%) because my friend drinks i also drunk. Reasons mentioned for shisha used were 10 (38.4%) to relief stress, 7 (26.9%) to keep alert while reading and 9 (34.6%) to relax with friends.

Factors associated with substance use of the respondents

To identify associated factors of substance use among preparatory school students, bivariate logistic regression was used, and multivariate logistic regression was applied to minimize confounding factors of substance use at a p value less than 0.05.

Accordingly, substance use status of the respondents’ father, siblings and best friend had an association with substance use.

Respondents whose father use substance were 5.3 times (Adjusted odds ratio 5.3, 95% confidence interval (2.98, 9.39) more likely to use substance (s) compared to respondents whose father seldom uses any of the substances.

Similarly, respondents whose best friend use substance were 7.42 time (AOR) 7.42,95% (CI) (4.32,12.75) and whose siblings substance use were 6.14 times (AOR 6.14,95% CI (3.61,10.45)) more likely to use substances when compared with those whose friends and sibling (s) not used substances (Table 3 and 4).

Discussion

The overall current prevalence of substance use in this study Was 34.6%, 95% CI (30.5,39) of which 21.5% were males and 13% were females. A study done among preparatory school students of Bale Zone showed that over all current prevalence of substance use was 34.8% which is consistent with this finding.

Factors		Substance use		COR [95% CI]	AOR [95% CI]
		yes	no		
Sex	Male	108 (21.5%)	210 (41.8%)	0.9 (0.615,1.317)	
	Female	66 (13.1%)	118 (23.5%)	1	
Age	15 - 19	131 (26%)	259 (51.6%)	0.812 (0.525,1.254)	
	≥ 20	43 (8.5%)	69 (13.7%)	2.418 (1.574,3.714)*	1.82 (0.606,5.85)
Residence	Urban	153 (30.5%)	195 (39%)	0.196 (0.118,0.326)	
	Rural	21 (4.2%)	133 (26.4%)	1	
Father`s educational level	elementary	47 (9.3%)	127 (23%)	1	
	High school	35 (6.9%)	138 (27.4)	1.13 (0.72,1.83)	
	cerfificate	28 (5.5%)	145 (28.8%)	2.33 (0.13,4.14)	
	diploma and abov and abov	61 (12%)	112 (22.3%)	1.14 (0.78,1.7)	
Mother`s educational level	elementary	69 (13.7%)	100 (19.9%)	1	
	High school	22 (4.4%)	151 (30%)	.748 (0.438,1.27)	
	cerfificate	43 (8.5%)	132 (26.3%)	3.362 (0.011,5.62)	
	Deplomaand abov and abov	41 (8.2%0)	83 (16.5%)	0.906 (0.58,1.39)	
Father`s occupation					
Farmer	yes	30 (5.9%)	116 (23%)	0.38 (.24,0.6)	
	no	143 (28.5%)	211 (42%)	1	
Merchant	yes	59 (11.7%)	86 (17%)	1.4 (0.96,2.15)	
	no	115 (22.9%)	242 (48.7%)	1	
Gover /emplo	yes	58 (11.5%)	98 (19.5%)	1.18 (0.791,1.75)	
	no	115 (22.9%)	230 (45.8%)	1	
Daily laborer	Yes	26 (5.1%)	25 (5.2)	2.14 (0.2,1.39)	
	no	147 (29.3%)	303 (60.3)	1	
Mother`s occupation					
housewife	yes	96 (19.1%)	184 (36.6%)	0.97 (0.67,1.4)	
	No	77 (15.3%)	144 (28.7%)	1	
merchant	yes	30 (5.9%)	69 (13.7%)	0.77 (0.48,1.2)	
	no	144 (28.7%)	258 (51.4%)	1	
Gover/employer	yes	39 (7.7%)	66 (13.1%)	1.147 (0.73,1.8)	
	no	135 (26.9%)	262 (52.2%)	1	

Table 3: Bivariate and multivariate logistic regression showing socio-demographic factors of substance use within the last 30 days among preparatory school students of woldia march 2015.

Pocket money	yes	58 (11.5%)	143 (28.5%)	0.04 (0.002,0.009)	
	no	116 (23.1%)	185 (36.8%)	1	
Friend substance use	yes	147 (29%)	85	15.56 (9.64,25.128)*	7.421(4.318,12.755)**
	no	27 (5.3%)	243	1	1
Mother substance use	yes	17 (3.3%)	1	35.408 (4.67,268.)*	9.044(0.15,467.846)
	no	157 (31%)	327	1	1
Father substance use	yes	87(17.3%)	37	7.865 (4.99,12.373.)*	5.3(2.988,9.399)**
	no	87 (17.3%)	291	1	1
Sibling substance use	yes	107 (21.3%)	53	8.286 (5.12,12.66)*	6.145(3.612,10.4)**
	no	67 (13.3%)	273	1	1
Pocket money	yes	58 (11.5%)	143(28.5%)	0.04 (0.002,0.009)	
	no	116 (23.1%)	185(36.8%)	1	

Table 4: Bi-variate and multivariate logistic regression showing behavioral factors of substance use among preparatory school students of Woldia march 2015.

The current prevalence of khat chewing among preparatory students was 23.1% which is almost Comparable with a study done on Chewing khat among high school Students of eastern Ethiopia 24.2% [19], This result is higher than similar studies among Ataye high school students 13.25% [22] and a study done among wereta high school students 13% [13]. This finding is also similar with a study done on prevalence of khat chewing among first year students of Nairobi university 20.6% [35].

Higher use of khat might be related to increasing cultivation and availability, and also socially acceptability. Adolescents willing to experimentation, risk-taking, impulsivity, to test new things might also increase risk of use. In addition, most Adolescents want to be popular among their peers; one Way to achieve this is through the use of substances.

The current prevalence of alcohol drinking was found to be 23.5%, lower than studies done in Ginnir town among high school 31.2% [20], study done in wereta town among high school students 40.5% [13], and higher than study done among Debremarkos poly technique college students 13.4% [12].

The discrepancy might be because the study in Ginner town and wereta town covered grades 9 to 12, but this study included preparatory schools only. Availability may also contribute the difference.

The prevalence of cigarette smoking in this study was 3.3% which was less than findings among bale preparatory students 5.4% [7] and wereta high school students 6.8% [13] A study among Nairobi university first year students also showed greater magnitude 21.1% [35] compared with our finding.

The difference might be due to family supervision and local culture the current prevalence of shisha of this study was 5.2 which is consistent with study done In bale preparatory students 5.6% [7] and a study among university students in Ethiopia 7.4% [25], less than study done among Malaysian university students [34]. The difference may be the availability of the substance Government rule and controlling system may make the difference. Respondants` Fathers use of substance were strong predictor of substance use, five times more likely to use substances (AOR 5.3, 95% CI (2.988,9.399) compared with respondents whose father seldom uses any of the substances. Also, a study in Bahirdar substance use of family members showed a positive contribution to substance use of the students. Students whose father substances users were 4.28 times more likely to use substance (AOR 4.28, 95% CI 1.96, 9.35) than respondents whose Father do not use substance [21].

Friends' use of substances was found to be associated factor of substance use, with students who had friends that used substances had 7 times (AOR, 7.421 95% CI (4.318, 12.755) higher probability of using Substances than those students who had no substance

user friends. Similar results were reported in eastern Ethiopia that friends' use of substances was found to be a predictor of substance use, with students who had friends that used substances having 7.93 times higher risk of using substances than those students who had no friends that used substances [19]. This finding shows evidence of the impact of social norms and learned behaviors on adolescents' use of substances. Peer pressure is a very powerful factor for influencing behavior especially in young people. Adolescents who affiliate with substance use peers may be pressured to use substances.

Siblings' use of substances was also a predictor of substance use, with a 6-fold increase (AOR 6.145, 95% CI [3.612, 10.454]) among students who reported having siblings who used substances. Findings from other studies on sibling (s) substance use were 7.36 times more likely to use substances when compared with those whose sibling (s) seldom use these substances [20].

This study is not free of limitations. First, the study used a cross-sectional design that cannot establish trends and causality between substance use and potential risk factors. Second, lower grade was not included in this study and was not stratified with qualitative methods. Social desirability bias may also have affected participants' responses. Prevalence rates were also self-reported and dependent on the accuracy with which the participants recalled and reported such use.

Conclusion

The prevalence of substance use was high and family (father and/or sibling (s)) who uses substance (s), and respondents' best friend were the predictors of the substance use of the students.

Recommendation

To woldia Health office

Training about substance to the student

To woldia woreda Education/ministry of education/

Substance use and factors to substance use should be included in teaching curriculum.

To local administrator

Rule and regulation should be established for substance use.

To future researchers

Further studies by including lower grades and stratified with qualitative research methods.

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