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Assessment of Substance Abuse and Associated Factors among Students of Debre Markos Poly Technique College in Debre Markos Town, East Gojjam Zone, Amhara Regional State, Ethiopia, 2013

By Tesfahun Aklog, Gebeyaw Tiruneh & Girmay Tsegay
Debre Markos University, Ethiopia

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Methods: A cross sectional study was conducted to determine the overall prevalence of substance abuse among students and factors associated with it. Simple random sampling technique was conducted to select 423 students from the list of students name in their respective batch after stratifying them based on year of study. A pre-tested semi structured anonymous questionnaire was used to collect data, which was entered and cleaned using Epi Data version 3.1 and analyzed using SPSS version 16.0 statistical package. Descriptive statistics and logistic regression were performed to examine the prevalence and predictors of substance abuse. CAGE-AID was used to measure substance abuse.

Results: The overall prevalence of substance abuse was 14.1 %. The commonly abused substances were alcohol 13.4 %, khat 7.8 %, and cigarette 5.4 %. Sex [AOR, 95% CI; 3.550 (1.451, 8.685)], peer pressure [AOR, 95% CI 3.405 (1.047, 11.076)], availability of the drugs [AOR, 95% CI 3.394 (1.677, 6.868)], family drug use [AOR, 95% CI; 2.698 (1.337, 5.443)], personal pleasure [AOR, 95% CI 3.346 (1.315, 8.512)] and academic dissatisfaction [AOR, 95% CI 2.739(1.253, 5.985)] were found to be significantly associated with students to abuse substances.

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Conclusion and Recommendation: A significant proportion of students abuse substances. Teachers in the high schools and colleges, parents, mass media and other concerned people should teach students about the health and social problems associated with substance abuse.

I. BACKGROUND

History of Substance /drug abuse is as old as history of mankind. Human beings have been using the different parts of plants as medicine for

reliving different health conditions. The extent of illicit drug use is mainly seen among the youth [1].

Substance abuse is Persistent or sporadic drug use inconsistent with or unrelated to acceptable medical practice. A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following: failure to full fill major role obligations at home, school or work; substance use in situations in which it is physically hazardous; recurrent substance-related legal problems; continued substance use despite having persistent or recurrent social or interpersonal problems exacerbated by the effects of the substances [2].

Substance abuse is becoming a serious ongoing public health problem; it affects almost every community and family in some way. Globally, there were about 190 million substance abusers. Out of these substance abusers, around 40 million serious illnesses or injuries were identified each year. The trend is increasing as period goes [3]. Use of substances such as alcohol, *khat* leaves (*Catha edulis*) and tobacco has become one of the rising major public health and socio-economic problems worldwide. Recent trends indicate that the use of substances have dramatically increased particularly in developing countries. Alcohol, especially in high doses, or when combined with *khat* or tobacco, continues to claim the lives of many people. It is estimated that 9% of the global population aged 12 or older are classified with dependence on psychoactive substances such as alcohol [4].

The history of psychoactive substance use in Africa is relatively short except for the reports on the use of traditional substances such as alcohol, cannabis and khat. The introduction of prescription drugs to Africa drastically increased the availability and use of psychoactive substances. This notwithstanding, alcohol, cannabis and khat still remain the most common substances of abuse in Africa [5].

Existing literature on alcohol consumption among adolescents in sub-Saharan Africa suggests that a substantial proportion of adolescents have consumed

Authors α ρ : School of public Health, College of Medicine and Health Sciences, Debre Markos University, Debre Markos, Ethiopia.

E-mails : aklogtesfahun@yahoo.com, girmshe@gmail.com

Author ο : Gamby College of medical sciences, Bahir Dar, Ethiopia.
E-mail : gebeyawt@yahoo.com

or currently consume alcohol. Two Ghanaian studies conducted among secondary school students and among nationally- representative samples of in- and out-of-school youth found that the prevalence of lifetime alcohol use was approximately 25% [6].

Substance misuse is a growing problem in Ethiopia, as in many developing countries. Alcohol and khat are the most frequent substances of abuse, followed by cannabis and solvents. Hard drugs such as heroin and cocaine are rarely used [7]. Studies on substance abuse in selected urban areas showed that 82 % of street children, commercial sex workers, and street vendors as having used addictive drugs or substances. They also reported that Khat, alcohol, hashish, tobacco, and solvents were the most abused substances. Heroin, cocaine, and other narcotic drugs were not considered to be important [8].

Some studies have indicated that substance misuse is associated with psychological distress, suicide attempts functional impairment, physical ill-health and risk taking behavior. Khat (an evergreen plant with amphetamine-like properties) and alcohol are among those substances widely consumed among the youth of Ethiopia. In a study of over 10,000 adults in Butajira, a higher prevalence of mental distress and suicide attempt was found in those using alcohol and khat [9]. An increased prevalence of suicide attempts was also reported in adolescents in Addis Ababa who drank alcohol [10]. Khat use has been associated with physical illness, injuries, under nutrition, mental distress, sleep disorders, problem drinking and heavy smoking [11], as well as recurrent brief psychotic episodes with associated violent behavior [12]. In a case-control study, khat use has also been found to be a risk factor for HIV infection [13].

A study conducted in Amhara region, among college students of North Western Ethiopia revealed that, the prevalence of cigarette smoking seemed to decrease among university students but the decrease in the prevalence of khat chewing is not remarkable. Lung diseases including lung cancer were mentioned as health risk of cigarette smoking [14]. In a cross sectional study, alcohol intake and chewing of chat were factors predisposing out-of-school youths to HIV/AIDS-related risky sexual behavior [15]. According to a baseline assessment for HIV counseling and testing program in Amhara region, substance abuse (of chat, hashish, and shish a) is very common in most of the towns, contributing to the spread of sexually transmitted infections / HIV. Chat chewing houses are everywhere and attract all segments of the population, especially the youth [16].

A baseline survey in East gojjam zone revealed that, substance abuse such as high alcohol drinking, khat and shisha were the push factors for early sex initiation to adolescents and youths. In-school girls' sexual networks extend from school boyfriend to older men, especially drivers and civil servants [17].

Debre Markos town is characterized by a significant number of people whose livelihood depends on the informal sector, such as petty traders, day laborers, and local brew sellers. The newly built college and technical schools have increased the number of youth coming to Debre Markos town. This led to cultural change among youth, including early sexual debuts and premarital sex. Some of the college girls who live in rented houses practice sex with married and single men in return for money. Male civil servants are said to have sexual networks with college girls. The other important risk is FSWs and their sexual networks with married men and in-and-out-of-school youth [16].

Substance use and HIV/AIDS are interrelated due to the effect of drugs on human behavior [18]. Debre Markos is best known producing Ethiopian homemade beer Tella, homemade liquor Arekie and the famous Honey Wine or Teji. Students visit local beverage houses, chat bets, and other drug abuse sites, it leads to the spread of HIV AIDS. A study conducted in Debre Markos town revealed that selling local beverages like Arakie, Teji and Tella was positively associated with the spread of HIV AIDS [19].

The rationale behind this study is that, there is little data concerning commonly abused psychoactive substances in Debre Markos Town though substance abuse is an emerging public health problem. And also, as far as my knowledge and searching effort, no study was conducted on substance abuse among students of Debre Markos Polytechnic College. The problem is usually overlooked. So, this study is designed to bridge the fore mentioned gaps.

II. METHODS

The study was conducted in Debre Markos polytechnic college in Debre Markos Town, the capital city of East Gojjam Zone. Before one and half centuries ago, Tedla Gualu governed Gojjam. During this time, or to be more precise, in 1853 Dejzmach Tedla found Menkorer, presently known by Debre Markos. In 1881 the first Church-Saint Markos was introduced in Menkorer. Just a year after and onwards, the town got a name Debre Markos after the church of St Markos [27].

Debre Markos is found 300 kilometers Northwest of Addis Ababa and 265 kilometers Southeast of the Amhara National Regional State capital city-Bahir Dar. The geographical coordinates of the town are 10°20' latitude north and 37°43' longitude east. The town is situated at 2420 meters above sea level, the weather condition, in most of the time is, 'Woinadega' [28].

Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia, this town has a total population of 62,497, of whom 29,921 are men and 32,576 women. The three largest ethnic groups reported in the town were Amhara (97.12%), Tigrinya (1.29%), and Oromo (0.67%); all other ethnic groups made up 0.92% of the population. The majority of the inhabitants

practiced Ethiopian Orthodox Christianity, with 97.03%, while 1.7% of the populations were Muslim and 1.1% was Protestants [29].

There is one Polytechnic college in the town which is established in 1982. The total number of students enrolled in this college for the academic year 2012/2013 both in regular and night program are above 3050.

The study was conducted on March 27, 2013 among students of Debre Markos Poly Technique College in Debre Markos Town using Institutional based cross-sectional study design.

The source population was all students of Debre Markos polytechnic college in Debre Markos Town during the specified study period and the study population was only regular students of Debre Markos polytechnic college in Debre Markos Town during the specified study period.

The sample size was calculated by using the formula for single population proportion for cross sectional survey and taking the proportion as 50%, (since no study was conducted in the study area as far as the investigator knowledge and searching effort) with confidence level of 95% and degree of precision of 5%. An additional 10 % was added to the sample size as a contingency for non responses. The calculated sample size was 384 and adding a 10% of non- response rate, the total sample size was 423.

First students were stratified based on year of study. Then, simple random sampling technique was applied to select individuals in each year of study from the list of students name in their respective batch. Students from each year of study were selected proportionally to their population size.

Data was collected by semi structured self-administered questionnaire prepared in English and translated to Amharic and retranslated to English to ensure its consistency. The questionnaire was adopted and modified from WHO-students drug use survey questionnaire. Pretest was conducted in 5% of the sample size in Amanuel TVET College a nearby town and necessary corrections to the tool were made before the use of the questionnaire in the actual survey/site. Data collectors were contacted through student counselors of the college; they agreed on administering the survey in the same day and time to prevent contamination of information. Participation was on voluntary basis and confidentiality was maintained to encourage accurate and honest self-disclosure. After that, the questionnaire was distributed to the selected students in the classroom and when the instructors are willing to allow the students to complete the questionnaire, the filled questionnaires were collected immediately.

III. INCLUSION AND EXCLUSION CRITERIA

Regular students of Debre Markos polytechnic college who are willing to participate in the study during the time of data collection were included and students who are critically sick (to the extent of unable to read and write) and those who are out of the campus for practical attachment during the time of data collection were excluded.

IV. OPERATIONAL DEFINITIONS

CAGE-AID: is derived from the four questions of the tool: Cut down, Annoyed, Guilty, and Eye-opener; it helps to determine if substance abuse exists [26].

Current use: having consumed any abused substance at least once in the past 30 days.

Ever use: an individual is considered as ever consumed even if he/she will consume only once in his/her lifetime.

"Hard" drugs: Substances such as cocaine, heroin, etc, which are under the International control and produced, trafficked and consumed illicitly [1].

Illicit drugs: A psychoactive substance, the production, sale or use of which is prohibited [26].

Life time use:-The proportion of students who had ever consumed any of abused substance [26].

Substance: For this study it was defined as alcohol, khat, cigarettes and illicit drugs to alter their mood or behavior.

Substance abuse: For this study it was defined as the abuse of alcohol, khat, cigarettes and illicit substances by college students and fulfills the criterion (CAGE \geq 2).

In order to assure data quality, high emphasis was given to minimize errors using the following strategies: the questionnaire was pretested and subsequent correction and modification has been done; the data collectors and the supervisors were trained on the data collection technique for one day. The collected data was reviewed and checked for completeness before data entry.

Data was entered into Epi Data version 3.1 for data exploration and cleaning. The cleaned data was exported to SPSS version 16.0 statistical packages for statistical analysis. The prevalence of substance abuse was determined by taking frequencies and percentages. Bivariate associations between dependent and several independent variables were examined. Multivariate logistic regression analysis was employed to identify factors associated with substance abuse by controlling for the effects of potential confounding variables. Odds ratio was calculated to determine the strength of associations between selected variables.

V. MEASUREMENT USED TO MEASURE SUBSTANCES ABUSE

a) CAGE-AID: CAGE Questions Adapted to Include Drug Use

1. Have you ever felt you should cut down on your drinking or drug use?

2. Have people annoyed you by criticizing your drinking or drug use?

3. Have you felt bad or guilty about your drinking or drug use?

4. Have you ever had a drink or used drugs first thing in the morning to steady

Your nerves or to get rid of a hangover (eye-opener)?

Scoring: Item responses on the CAGE questions are scored 0 for "no" and 1 for "yes" answers.

A total score of two or greater positive answers of the above four questions is considered as fulfill the criteria of substances abused [26].

VI. ETHICAL CONSIDERATIONS

Initially ethical clearance was obtained from Debre Markos University Institutional Research Ethics Review Committee. Then, permission was obtained from the dean of Debre Markos Poly Technic College before data collection. All selected students were communicated about the study in order to obtain their verbal consent before administering questionnaires. To ensure convenience of teaching process some academic and administrative staffs were communicated about the study. Participants were informed that they have full right to discontinue or refuse to participate in the study. The data collectors informed participants about the absence of harm as a result of their participation. After gaining their willingness the data was collected by administering the questionnaire.

VII. RESULTS

Socio-demographic Characteristics of Study Participants a total of 423 questionnaires were distributed, of which 410 were filled consistently and completely with response rate of 97%. Two hundred twenty five (54.9%) of the samples were males. The mean age of the participants was 19.8 ± 2.1 years.

The majority of respondents 398 (97.1%) were Amhara. Out of the total respondents, 393 (95.9%) were Orthodox followers. From the total participants, 242 (59%) were first year students. The previous place of residence for the majority of respondents, 251 (61.2 %) were from urban setting. The prominent family occupation was merchant which was 42.4 % followed by farmer 26.3%. About family's educational status, fathers of 9.0 % and mothers of 30.2 % of the respondents cannot read and write. Whereas fathers of 51.2 % and mothers of 40.2 % of the respondents were can read

and write. 23.2% of respondents' family uses substances/drugs and 76.8 % were non users.

Table 1 : Socio-demographic characteristics of Debre Markos Poly Technic College students (n=410), Amhara, Ethiopia, March 27, 2013

Variables	Frequency (n=410)	Percentage (%)
Sex		
Male	225	54.9
Female	185	45.1
Age group		
15-19	210	51.2
20-24	186	45.4
25-29	14	3.4
Ethnicity		
Amhara	398	97.1
Tigray	7	1.7
Oromo	4	1
Gurage	1	0.2
Religion		
Orthodox	393	95.9
Muslim	8	2
Protestant	7	1.7
Catholic	2	0.5
Study year		
Year I	242	59
Year II	144	5.1
Year III	24	9
Residence (before joining college)		
Urban	251	61.2
Rural	159	38.8
Family occupation		
Farmer	174	26.3
Merchant	108	42.4
Gov't employee	66	16.1
Ngo employee	18	4.4
Housewife	27	6.6
Daily laborer	5	1.2
Private employee	10	2.4
Others*	2	0.5
Father's Educational status		
Cannot read and write	37	9.0
Can read and write	210	51.2
Primary (1-8 grades)	43	10.5
Secondary (9-12 grades)	37	9.0
Tertiary (above 12 grades)	81	19.8
Others*	2	0.5
Mother's Educational status		
Cannot read and write	124	30.2
Can read and write	165	40.2
Primary (1-8 grades)	49	12.0
Secondary (9-12 grades)	31	7.6
Tertiary (above 12 grades)	39	9.5
Others*	2	0.5
Family use of substance /Drug		
Yes	95	23.2
No	315	76.8

N.B: * = No family

a) *Magnitude of Substance use among Students of Debre Markos*

i. *Poly Technique College*

Out of the total subjects, 61.7% of the respondents were reported ever using at least one substance in their lifetime. Nearly 38% were current

users of any substances. 35.4% were current alcohol consumers. 6.3% of study participants were chewed khat 30 days prior to data collection. 4.4% and 1.7% were smoked cigarettes and used illicit drugs respectively.

Table 2 : Prevalence of Substance Users among Debre Markos Poly Technic College students (n=410), Amhara, Ethiopia, March 27, 2013

Variables	Ever Users		Current Users	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Any substance				
Yes	253	61.7	157	38.3
No	157	38.3	253	61.7
Alcohol				
Yes	246	60	145	35.4
No	164	40	265	64.6
Khat				
Yes	55	13.4	26	6.3
No	355	86.5	384	93.7
Cigarettes				
Yes	32	7.8	18	4.4
No	378	92.2	392	95.6
Illegal drugs				
Yes	11	2.7	7	1.7
No	399	97.3	403	98.3

b) *Current users of specific substances among the ever users*

Nearly 64 % of ever users of illicit drugs were current users; 59% of ever drunker were currently drunk

alcohol; approximately 56% of ever smokers were persisting to smoke currently and comparably, 47% ever khat users were currently chewed khat.

Table 3 : Current specific substance users among ever users of Debre Markos Poly Technic College students, Amhara, Ethiopia, March 27, 2013

Variables	Frequency (n)	Percentage (%)
Khat (n=55)		
Yes	26	47.3
No	29	52.7
Cigarettes (n=32)		
Yes	18	56.3
No	14	43.7
Alcohol (n=246)		
Yes	145	59
No	101	41
Illegal drugs (n=11)		
Yes	7	63.6
No	4	36.4

c) *Percentage distribution of substance use by sex*

Comparing to females, male respondents account for almost 67% and 75 % ever and current users of any substances respectively. From currently users males account 73.8 % for alcohol drinking, 88.5 % for khat chewing, 77.8 % for cigarette smoking, and 100 % for illicit drug use respectively.



Table 4 : Percentage distribution of substance use among Debre Markos Poly Technic College students by sex, Amhara, Ethiopia, March 27, 2013

Variables	Ever Users		Current Users	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Any substance				
Male	169	66.8	118	75.2
Female	84	33.2	39	24.8
Alcohol				
Male	163	66.3	107	73.8
Female	83	33.7	38	26.2
Khat				
Male	47	85.5	23	88.5
Female	8	14.5	3	11.5
Cigarettes				
Male	25	78.1	14	77.8
Female	7	21.9	4	22.2
Illicit drugs				
Male	10	90.9	7	100
Female	1	9.1		

d) *The time in which students started to use abused substances*

Concerning initiation time of substance use, 36 % of participants started to use abused substances when they were elementary school students. 35.6% of

the respondents started during secondary school life. 15.4 % and nearly 11 % of the respondents had started when they were at preparatory school and college life respectively.

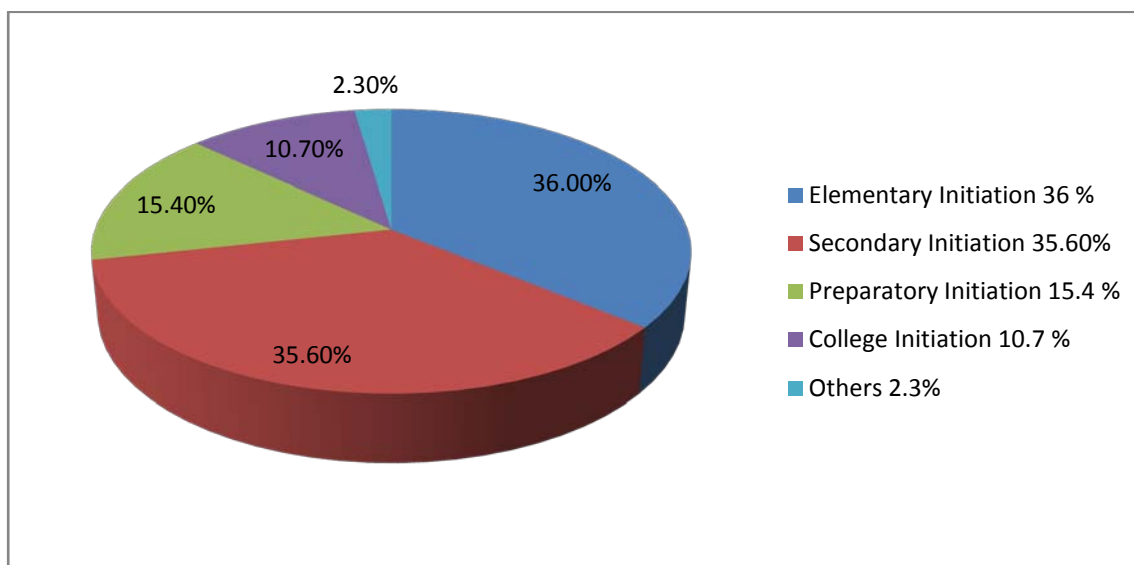


Figure 1 : Time of Initiation to Use Abused Substances among Debre Markos Poly Technic College students (n=253), Amhara, Ethiopia, March 27, 2013

e) *Reasons to start abused substances*

Different reasons were mentioned by students for the use of drugs. The prominent reasons for starting to use substances among the ever users were due to peer pressure 56.7 %, to get personal pleasure 48 %, due to availability of substances 36.8 %, due to academic dissatisfaction 27.5 %, to stay awake 22.1 % and the least was to get relief from tension 15 %.

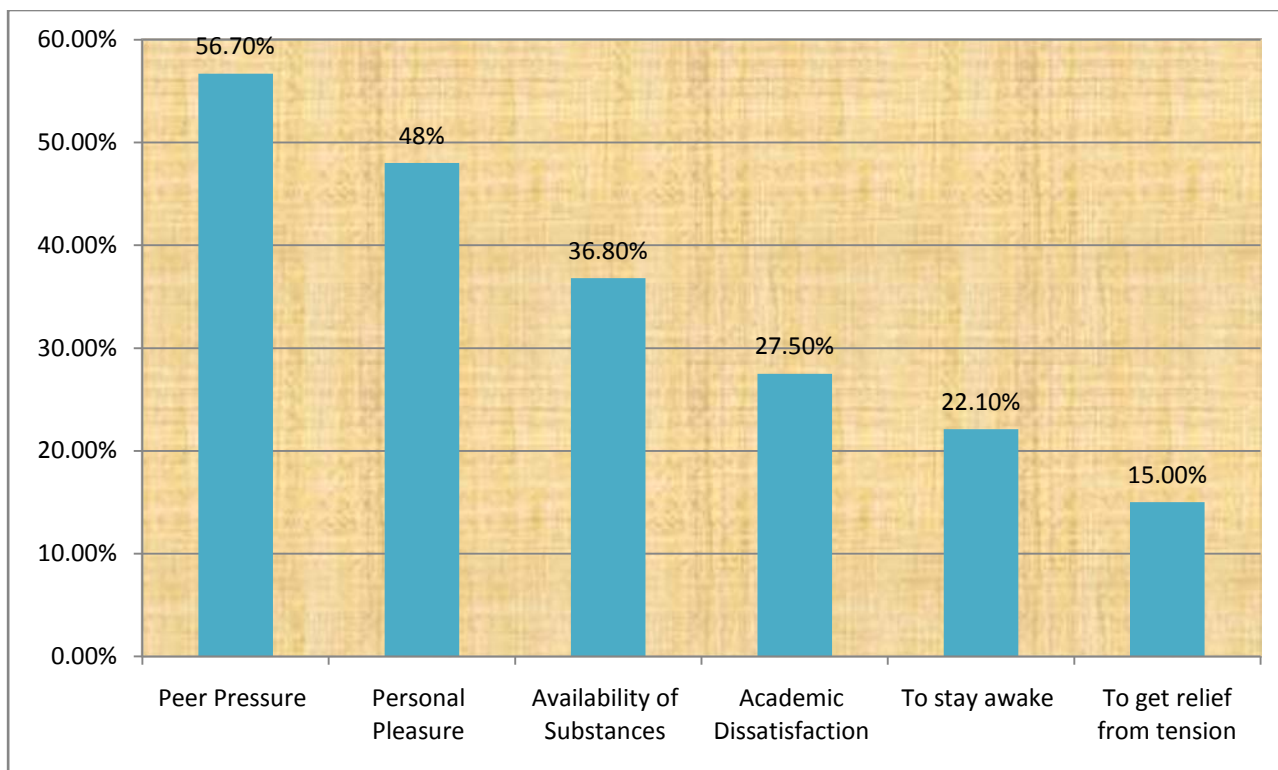


Figure 2 : Reasons to start substances to use among Debre Markos Poly Technic College students (n=253), Amhara, Ethiopia, March 27, 2013

f) *Magnitude of Substance Abuse among Debre Markos Poly Technic College Students*

Fifty eight (14.1 %) respondents fulfilled the criteria of substances abuse (CAGE \geq 2). Fifty five students (13.4 %) were alcohol abusers followed by khat

thirty two (7.8 %) and cigarette twenty two (5.4 %). Eight respondents (1.95 %) abuse illegal drugs. Alcohol, Khat and cigarette were the commonest abused drugs. The nature of substances abused includes both legal and illegal substances.

Table 5 : Prevalence of Substance Abuse among Debre Markos Poly Technic College students (n=410), Amhara, Ethiopia, March 27, 2013

Variables	Frequency(n)	Percentage
Substance abuse		
Yes	58	14.1
No	352	85.9
Khat abusers		
Yes	32	7.8
No	378	92.2
Cigarettes abusers		
Yes	22	5.4
No	388	94.6
Alcohol abusers		
Yes	55	13.4
No	356	86.8
Illicit Substance abusers		
Yes	8	1.95
No	402	98.05

g) *Associated Factors for Substances Abuse*

Against substances abuse, variables such as socio demographic characteristics, initiation time of substance use, and reasons to start were determined using logistic regression model. Variables which are significantly associated in the first model ($p \leq 0.2$) were

taken and analyzed together by multivariate logistic regression. Confounding factors were adjusted by multiple logistic regression analysis. After controlling for the effects of potentially confounding variables using multivariate logistic regression, socio demographic characteristics, peer pressure, drug availability,

academic dissatisfaction, and seeking for personal pleasure were found to be significantly associated with substance abuse. Variable to get relief from tension have significant association with students to abuse substances in the bivariate analysis disappear in the multivariate analysis. Factors which are significantly associated with substance abuse in the multivariate analysis were elaborated in the following paragraph.

Substances abuse in males was three and half times higher than in female respondents: [AOR, 95% CI; 3.550 (1.451, 8.685)], students coming from urban areas were more likely to abuse substances than those who were coming from rural areas with [AOR, 95% CI; 3.342 (1.532, 7.288)]. Students whose families use substances were 2.7 times more likely to abuse substances as

compared to those who did not: [AOR, 95% CI; 2.698 (1.337, 5.443)]. Respondents who started to use substance through peer pressure [AOR, 95% CI 3.405 (1.047, 11.076)] were 3.4 times more likely to abuse substances as compared to those who did not. Subjects who began to use substances because of availability of the drugs [AOR, 95% CI 3.394 (1.677, 6.868)] were 3.4 times higher as compared to those who did not. Similarly respondents who started to use substances for personal pleasure [AOR, 95% CI 3.346 (1.315, 8.512)] and due to academic dissatisfaction [AOR, 95% CI 2.739(1.253, 5.985)] were 3.3 times and 2.7 times higher respectively as compared to those who did not. (See table 7).

Table 6 : Association of factors towards substances abuse among Debre Markos Poly Technic College students (n=410), Amhara, Ethiopia, March 27, 2013

	Variables		Substances abuse		OR(95%CI)
	Yes	No	Crude	Adjusted	P-Value
Sex					
Male	49	176	3.403(1.580, 7.328)*	3.550(1.451, 8.685)*	0.006
Female ¹	9	176	1	1	
Residence					
Urban	45	206	2.675(1.357, 5.274)*	3.342(1.532, 7.288)*	0.002
Rural ¹	13	146	1	1	
Family drug use					
Yes	31	64	3.076(1.680, 5.632)*	2.698(1.337, 5.443)*	0.006
No ¹	27	288	1.	1	
Reasons to start					
Peer pressures					
Yes	54	144	4.781(1.649, 13.865)*	3.405(1.047, 11.076)*	0.042
No ¹	4	51	1	1	
Availability of drugs					
Yes	36	57	3.962(2.145, 7.318)*	3.394(1.677, 6.868)*	0.001
No ¹	22	138	1	1	
Personal pleasure					
Yes	51	127	3.901(1.679, 9.064)*	3.346(1.315, 8.512)*	0.011
No ¹	7	68	1	1	
Academic dissatisfaction					
Yes	20	32	2.681(1.384, 5.192)*	2.739(1.253, 5.985)*	0.012
No ¹	38	163	1	1	
To get relief from tension					
Yes	34	76	2.218(1.222, 4.028)*	1.299(0.631, 2.675)	0.478
No ¹	24	119	1	1	

N.B: * = Statistically significant at P<0.05,
¹= Referent factors

VIII. DISCUSSION

In this study a significant proportion (14.1%) of students were abused substances. This prevalence was lower than the report from students of Mekelle University 20.1 % [26] and the national findings obtained from National Survey on Drug Use and Health, 20.2% [30]. And it is remarkably lower than the report from undergraduate students in public Midwestern University, 48.1 % [31]. This difference may be due to the difference in population under study and area. For

Mekelle University students, more than sixty five percent of study participants were males and according to our finding male sex was positively associated with substance abuse. Or, the difference might be due to method difference (measurement of substances abuse).

The findings of this study revealed that the commonly abused drugs were alcohol 13.4%, khat 7.8%, cigarette 5.4% and other illicit substances (1.95%). Apart the prevalence, this is in agreement with findings in students of Mekelle University, alcohol 16.6%, khat 14.8%, and cigarette and cannabis 8.8% was

abused equally [26], in secondary school of Kenya in 2009 alcohol 42.9%, khat 20.8%, cigarette 19.8% and cannabis 14.3%, were commonly abused substances [32]. Again studies in various parts of the country have noted that alcohol was the most commonly used psychoactive substance, which was similar with the result of this study [20, 33]. As compared to other drugs high spread of alcohol, khat and cigarette abuse may be due to social, cultural and legal acceptability. In addition to this, these drugs were internationally uncontrolled or Social Substances of Abuse might be also another reason. Specifically for alcohol might be, alcohol unlike other drugs does not have a drastic effect on personal health when consumed moderately; it is readily available and it is consumed mainly in pubs and other entertainment centers which could attract youths; and more accepted in the society compared to other types of drugs. Most alcohol commercials have very attractive scenes. The people in the advertisements are very happy and enjoying their drinks. As a result, students take alcohol to experience what they have already seen on television [20].

The present findings show that, being male; coming from urban areas and parental use of substances were strongly and positively associated with students to abuse substances. This is in agreement with study conducted among Addis Ababa high school students; there is statistical significant association between family use of substances /drugs with students to abuse substances /drugs [1]. Previous studies also identified that friends' and parental use of substances were strongly associated with the use of substances among adolescents, indicating the influence of peer pressure [34, 35, 36]. This influence of the behavior of families and friends suggests that interventions should be multi directional involving different sections of the population at the same time.

Students who started to use substance due to peer pressure, readily availability of substances, seeking for personal pleasure and academic dissatisfaction were positively associated with students to abuse substances. This is in agreement with studies conducted in Kenyan Secondary Schools [20]. Consistent to this, peer pressure and readily availability of substances were positively associated with students to abuse substances in Mekelle University [26].

In this study, the prevalence of ever users of substances was found to be 61.7%. This is lower than findings reported in Mekelle University students, 82.7% [26], Nigerian medical university, 78% [37], western Kenya, 69.8% [32] and Nigerian secondary school, 63.3% [33]. This difference might have occurred due to cultural and regulation difference of the substance use among the countries. The time the research was undertaken could be another reason for the variations.

The present survey reported that 36 % of the ever users began at elementary school. Which is

different from reports taken from students of Mekelle University 30.80 % at secondary level [26] and from National Survey on Drug Use and Health (users started at 19 years at which students joined higher education in our context) [30]. A Finding from college students of North West Ethiopia was different, 52% at university level for khat and 46% at preparatory level for cigarette [14].

The study further revealed that 56.7 % the study subjects were introduced to use substances by a friend/peer. This is consistent with the study done among students of Mekelle University 58.8 % [26] and much lower than the study conducted in Nigeria, 75.1 % [37]. Another study in Kenya secondary school revealed that readily available drug and peer group pressure were the prominent reasons to begin substances use [20].

The proportion of ever alcohol drinkers of this study were 60 %. The finding of this study is lower than the study among students of Mekelle University, 69.7%, [26], findings reported from students of Ambrose Alli University; Ekpoma, Nigeria representing 66% [38] and in line with 61% among Chinese, University Students in Hong Kong [39]. But it is slightly higher than reports from private high school students in Addis Ababa 57.7% [40]. The difference in educational program between countries could be contributing factors for this varying rate of alcohol consumption.

In addition, based on this study, 13.4% of the participants were ever khat chewers. This finding is lower than the study in Addis Ababa, 35.6% [40], the study conducted among College students in North Western Ethiopia 26.7 % [14] and much lower than the study in high school students in south-western Ethiopia, 64.9% [21]. Current khat chewers in this study were 6.3% of the study subjects. This is lower than a report from Jazan region of Saudi Arabia in which the prevalence of khat use among high school students was 21.4% [41], the study conducted among college students of North West Ethiopia 17.5% [14], the study done among Haramaya University students 20.3 % [25], the study among Jimma University staffs which was 30.8% [24]. The possible explanations for the observed differences in khat chewing could be due to differences in sample characteristics, in the definitions used by studies, cultural differences in understanding of the amount of chewing and methodological differences.

The prevalence rate of lifetime cigarette use in this study was 7.8%, which is lower than the study conducted among College students in North Western Ethiopia 13.1 % [14], study done among Mekelle University students 17.5 % [26], findings from Secondary School of Nigeria 14.3% [33], report from Chinese University, 13% [31]. In contrast, it is higher than findings obtained from Western Kenya, 2% [32]. The discrepancy could be due to the population's prevailing social, cultural variations and study time difference in the respective countries.

Even though illicit drugs such as cannabis, ganja / shisha, heroin and marijuana were legally prohibited, this study revealed that ever users of cannabis was 0.7%, ganja / shisha 2.2 %, and heroin and marijuana 0.2 %, were used equally. This is lower than reports from Addis Ababa high school students, which was 1.1 %, 3.3 %, 0.4 %, 0.7 % for cannabis, ganja / shisha, heroin and marijuana respectively [1]. This might be due to differences in area, population under study as well as the time the research was undertaken.

In general, the difference indicated in the above discussion might be due to the population difference under study, and promotion of publicity. The difference in educational program between countries and the time the research was undertaken could also be contributing factors for this varying rate of substance use and abuse. Organizational, physical and behavioral property variables of campuses, including the type of residence, institutional size, location and campus community property variables could also be reasons to the variations.

IX. CONCLUSION AND RECOMMENDATION

The present study aimed at assessing the magnitude of students' substance abuse and associated factors. Accordingly, it has come up with the following conclusions.

A significant proportion of students abuse substances. It was associated positively with certain variables such as male participants, urban setting, family drug/substance use, peer pressure, availability of drugs, personal pleasure and academic dissatisfaction. The commonly abused substances were alcohol, khat, and cigarette. Therefore, actions targeting on those predictors are necessary to effectively reduce substance abuse among college students.

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REFERENCES RÉFÉRENCES REFERENCIAS

1. Lemma W. Assessment of substance abuse among female and male high school students in Addis Ababa. MPH thesis presented to the School of Graduate Studies of Addis Ababa University; 2009.
2. American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders*, Text Revision (4th ed.). Washington, DC: American Psychiatric Association.
3. DACA. Hand Book on Substances of Abuse for Trainers. Addis Ababa: Commercial Printing Enterprise, 2005. pp 7-36.
4. Deressa W and Azazh A. Substance use and its predictors among undergraduate medical students of Addis Ababa University in Ethiopia. *BMC Public Health*. 2011; 11: 660.
5. Odejide O. Status of Drug Use/Abuse in Africa: A Review. *International Journal of Mental Health and Addiction* 2006; 4(2): 87-102.
6. Kabiru CW, Beguy D, Crichton J and Ezech AC. Self reported drunkenness among adolescents in four sub-Saharan African countries: associations with adverse childhood experiences. *Child and Adolescent Psychiatry and Mental Health* 2010; 4:17.
7. Fekadu A, Atalay A and Charlotte H. Alcohol and Drug Abuse in Ethiopia: Past, Present and Future. *African Journal of Drug & Alcohol Studies* 2007; 6(1):39-53.
8. Syoum G and Ayalew G. A report on rapid assessment of the situation of drug and Substance abuse in selected urban areas in Ethiopia prepared for MOH and UNDP Nov. 1995 pp 9-45.
9. Alem A, Kebede D and Kullgren G. The prevalence and socio-demographic correlates of khat chewing in Butajira, Ethiopia. *Acta Psychiatrica Scand*1999; 100:84-91.
10. Kebede D and Kestela T. Precursors of atherosclerosis and hypertensive diseases among adolescents in Addis Ababa, Ethiopia. *Bulletin of the World Health Organization*.1993; 71: 787-794.
11. Belew M, Kebede D and Kassaye M. Khat use and its associated health and socio-economic effects in a general population. *Ethiopian Medical Journal* 2000; 38:11-26.
12. Alem A and Shibre T. Khat induced psychosis and its medico-legal implication: a case report. *Ethiopian Medical Journal* 1997; 35:137-141.
13. Abebe D, Debella A, Dejene A, Degefa A, Abebe A, Urga K, et al. Khat chewing habit as a possible risk behavior for HIV infection: A case-control study. *Ethiopian Jou*.
14. Kebede Y. Cigarette smoking and Khat chewing among college students in North West Ethiopia. *Ethiopian Journal of Health Development* 2002; 16(1):9-17.
15. Alemu H, Haile Mariam D, Abate K and Davey G. Factors Predisposing Out-of-School Youths to HIV/AIDS-related Risky Sexual Behavior in Northwest Ethiopia. *J Health Popul Nutr* 2007; 25(3): 344–350. PMID: PMC2754028.
16. Melkamu Y. Identifying At Risk Populations and HIV/AIDS Referral Services: Baseline Assessment for Mobile Counseling and Testing Program in the Amhara Region of Ethiopia. Bethesda, MD: Private

- Sector Program (PSP)-Ethiopia project, Abt Associates Inc. November 2007.
17. Habte D. Assessment of the Distribution of At-risk Populations and HIV/AIDS Referral Services in Ethiopia: Baseline Assessment for Mobile HIV Counseling and Testing Program in Amhara Region. Bethesda, MD: Private Sector Program-Ethiopia, Abt Associates Inc. July 2008.
 18. Kedir I. Assessment of the prevalence of alcohol use and its association with risky sexual behaviors among local drink sellers in Addis Ketema sub-city, Addis Ababa. MPH thesis presented to the School Of Graduate Studies Of Addis Ababa University students; 2011.
 19. Bawoke T. Assessment of Status of Commercial Sex in Females Selling Local Beverage, Their Risk Perception towards HIV Infection and Condom Use in Towns of Gojjam. MPH thesis presented to the School Of Graduate Studies Of Addis Ababa University students; 2007.
 20. Lemis M. Negsu, Judah N, Alice M. Drug dependence and abuse in Kenyan secondary schools: strategies for intervention. *Academic Journals* October 2008; 3(10): 304-308.
 21. Adugna F., Jira C and Molla T. *Khat* chewing among Agaro Secondary School students, South Western Ethiopia. *Ethiopian Medical Journal* 1994; 32:161-166. [PubMed].
 22. Zein A. Polydrug abuse among Ethiopian University students with particular reference to khat (*catha edulis*). *American Journal of Tropical Medicine and Hygiene*.1988; 91:1-5.
 23. Kebede Y. Cigarette smoking and khat chewing among university instructors in Ethiopia. *East African Medical Journal* 2002; 79: 274-278.
 24. Gelaw Y and Haile-Amlak A. Khat chewing and its socio-demographic correlates among the staff of Jimma University. *Ethiopian Journal of Health Development* 2004; 18(3):179-84.
 25. Derese A. Assessment of substance use and risky sexual behavior among Haramaya university students. MPH thesis presented to the School Of Graduate Studies Of Addis Ababa University; 2011.
 26. Abrha K. Psychoactive Substance Abuse and Intention to Stop Among Students of Mekelle University. MPH thesis presented to the School Of Graduate Studies Of Addis Ababa University students; 2011.
 27. Debre Markos City Service (2005). General Profile of Debre Markos Town. Debre Markos (unpublished, translated version)
 28. East Gojjam Zone (1994). Planning and Economic Development of East Gojjam. (Unpublished, translated Version).
 29. Central Statistics Agency of Ethiopia, 2007.
 30. Office of Applied Studies. Substance Abuse and Mental Health Services Administration. Results from the 2008 National Survey on Drug Use and Health: National Findings, NSDUH Series H-36, DHHS Publication, 2009; 4434(9).
 31. Sian Griffiths, Joseph T. F. Lau¹, Julie K. W. Chow¹, S. S. Lee¹, Pauline Y. M. Y. Kan and S. Lee. Alcohol Use among Entrants to a Hong Kong University. *Advance Access Publication Alcohol & Alcoholism*. 2006; 41(5): 561.
 32. Lukoye Atwoli, Prisca A Mungla, Moses N Ndung'u, Kiende C Kinoti, Evans M Ogot. Prevalence of substance use among college students in Eldoret, western Kenya. Retrieved from www.biomedcentral.com.
 33. Igwe, Ojinnaka Ngozi, Ejiofor SO, Emechebe GO, Ibe BC. Socio-Demographic Correlates of Psychoactive Substance Abuse among Secondary School Students in Enugu, Nigeria. *European Journal of Social Sciences*.2009; 12(2):279.
 34. Siziya S, Rudatsikira E, Muula AS, and Ntata PRT: Predictors of cigarette smoking among adolescents in rural Zambia: results from a cross-sectional study from Chongwe district. *Rural and Remote Health* 2007, 7:728. Pub Med Abstract | Publisher full Text.
 35. Rozi S, Butt ZA, Akhtar S: Correlates of cigarette smoking among male college students in Karachi, Pakistan. *BMC Public Health* 2007, 7:312. Pub Med Abstract | BioMed Central Full Text | Pub Med Central Full Text.
 36. Rapeah MY, Munirah Y, Latifah O, Faizah K, Norsimah S, Maryana M, and Saub R. Factors influencing smoking behaviors among male adolescents in Kuantan district. *Annal Dent Univ Malaya* 2008; 15:77-81.
 37. Rozi S, Butt ZA, Akhtar S: Correlates of cigarette smoking among male college students in Karachi, Pakistan. *BMC Public Health* 2007, 7:312. Pub Med Abstract | BioMed Central Full Text | Pub Med Central Full Text.
 38. Jolly Okoza, Oyaziwo Aluede, Samuel Fajoju and Idonijie Okhiku .Drug Abuse among Students of Ambrose Alli University, Ekpoma, Nigeria. *European Journal of Social Sciences*.2009; 10(1):88.
 39. Jean H. Kim, et al. Prevalence and The Factors Associated with Binge Drinking, Alcohol Abuse, and Alcohol Dependence: A Population-Based Study of Chinese Adults in Hong Kong. *Access Publication Alcohol & Alcoholism*.2008; 43(3): 363.
 40. Kassaye, Mesfin, Sherif, Hassen Taha, Fissehaye Ghimja, Teklu, Teshome. Drug use among high school students in Addis Ababa and Butajira.Ethiop. *J.Health Dev*.1999; 13 (2):102-103.
 41. Ageely HM. Prevalence of Khat chewing in college and secondary (high) school students of Jazan region, Saudi Arabia. *Harm Reduct J*. 2009;6 (11):3.