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Research Article

Prevalence of Psychoactive Substances Use and Associated Factors among Health Sciences College Students, Southern Ethiopia

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ABSTRACT

Background: The use of psychoactive substances such as alcohol, khat and cigarette has been recognized as one of the leading causes of human suffering. Its sphere of influence increase alarmingly and become one of the rising major public health and socio-economic problems worldwide. Even though substances use exhibits most segments of the societies, it is more spreading among the young generation. Hence, the aim of this study was to assess the prevalence and associated factors of substances use among health sciences colleges' students, Southern Ethiopia.

Result: The overall life time and current prevalence of substances use among the study subjects were 29.6% and 18.1%, respectively. Similarly, the current prevalence of Khat chewing, alcohol drinking and cigarette smoking were 17.3%, 7.4% and 3.9%, respectively. Being male, year of study, experience from family, and living with friends were found to have statistically significant association with current Khat chewing [AOR: 3.45 95%CI: (1.42, 8.39)], [AOR: 2.22 95%CI: (1.17, 4.23)], [AOR: 5.67 95%CI: (2.75, 11.67)], and [AOR: 3.58 95%CI: (1.08, 11.83)], respectively. Similarly, year of study, experience from family and live in rented house were significantly associated with current alcohol use [AOR: 2.94 95%CI: (1.16, 7.47)], [AOR: 5.25 95%CI: (1.80, 15.29)], [AOR: 4.86 95%CI: (1.87, 12.63)], respectively.

Conclusion: Prevalence of psychoactive substance use is high. Therefore, psychoactive substance use among health science students needs special attention and emergency preventive measures could be taken. In addition, education and awareness creation on harmful effect of substance use is important to tackle the problem. This need attention to prevention of NCDs with coordinated intervention on determinant of the behavioral risk factors with health department, colleges and parents

Keywords: Substances use; Health Sciences Colleges Students; Southern Ethiopia

ABBREVIATIONS

AOR= Adjusted Odds Ratio, COR= Crudes Odds Ratio, ETB= Ethiopian birr, NCDs: Non-Communicable Diseases, SPSS= Statistical Package for Social Science, UNICEF: United Nations International Children's Emergency Fund, WHO= World Health Organization

BACKGROUND

Substance use is the rising major public health and socio-economic problems and are the current global concern. It has become an epidemic in some parts of African region with adolescents being the main victims of health problems due to substance addiction [1]. The common substances abused in most African countries including Ethiopia are alcohol, tobacco, cannabis or marihuana and Khat [1, 2]. Reports showed that these substances are widely used by colleges and high schools students [3].

Alcohol is the most commonly used substances. According to WHO 2016 report, harmful use of alcohol resulted in an estimated 3 million deaths (5.3% of all deaths) per year and six deaths per minute. Worldwide, more than a quarter (26.5%) of all 15–19-year-olds are current drinkers, amounting to 155 million adolescents. Prevalence rates of drinking is highest among 15–19-year-olds in the WHO European Region (43.8%), followed by the Region of the Americas (38.2%) and the Western Pacific Region (37.9%)[3-5].

The World Health Organization (WHO) report shows that in Ethiopia the consumption of alcohol in those whose age greater than 15 years is 33% for beer, 22% for spirits, 43% for others and 2% for wine [6]. A study conducted in Woreta town showed that the current and lifetime prevalence of alcohol use was 40.9% and 59%, respectively and in Axum university students the life time and current prevalence of alcohol drinking was 34.5% and 32.8%, respectively [7, 8].

Tobacco is one of the abused substances that could cause addiction. Around one billion adults' worldwide smoke [9], with high prevalence in developing countries, where 49% of men and 11% of women use tobacco[10]. The global absolute number of smokers has increased owing to population growth [11]. One in 10 deaths around the world is caused by tobacco use [5]. More than 6 million of those deaths are the result of direct tobacco use while around 890,000 are the result of non-smokers being exposed to second-hand smoke [12]. More than 1 billion smokers live in low- and middle-income countries, each year more than 480,000 people in the United States die from illnesses related to tobacco use [13].

Tobacco smoking also is becoming an important public health problem in the developing countries [14]. A study in Hawassa University, southern Ethiopia found (11.9%) prevalence of cigarette smoking among students [15] and in Debremarkos University 10% prevalence in the last 12 months [16].

Globally, it is estimated that 5–10 million people consume khat each day, although its use is largely confined to East African countries and south western Arabia [12]. According to the Ethiopian Demographic and health Survey (DHS) 2011, the prevalence of khat use among men and women is 11% and 28% [15]. The prevalence of khat chewing in Ethiopian university students ranged from (6.7%) to56.8% [17, 18]. In college and universities Khat chewing is becoming a common practice and great concern [19].

Understanding the nature and magnitude of substance use as well as the factors that contribute to it should allow the design of effective intervention strategies. However, the prevalence of PAS and its associated factors among health Science College is not known in southern Ethiopia. Therefore, the aim of this study was to assess the prevalence and associated factors of PAS among four governmental health science colleges Sothern region, Ethiopia.

MATERIALS AND METHODS

Study setting and design

The elevation of the district is estimated to be in the range between 1000 and 2300 m above sea level. Institutional based cross-sectional was conducted in four health science colleges, Hawassa, Aman, Hosaana and Arbaminch, which is found in Southern Nations Nationalities and Peoples Regional state of Ethiopia. The study design was school-based cross-sectional study was conducted study was conducted from June 01, 2019 - January, 2020.

Study population and Eligibility criteria

The source population of the study was all regular diploma students (level I to IV) attending the four public health science colleges of former Southern region. While, all randomly selected health science colleges' students. Students who were attending class during data collection period were included. Students who were seriously ill and absent during the study period were excluded.

Sample size and sampling procedures

The sample size (n) was calculated using the following single population proportion formula based on the assumption of (p) 50% considering no previous study in the area, Confidence Interval of 95% and margin of error 4%. Since, the source population was less than 10,000, as calculation of correction formula and adding 10% non-response rate. The total sample size is 571. Then, the estimated sample size was allocated to each selected section proportionally to size and participants was selected by using simple random sampling on student list of each selected departments and years. Finally, the required sample (study subjects) was obtained by using stratified simple random sampling technique.

Data collection tools, and procedures

Data were collected through self-administered pretested questionnaires which adapted from modified WHO STEPwise tool [20]. The questionnaires were translated into Amharic and Sidamic language and validated before the study time was done outside of the study area and necessary modifications were done based on the findings. The questionnaire had two main parts. The first part was contained variables on socio-demographic, socio-economic and the second part was contained variables under behavioral risk factors (alcohol consumption, tobacco use, fruit and vegetables consumption and physical activity). The questionnaires were pretested and validated on 5% before two weeks in the study time at outside the study area. Then some modifications on sequence & arrangement of multiple answer questionnaire were made. Data collectors were eight clinical nurses supervised by four BSC nurse supervisor and investigators. Principal investigators and supervisors follow the data collection process and check them for consistency and completeness. To maintain confidentiality, each participant took a single sparsely arranged seat, and the participant put the filled questionnaire on a locally prepared cartoon box which was arranged at the corner of the room. Filled questionnaires were collected after checking for consistency and completeness.

Data Analysis

Data entry, cleaning, and analysis were done by SPSS V. 23. Descriptive analysis including frequency distribution and the percentage was made to determine the prevalence of psycho active substance use and to describe socio-economic and demographic and other determinants. Bivariate logistic regression analysis was conducted for crude odds ratio (COR) and all factors with a p-value <0.25 were candidate to a multivariable logistic regression to control confounding effects. The Hosmer -Lemeshow goodness-of-fit statistic was used to assess whether the necessary assumptions for the application of multiple logistic regression are fulfilled. Adjusted odds ratios (AOR) with 95% confidence intervals (CI) were used to measure strength of the association between outcome variables and its determinant factors. Finally, p-value <0.05 declared a significant association.

Operational definitions

The prevalence of psycho active substance use: Any non-medical psychoactive stimulants used by study subjects Such as alcohol, 'Khat', and cigarette in the last 30 days [21].

Current alcohol consumption: is defined as use of alcohol at least once during the past 30 days before the survey.

Smoke cigarettes: Defined as individuals who had used smoke cigarettes form of tobacco in the last 30 days [21].

Current Khat Chewers: Defined as individuals who had used Khat chewing in the last 30 days.

RESULTS

Socio-demographic characteristics

Out of 571 students participated in the study, 565 completed the questionnaires making the response rate of 98.95%. Among the study subjects, 308 (54.5%) were males and 257 (45.5%) were females and the mean age of the respondents was 20.23years (SD ± 2.07years). Most of the students 505 (89.4%) were single. With regard to the area of original residence, 328 (58.1%) were from rural back ground (Table 1).

Prevalence of psycho active substance use

The overall life time and current prevalence of psychoactive substances use among the study subjects were 29.6% and 18.1%, respectively. The life time prevalence of Khat use, alcohol drinking and cigarette smoking among the study participants were 21.4%, 12.7% and 6.5% respectively. Similarly, the current prevalence of Khat chewing, alcohol drinking and cigarette smoking were 17.3%, 7.4% and 3.9%, respectively. Psycho active substance use occurs more frequently among male students than females in all categories (Additional file table S2).

Associated Factor for psycho active substance use (Khat, alcohol and Cigarette)

In the multivariable logistic regression model, Socio-demographic and behavioral associated correlates assumed to be associated with alcohol use among the study participants were assessed using logistic regression (Table 3). Those students in third year were more likely to use alcohol currently as compared to those students in the first year 2.94 times (AOR: 2.94 95%CI: 1.16, 7.47). The odds of current alcohol use were 5.25-fold higher among students whose family consume alcohol compared to students whose family did not (AOR: 5.25 95%CI: 1.80, 15.29). Students who live in rented house was also strongly associated with current alcohol use 4.86 (AOR: 4.86 95%CI: 1.87, 12.63) (Table 2). Those students who were in third year category were 2 times (AOR: 2.22 95%CI: 1.17, 4.23) more likely to chew Khat as compared to students who were in the first year's category. Compared to female, being male was 3.45 chewing (AOR: 3.45 95%CI: 1.42, 8.39) times more likely to chew Khat, as compared to female students. Students that reported family history of Khat chewing were more likely to chew Khat than students who reported no family history of Khat use (AOR: 5.67 95%CI: 2.75, 11.67) (Table 3).

DISCUSSION

In this study, the overall life time and current prevalence of psychoactive substances use among the study subjects were 29.6%

[95% confidence interval (CI): 25.7%–33.5%] and 18.1% [95% confidence interval (CI): 14.9%–21.2%], respectively. The prevalence of psychoactive substances use in this study, was lower than the results reported from study done among college students in Nazareth Ethiopia, in which the life time and current prevalence were 44.8% and 39.1% [22] and in a study reported from Aksum University, the overall life time and current prevalence of psychoactive substances use among the study subjects were 45.9% and 44.8%, respectively [8]. The difference indicated might be due to the population difference under study.

This study revealed that the life time and current prevalence of Khat chewing was 21.4% [95% confidence interval (CI): 18.4%–25.0%] and 17.3% [95% confidence interval (CI): 14.0%–20.4%], respectively. This finding is consistent with 17.5% current prevalence in Jimma [23], life time and current prevalence of 24.0% and 12.7% in Bahirdar [24] and higher life time and current prevalence of 28.7% and 27.9%,respectively in Axum university [8], life time prevalence of 41% in Haramaya university [25]. However, lower result reported from study done in Addis Ababa with the life time and current prevalence of 7.0% and 4.0%, respectively [18]. The difference in prevalence may be due to the difference accessible in the study area, socio demographic and cultural variation, and factors outside the university environment.

Table 1: Socio-demographic characteristics of health science college students Southern Ethiopia, 2020.

Variable	Category	Freq.	(%)
sex of the respondent	Male	299	52.9
	Female	266	47.1
College	Hawassa CHS	154	27.3
	Arbaminchi CHS	188	33.3
	Aman CHS	93	16.5
	Hossaina CHS	130	23.0
Place of origin	Urban	327	57.9
	Rural	238	42.1
Living condition	With family	45	8.0
	Private on rented house	175	31.0
	With peer who have exposure	97	17.2
	With peer who have no exposure	248	43.9
Department	Nurse	117	20.7
	Medical Laboratory	114	20.2
	Pharmacy	116	20.5
	HIT	114	20.2
	Midwifery	104	18.4
Year of study	First year	250	44.2
	Second year	191	33.8
	Third year	124	21.9
Main source of income	Pocket money only	213	37.7
	Family	199	35.2
	Relative	2	0.4
	Friend	100	17.7
	Per time work	49	8.7
	NGOs	2	0.4
Family's job	Employee	73	12.9
	Merchant	156	27.6
	Driver	3	0.5
	Farmer	316	55.9
	Laborer	13	2.3
	Other	4	0.7
Marital status	Single	505	89.4
	Married	57	10.1
	Widowed	2	0.4
	Separate	1	0.2
Age	15-19	242	42.8
	20-24	296	52.4
	25 and above	27	4.8
Monthly income	300- 499	328	58.1
	> 500	237	41.9

The life time and current prevalence of alcohol drinking was 12.7% (95% confidence interval (CI): 9.7%–15.6%) and 7.4% (95% confidence interval (CI): 5.0%–9.6.0%), respectively. This result is lower than a conducted at Haramaya University, which showed a 50.2% life time use [25] and (35%) life time use in Debre Markos [26].

The life time and current prevalence of cigarette smoking among the four health science college students were 6.5% (95% confidence interval (CI): 4.6%–8.5%) and 3.9% (95% confidence interval (CI): 2.5%–5.5%), respectively. This finding in lower than study conducted among college students in North West Ethiopia where the life time and current prevalence was 13.1% and 8.1%, respectively [27]. This is also higher than a community based study conducted in Butajira town, where 0.2% women were current smokers [28]. The difference in prevalence may be due to the difference in the study setting and time of the study.

Family history of Khat use is associated with current Khat use by students in this study. This is consistent with previous studies conducted in Debre markos [26] and Debre berhan University students [29]. This may be due to acceptance of khat use and Alcohol drunk as normative behavior by students whose family members use this substance. The study found out that being male had strong association with Khat use and alcohol drinking. Similar finding were also reported from Haramaya [25]and Debre Markos University [26]. This may be attributed to social and cultural restrictions in the society that khat and alcohol are socially acceptable if practiced among males [30]. The presence of khat-chewing friends was also another strong predictor of khat chewing practices among college students. Students who had friends engaged in khat chewing habit were predisposed to the practice of khat chewing. The possible reason for the association may be peer pressure has a natural tendency to exercise and reproduce what they have seen in their friends and during young age, individuals have a higher tendency to imitate and exercise what they observe in their friends.

LIMITATIONS

Our study has some limitations. Participants' retrospective accounts of their first use of substance may be subject to recall bias and students are more likely to deny their utilization behavior because of social desirability bias.

CONCLUSION

This study result shows that a significant high proportion of students use psychoactive substances. Therefore, psycho active substance use among health science students needs special attention and emergency preventive measures. In the current study, being male, year of study, experience from family, and living with friends were found to have statistically significant association with current Khat chewing. Similarly, year of study, experience from family and live in rented house were significantly associated with current alcohol use. In addition, education and awareness creation on harmful effect of substance use could be done. This need attention to prevention of NCDs with coordinated intervention on determinant of the behavioral risk factors with health department, colleges and parents.

Table 2: Associated factor for current Khat use among health science college students Southern Ethiopia, 2020.

		Current Khat chewer				
		Yes	No			
	Categories	No. (%)	No. (%)	COR (95% CI)	AOR (95%CI)	P. Value
Age						
	15-19	33(14.1)	201(85.9)	1	1	
	20-24	57(18.8)	247(81.3)	1.41(0.88, 2.24)	1.40(0.83, 2.39)	0.211
	25 and above	8(29.6)	19(70.4)	2.57(1.04, 6.34)	2.54(0.87, 7.43)	0.089
Sex						
	Female	16(6.0)	250(94.0)	1	1	
	Male	82(27.4)	217(72.6)	5.90(3.35, 10.40)	3.45(1.42, 8.39)	0.006*
Original place of residence						
	Rural	44(13.5)	283(86.5)	1	1	
	Urban	54(22.7)	184(77.3)	1.88(1.22, 2.93)	1.90(0.96, 3.75)	0.065
Living status						
	With peer no exposure	4(8.9)	41(91.1)	1	1	
	Private on rented house	31(17.7)	144(82.3)	2.21(0.74, 6.61)	1.67(0.52, 5.40)	0.393
	Peer with exposure	31(32.0)	66(68.0)	4.81(1.58, 14.63)	3.58(1.08, 11.83)	0.037*
	With family	32(12.9)	216(87.1)	1.51(0.51, 4.52)	1.45(0.45, 4.68)	0.530
Year of study						
	First year	34(13.7)	215(86.3)	1	1	
	Second year	35(18.4)	155(81.6)	1.43(0.85, 2.39)	1.43(0.78, 2.60)	0.245
	Third year	29(23.0)	97(77.0)	1.89(1.09, 3.28)	2.22(1.17, 4.23)	0.015*
Family job						
	Farmer	19(11.3)	149(88.7)	1	1	
	Employed	61(19.6)	250(80.4)	1.91(1.10, 3.33)	1.58(0.85, 2.93)	0.153
	Merchant	18(20.9)	68(79.1)	2.08(1.03, 4.20)	0.91(0.39, 2.13)	0.821
Monthly income						
	300- 499	48(14.6)	280(85.4)	1	1	
	> 500	50(21.1)	187(78.9)	1.56(1.01, 2.42)	1.31(0.78, 2.18)	0.309
Experience from family						
	No	36(10.3)	312(89.7)	1	1	
	Yes	62(28.6)	155(71.4)	3.47(2.20, 5.46)	5.67(2.75, 11.67)	<0.001*

Table 3: Associated factors for Current Alcohol use among health science college students Southern Ethiopia, 2020.

		Current Alcohol use				
		Yes	No			
	Categories	No. (%)	No. (%)	COR (95% CI)	AOR (95%CI)	P. Value
Age						
	15-19	12(5.1)	222(94.9)	1	1	
	20-24	28(9.2)	276(90.8)	1.88(0.93, 3.78)	1.02(0.17, 6.11)	0.979
	25 and above	2(7.4)	25(92.6)	1.48(0.31, 6.99)	1.77(0.32, 9.95)	0.515
Sex						
	Female	8(3.0)	258(97.0)	1	1	
	Male	34(11.4)	265(88.6)	4.48(1.88, 9.11)	2.63(0.87, 7.91)	0.86
Original place of residence						
	Rural	14(4.3)	313(95.7)	1	1	
	Urban	28(11.8)	210(88.2)	2.98(1.53, 5.79)	1.19(0.44, 3.22)	0.738
Living status						
	With peer no exposure	2(4.4)	43(95.6)	1.60(0.32,7.96)	1.26(0.22,7.22)	0.799
	Private on rented house	24(13.7)	151(86.3)	5.47(2.30,13.01)	4.86(1.87, 12.63)	0.001*
	Peer with exposure	9(9.3)	88(90.7)	3.52(1.27, 9.74)	1.95(0.62, 6.13)	0.251
	With family	7(2.8)	241(97.2)	1	1	
Year of study						
	First year	15(6.0)	234(94.0)	1	1	
	Second year	14(7.4)	176(92.6)	1.24(0.58, 2.64)	1.15(0.48, 2.76)	0.758
	Third year	13(10.3)	113(89.7)	1.80(0.83, 3.90)	2.94(1.16, 7.47)	0.023*
Experience from family						
	No	9(2.6)	339(97.4)	1	1	
	Yes	33(15.2)	184(84.8)	6.76(3.16, 14.43)	5.25(1.80, 15.29)	0.002*

Table 4: Associated factors for Current Cigarette smoking at health science college students Southern Ethiopia, 2020.

		Current Cigarette smoking				
		Yes	No			
	Categories	No. (%)	No. (%)	COR (95% CI)	AOR (95%CI)	P. Value
Sex						
	Female	2(.8)	264(99.2)	1	1	
	Male	20(6.7)	279(93.3)	9.46(2.19, 40.88)	4.72(0.69, 32.18)	0.113
Original place of residence						
	Rural	10(3.1)	317(96.9)	1	1	
	Urban	12(5.0)	226(95.0)	1.68(0.72, 3.96)	1.12(0.34, 3.64)	0.857
Experience from family						
	No	9(2.6)	339(97.4)	1	1	
	Yes	13(6.0)	204(94.0)	2.40(1.01, 5.72)	2.05(0.62, 6.81)	0.241

NB: * statistically significant on multivariate analysis p-value (<0.05), **COR:** crude odds ratio, **AOR:** adjusted odds ratio, **CI:** confidence interval, **1:** reference.

AUTHORS' CONTRIBUTIONS

SH and DW designed the study; SH, DW, DT, WS, and AT performed the statistical analyses, interpretation, contributed to the write-up and approved the final version of the manuscript. All authors have read and agreed to the published version of the manuscript.

ETHICAL CONSIDERATION

Ethical clearance and approval were obtained from the Institutional Review Board of Hawassa Health Science College.

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