

# Prevalence of Cigarette Smoking and Its Associated Risk Factors among Students of Hawassa University, College of Medicine and Health Sciences, 2016

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## Abstract

**Background:** Cigarette smoking is a global health risk, causing increased health-care costs and loss of productivity among a number of age groups.

Tobacco use in Africa, including Ethiopia, has attracted little attention, including among students. The aim of this study was to determine the prevalence of cigarette smoking and its associated risk factors among students of Hawassa University College of Medicine and Health Science.

**Methods:** An institutional based cross sectional study was conducted to determine the prevalence of cigarette smoking and its associated risk factors among students of Hawassa University College of Medicine and Health Science. The team used systematic random sampling by determining the k value jumping some of the students from source population based on k intervals.

The data was cleaned, coded and analyzed using SPSS version 20 and STATA version 12. Multiple logistic regressions were used to identify factors associated with cigarette smoking. Presence of confounders and interaction effects was investigated by computing relative changes on  $\beta$  coefficients at a cut-off point of 15%.

**Results and conclusion:** The prevalence of cigarette smoking among students was 20.6% (95%CI: 0.61, 0.25). Cigarette smoking was significantly associated with students year of education (AOR=6.02; 95% CI: 2.09, 7.35), ever chewing Khat (AOR=20.99; 95% CI: 1.84, 4.3), age at start of smoking (AOR=2.21; 95% CI: 1.23, 6.12), ever drink alcohol (AOR=4.99; 95% CI: 1.02, 2.43) and receiving information about harmful effects of smoking cigarettes (AOR=4.99; 95% CI: 1.02, 2.43). Year of education, health education information, ever chewing Khat, ever drinking alcohol and age at start of smoking were significant factors for cigarette smoking. We recommend that students >20 years old be targeted with health education campaign focused on harmful effects of smoking tobacco.

**Keywords:** Smoking; Students; Universities; Prevalence; Risk factors

## Introduction

Tobacco smoking is one of the avoidable causes of morbidity and mortality worldwide, and is accountable for many causes of untimely deaths [1]. The World Health Organization (WHO) reported that approximately 47% of men and 12% of women smoked cigarettes globally in 2010 [2]. Additionally smoking leads to an increase in health-care costs to treat non communicable diseases (NCDs) such as cancers, chronic lung disease, diabetes and cardiovascular diseases [3].

With the growing prevalence of smoking in developing world over the years, NCDs will double the burden of infective and non-infective diseases [4]. Report from other areas showed that cigarette smoking causes 5.4 million deaths annually and have been linked to numerous cancers including: lung cancer, pancreatic cancer, cancer of the larynx, and cervical cancer [5]. Smoking is also associated with chronic diseases and other adverse health outcomes, including: stroke, coronary heart disease, chronic obstructive pulmonary disease, hip fractures, pneumonia, and reduced fertility among women [5]. In 2011, tobacco use killed more than 6 million people; nearly 80% of whom

resided in low-and middle income countries where the burden of smoking-related illness and death is heaviest [6].

In sub-Sahara Africa the national smoking prevalence among men in 2008 varied from 20% to 60%. And the yearly cigarette utilization rates are on the rise for both men and women [7]. According to 2011, Ethiopian Demographic and Health Survey (EDHS), 6% of men aged between 15-49 years smoke cigarettes. Although, there is no complete data on the prevalence of smoking among Ethiopia women in general, the prevalence of smoking among Ethiopian males aged 15-25 years of age in Addis-Ababa was 11.8% and 1.1% for females in 2011 [8].

College life is an important transition period during which young adults set out to explore cigarette use [9]. College-aged students use more tobacco products than any other age group [10]. In the 2012, 17 percent of male college students reported smoking in the past 10 days, compared to 10 percent of female college students [10]. In general, tobacco use in Ethiopia has received little attention [2]. Although, studies from other areas have been conducted on the prevalence of smoking and its predictors among adolescents; there is little data on university students in Ethiopia.

An increasing tendency is predictable to occur among university students and this could be related to mitigation of stress, life problems,

peer pressure, social acceptance, class history of smoking, lower educational level of parents, the desire to attain high personality profile, age of students, year of study, attitude towards smoking, knowledge of health effect of smoking, gender, parental smoking and pocket money, Khat use and alcohol use disorders [11-14].

Identifying reason for prevalence of cigarette smoking helps to policy makers, program planners and university managers to have better evidence to implement appropriate interventions among university students to decrease the prevalence of smoking. Additionally, the findings may serve to reference for the researchers who desire to conduct further studies on this cigarette smoking among university students. Therefore, the objective of the study was to determine the prevalence and its associated risk factors with cigarette smoking among students of Hawassa University College of Medicine and Health Science.

## Materials and Methods

### Study design

We conducted an institutional based cross-sectional study from March 1, 2016 up to March 30, 2016.

### Study setting

Hawassa University College of Medicine and Health Science (HUCM & HS) is located in the South Central part of Ethiopia, in Hawassa city; 275 km South of Addis Ababa, the capital city of Ethiopia.

### Study participants

A total of undergraduate regular students, who were systematically selected from the total enrolled HUCM & HS population. Students, who were not blind and able to read and write at the time of data collection, were included.

### Variables

Cigarette smoking is the dependent variable with binary category of 'yes' or 'no'. It was dichotomized in to two as success=Ever smoker given value of "1" and failure=non-ever smoker given value of "0." Ever smoker refers students answering 'Yes' to the question: "Have you ever smoked for as long as one year?" Non-ever smoker refers students answering 'No' to the question: "Have you ever smoked for as long as one year?" Family history of alcohol use, family history on Khat chewing, maternal education, father educational level, family history on cigarette smoking, ever use of chat, ever drink alcohol, age at first start of smoking, academic performance, monthly income, sex, age of respondent, religion, years of education, ethnicity, marital status and source of income are the independent variables.

### Sample size and assumptions

Since published reports related to college student's prevalence of cigarette smoking in Douala, Cameroon in 2015 were 33.5% [15], the proportion of smoking cigarettes was taken as 33.5%. The 95% confidence level and 5% desired level of precision were considered. Substituting for  $Z_{\alpha/2}=1.96$  at 95% CI;  $P=33.5\%$ ;  $d=5\%$  in the formula; the sample size result here 342. The source of the population that the sample is to represent (students at that moment attending at HUCM &

HS) was 2,846. So; sample size correction formula was used because smaller sample size was required to generalize the finding. Thus; the final sample size was;  $nf=n/(1+n/N)=342/(1+342/2846)=305$  then add to 10% of non-response rate= $305 \times 10\%=30.5+305=336$ .

### Sampling methods

The team used systematic random sampling by determining the k value jumping some of the students from source population based on k intervals.

### Data collection

A self-administered structured questionnaire was used to collect the data. The questionnaire was included: Socio-demographic, economic and behavioural factors in addition to cigarette smoking habits. First, the questionnaire was prepared in English language and translated to Amharic. Then the Amharic version questionnaire was translated back into English by another person to ensure consistency with the English language questionnaire. Pre-testing of the questionnaire was undertaken with 10 percent of the sample size at another health science college in Hawassa. Modifications were made to improve the clarity of some items. The Amharic version questionnaire was used for the actual data collection. Before distributing the questionnaire; the objective of the study and procedures for questionnaire were briefed for students and 310-questionnaire format were distributed and recollected. The participants secretly responded to the items on the questionnaire.

### Data analysis

Categorical variables were described using frequency, percentage and figures. For continues variables; the plots of normality was checked using histogram and for normally distributed data, mean with standard deviation was reported and for not normally distributed data; median and inter quarter range was reported.

Data analysis was carried out by using SPSS, Version 20 and Stata Version 12. Before analysis of the data, missing values, outlying and noisy values were cleaned and presence of cells of each category under each variable with zero values was checked by cross tabulation of each independent variable against the dependent variable. Categories containing cells with zero values were merged with the other category within the variable to have better validity on its result. Analysis of the data involved descriptive statistics of the demographic profile of the participants and testing and identifying potential predictors of student's cigarette smoking by using the simple and multiple binary logistic regression techniques. Descriptive statistics, such as differences in the distribution (frequency), mean (M), standard deviation (SD), percentages were also used

Simple binary logistic regression analysis for each independent variable was performed against the dependent variable to see the impact of each factor on the pattern of cigarette smoking, among under-graduate students, the dependent variable, in the sampled population, without adjusting for the effect of other variables

Independent variables found to be significant in the simple binary logistic regression analysis at a cut-off point of p-value  $<0.25$  with 95% confidence interval was included in a multiple binary logistic regression model [16]. In the multiple binary logistic regression model the effect of each independent variable on the cigarette smoking were

assessed by controlling for the possible confounders using a stepwise backward type of model development.

Factors that were insignificant in the stepwise backward model development were removed one by one beginning with the worst predictor. Presence of possible confounders and interaction effects was investigated by computing relative changes on  $\beta$  coefficients at a cut-off point 15% [17]. During stepwise backward model the predictor variables that bring a change on the  $\beta$ -coefficient which was greater than 15% was checked for their interaction effect by generating a new variable from the product of the two variables; if the interaction term, the new variable, was found to be insignificant/P-value >0.05/it was removed from the model and the variable therefore was considered as a confounder and was kept in the model. But if the interaction term, the new variable, was significant it was kept in the model.

Occurrence of multicollinearity was checked for the final model with cut-off point mean of variation inflation factor (VIF) less than five [18]. If a model has a mean VIF value greater than five the variables with multicollinearity was checked and by removing the variables with collinearity effect from the model one by one and rechecking their multicollinearity, the one which fits the cut-off point was taken.

Goodness of the models were tested by diagnosing correctness of formulation of the models by using Hosmer-Lemeshow test and the one which was found to be greater than the significance level (p value=0.05) was accepted. If either of the models fulfils this criterion the one which was highly insignificant one was taken. The predicting ability of the models was tested using ROC curve and the model with the area under the ROC curve closer to one was preferred for the final model implying the fitted model prediction ability was well [19].

Variables	Frequency (N=310)	Percent (%)
<b>Sex</b>		
Male	217	70
Female	93	30
<b>Age group (year)</b>		
15-19	71	22.9
20-24	222	71.6
>=25	17	5.5
<b>Religion</b>		
Orthodox	192	61.9
Muslim	32	10.3
Protestant	67	21.6
Other (catholic)	19	6.2
<b>Year of education</b>		
1st year	81	26.1
2nd year	78	25.2
3rd year	68	21.9
4th year	44	14.2
Internship	39	12.6

<b>Ethnicity</b>		
Amhara	149	48.1
Oromiya	66	21.3
Sidama	39	12.6
Wolayita	35	11.3
Other (Tigray, etc.)	21	6.8
<b>Marital status</b>		
Single	296	95.5
Married	14	4.5
<b>Maternal education</b>		
No formal education	174	56.13
Primary education	115	37.1
Secondary and higher education	21	6.77
<b>Fathers education</b>		
No formal education	110	35.48
Primary education	143	46.13
Secondary and higher education	57	18.39
<b>Academic performance</b>		
Poor academic performance	185	59.68
Better academic performance	125	40.32
<b>Source of income</b>		
Parents	274	88.4
Relatives	20	6.5
Others (friends)	16	5.1
<b>Age at first start smoking</b>		
15-19	65	20.97
20-24	113	36.45
25 or more	132	42.58

**Table 1:** Socio-demographic and economic characteristics among Students of Hawassa University, College of Medicine and Health Sciences, 2016.

### Ethical Clearance

Ethical clearance was obtained from Institutional Review Board of College of Medicine and Health Sciences, Hawassa University. To ensure voluntary participation of each participant, a written and signed informed consent was obtained from each student. Furthermore, the confidentiality of the information was guaranteed by using non-identifier questionnaires and by maintenance of the data in a safe and protected place.

## Results

Of the 2,846 undergraduate students at HUCM & HS, 336 questionnaires were distributed to students, with 310 returned forms for a response rate of 92.3%. The mean age (+SD) of the students was 19.65+3.27 with more than half 222 (71.6%) in the age group of 20-24. and 217 (70%) were male. Socially, 296 (95.5%) were single and 192 (61.9%) were Orthodox Christians. The source of income for 274 (88.4%) of students were their parents (Table 1).

Majority 271 (87.4%) of students had never chewed Khat and 241 (77.74%) had drunk alcohol. Families of 251 (80.97%) of students had not ever used Khat and 245 (79.03%) did not smoke cigarettes (Table 2).

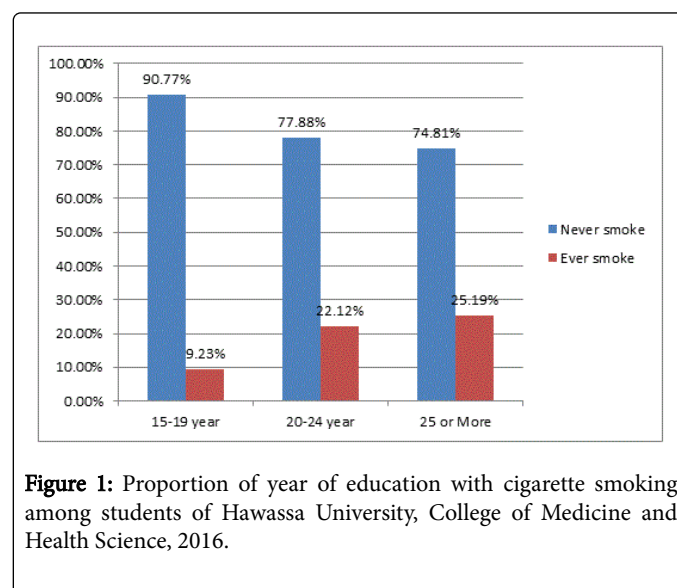
Variables	Frequency (N=310)	Percent (%)
<b>Ever chew Khat</b>		
Yes	39	12.6
No	271	87.4
<b>Ever smoke cigarette(DV)</b>		
Yes	64	20.6
No	246	79.4
<b>Ever drink alcohol</b>		
Yes	241	77.74
No	69	22.26
<b>Family history of alcohol use</b>		
Yes	51	16.45
No	259	83.55
<b>Family history of cigarette use</b>		
Yes	65	20.97
No	245	79.03
<b>Family history of Khat use</b>		

Yes	59	19.03
No	251	80.97

**Table 2:** Lifetime use of cigarettes, khat and alcohol among students of Hawassa University College of medicine and health science, 2016.

The proportion of student's year of education with cigarette smoking was highest in the 4th year and the least in the 2nd year (Figure 1).

Proportion of age at first start of smoking among HUCM & HS students were highest among those >25 and the least in the 15-19 year age group (Figure 2).



**Figure 1:** Proportion of year of education with cigarette smoking among students of Hawassa University, College of Medicine and Health Science, 2016.

## Bivariate analysis

During bivariate analysis the following variables had association with cigarette smoking: religion, year of education, ethnicity, monthly income, how often do you smoke, health education information, ever drink alcohol, age at first start of smoking (Table 3).

Variables	Ever smoke cigarettes		COR (95%CI)	AOR (95%CI)
	Never smoke	Ever smoke		
<b>Age of student</b>				
15-19	62 (87.32%)	3 (12.68%)	1	
20-24	172 (77.48%)	50 (22.52%)	2 (0.93,4.31)	
25 or more	11 (68.75%)	5 (31.25%)	3.13 (0.88,1.12)	
<b>Sex</b>				
Male	168 (77.42%)	49 (22.58%)	1.52 (0.80,2.86)	
Female	78 (83.87)	15 (16.13%)	1	
<b>Religion</b>				
Orthodox	153 (79.69%)	39 (20.31%)	0.35* (0.13,0.93)	0.47 (0.17,1.33)

Muslim	24 (75%)	8 (25%)	0.45 (0.14,1.54)	0.60 (0.16,2.24)
Protestant	58 (86.57%)	9 (13.43%)	0.21** (0.07,0.67)	0.25* (0.07,0.82)
Others (catholic)	11 (57.89%)	8 (42.11%)	1	1
<b>Year of education</b>				
1 <sup>st</sup> year	69 (85.19%)	12 (14.81%)	1	1
2 <sup>nd</sup> year	70 (89.74%)	8 (10.26%)	1.52 (0.58,3.95)	2.0 (0.69,2.81)
3 <sup>rd</sup> year	52 (76.47%)	16 (23.13%)	2.69* (1.07,6.76)	3.74* (1.27,4.02)
4 <sup>th</sup> year	26 (59.09%)	18 (40.91%)	6.1*** (2.35,5.6)	6.02** (2.09,3.35)
Internship	29 (74.36%)	10 (25.64%)	4.02* (1.08,8.41)	2.8 (0.89,8.94)
<b>Maternal education</b>				
No formal education	137 (79.19%)	36 (20.81%)	1	
Primary education	90 (78.26%)	25 (21.74%)	1.05 (0.59,1.88)	
Secondary and higher education	18 (85.71%)	3 (14.29%)	0.63 (0.17,2.27)	
<b>Fathers education</b>				
No formal education	88 (80.73%)	21 (19.27%)	1	
Primary education	111 (77.62%)	32 (22.32%)	1.2 (0.65,2.23)	
Secondary and higher education	46 (80.70%)	11 (19.30%)	1 (0.44,2.25)	
<b>Academic performance</b>				
Poor academic performance	144 (78.26%)	40 (21.74%)	1.16 (0.66,2.05)	
Better academic performance	101 (80.80%)	24 (19.20%)	1	
<b>Ethnicity</b>				
Amhara	128 (85.91%)	21 (14.09)	1	
Oromiya	48 (72.73%)	18 (27.27%)	2.28* (1.12,4.65)	
SNNPR	56 (75.68%)	18 (24.32%)	1.95 (0.96,3.95)	
Others (Tigray, ...)	13 (65%)			
<b>Marital status</b>				
Single	236 (79.73%)	60 (20.27%)	0.57 (0.17,1.92)	
Married	9 (69.23%)	4 (30.77%)	1	
<b>Monthly income(birr)</b>				
<300	69 (88.46%)	9 (11.54%)	1	
301-400	47 (81.03%)	11 (18.97%)	1.72 (0.68,4.66)	
401-500	41 (77.36%)	12 (22.64%)	2.24 (0.87,5.78)	
501-600	52 (71.23%)	21 (28.77%)	3.09** (1.31,7.31)	
≥ 601	36 (76.60%)	11 (23.40%)	2.34 (0.88,6.17)	
<b>Source of income</b>				
Parents	218 (79.85%)	55 (20.15%)	1	

Relatives	16 (80%)	5 (20%)	0.009 (0.15,1.12)	
Others	11 (68.75%)	5 (31.25%)	0.58 (0.51,1.68)	
How often do you smoke				
Every day	159 (82.38%)	34 (17.62%)	0.37* (0.14, 0.96)	
Once a week	28 (70%)	12 (30%)	0.75 (0.24,2.25)	
Once a month	44 (81.48%)	10 (18.52%)	0.39 (0.13,1.20)	
Others	14 (63.64%]	8 (36.36%]	1	
<b>Health education Information</b>				
Yes	215 (77.62%)	62 (22.38%)	1	1
No	30 (93.75%)	2 (6.25%)	4.32* (1.01,10.61)	11.97* (1.12,3.23)
<b>Ever chew Khat</b>				
Yes	211 (77.86%)	60 (22.14%)	2.4 (0.82,7.1)	20.99* (1.84,4.3)
No	34 (89.47%)	4 (10.53%)	1	1
<b>Ever drink alcohol</b>				
Yes	183 (75.93%)	58 (24.07%)	3.27** (1.34,7.96)	4.99* (1.02,2.43)
No	62 (91.18%)	6 (8.82%)	1	1
<b>Age at first start of smoking (year)</b>				
15-19	59 (90.77%)	6 (9.23%)	1	1
20-24	88 (77.88%)	25 (22.12%)	2.79** (1.08,7.22)	1.56* (1.05,3.61)
25 or more	98 (74.81%)	33 (25.19%)	3.31** (1.30,8.37)	2.21* (1.23, 2.12)
<b>Friends smoke cigarette</b>				
Yes	40 (83.33%)	8 (6.67%)	0.73 (0.32,1.65)	
No	205 (78.54%)	56 (21.46%)	1	
<b>Family history of alcohol use</b>				
Yes	43 (84.31%)	8 (15.69%)	0.67 (0.29, 1.51)	
No	202 (79.29%)	56 (21.71%)	1	
<b>Family history of cigarette smoking</b>				
Yes	53 (81.54%)	12 (18.46%)	0.83 (0.41,1.67)	
No	192 (78.69%)	52 (21.31%)	1	

**Table 3:** Multivariate analysis of factors associated with cigarette smoking among students of Hawassa University, College of Medicine and Health Science, 2016.

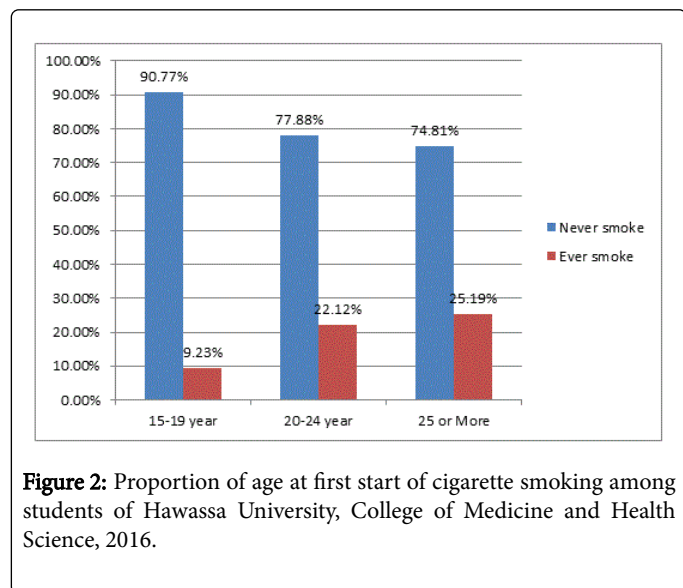
### Multivariate analysis

During adjusted binary logistic regression model was found that those students ever chew Khat were 20.99 times (AOR=20.99; 95% CI: 1.84, 4.3) more likely and those ever drink alcohol were 4.99 times (AOR=4.99; 95% CI: 1.02, 2.43) higher odds of cigarette smoking as compared with those students who were not chew khat and drink alcohol respectively. With regard to the year of education; those third year students were 3.74 times (AOR=3.74; 95% CI: 1.27, 1.41) and those fourth year students were 6.02 times (AOR=6.02; 95%CI: 2.09,

3.35), higher odds of cigarette smoking as compared with those first year students.

It was also found that students among age group of 20-24 year were 56% (AOR=1.56; 95% CI: 1.05, 3.61) and among age group of greater than or equal to 25 year were 2.21 times (AOR=2.21; 95% CI: 1.23, 2.12), higher odds of cigarette smoking as compared with those students among age group of 15-19 year. On the other hand, students who did not have information about harm of cigarettes were 11.97 times (AOR=11.97; 95% CI: 1.12, 3.23) more likely to smoke cigarettes

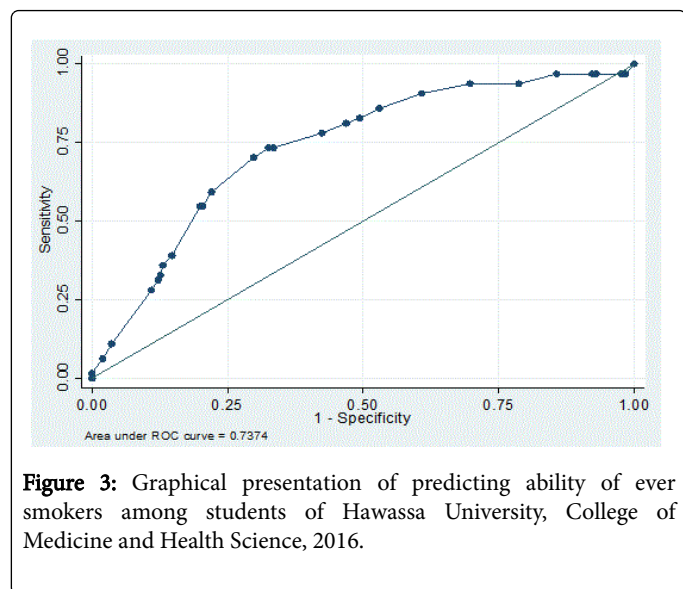
as compared with those students who had information about harm of cigarettes.



**Figure 2:** Proportion of age at first start of cigarette smoking among students of Hawassa University, College of Medicine and Health Science, 2016.

### Model diagnostic test results

The mean Variance Inflation Factor (VIF) value was 4.67. This confirmed that there was no significant collinearity among predictors. The statistically non-significant value of the Hosmer-Lemeshow statistics ( $\text{prob} > \chi^2 = 0.077$ ) has been evidenced for the model fitting the data reasonably well. This indicates that the model was good enough in differentiating ever smokers from never smokers correctly. The area under the ROC curve was 73.74% (Figure 3).



**Figure 3:** Graphical presentation of predicting ability of ever smokers among students of Hawassa University, College of Medicine and Health Science, 2016.

### Discussion

This study is important for students to internalize the harmful effect of smoking. In general, over 20% (95% CI: 0.61, 0.25) of students among HUCM & HS had smoked cigarettes. In this study, those students who ever chew Khat, who ever drink alcohol, who heard health education information, students in the age group 20-24 and

$\geq 25$  and students in the year of 2nd and 3rd were significantly associated with increased likelihoods of cigarette smoking. However, students who follow protestant religion had lesser odds of cigarette smoking.

According to this study, magnitude of had smoked cigarettes 20.6% (95% CI: 0.61, 0.25) of students of HUCM and HS, 2016. This figure contrast with studies conducted among University Students in Ethiopia in 2014, North West Nigeria in 2013 and in eastern Ethiopia in 2012 which was 22%, 8.3% and 12.2% [20-22]. The reason might be due to the differences in awareness and knowledge of the health risks of smoking, intensity of understanding, knowledge and awareness of the risk of cigarette smoking. For example, the study conducted among only medical students at Addis Ababa University and North West Nigeria reported low prevalence of cigarette smoking which shows might be medical students have a better understanding of the harmful effects of smoking [21,23].

The mean ages (+SD) of the current study subjects were 19.65+3.27. This figure disparity with studies conducted among students in Douala, Cameroon, North West Nigeria and in eastern Ethiopia was mean age of the students was 19.2 ± 2.53 years and 16.6 ± 1.6 years and 16.4 ± 1.60 years respectively [15,21,22]. This discrepancy might be due to difference in socioeconomic factors, in methodology, environmental and socio-demographic factors.

Ever drink alcohol had statistically significant association with cigarette smoking. This study is agreed with study conducted in Jimma University Teaching and referral hospital outpatients [14,24].

Students among third and fourth year were significantly associated with cigarette smoking. This result was supported with previous study [11,20]. This may be due to students in third and fourth year were at middle of their campus life in which they usually become desperate and get into depression so that they may tend to use cigarettes to get relieved from the depression mood. In addition to this, social and family situations can cause a huge impact on whether someone decides to take up smoking. Adolescent people who have family members or close friends who smoke are more likely to smoke than those who do not [25-27].

Religion had statistically significant association with cigarette smoking. Protestant religions had lesser odds of having cigarette use as compared to Orthodox follower. This study was agreed up on study conducted in Ethiopia among University Students [20,28]. The difference with protestant follower might be due to protestant follower were lesser use of Khat as compared with Orthodox follower which hides the overall cigarette use in this university population.

Ever chew Khat had statistically significant association with cigarette smoking. This finding is consistent with study in Mekelle University [11,14,24]. Chewing Khat is sometimes considered as self-medication used to regulate moods, manage stress and to cope up with the strains of material deprivation among the students [29,30]. In addition to this; depressed students are more prone to use Khat to relief themselves from the stress or depression mood and affirmed by the report that most students obtained their first chew Khat from a friends [31]. Between 12-30% chewers reported initiation of tobacco smoking with Khat chewing, apparently Khat is a 'gateway' to cigarette use [32].

Age at start of smoking had statistically significant association with cigarette smoking. This is consistent with similar finding in other African countries [15]. Possible explanation for this finding might be

due to during adolescence, the self-affirmation of adolescents and their risk behaviour increase with increasing age. In addition to this, adolescence individuals have had a longer time to experience cigarette use and develop cigarette use habits [22]. Individuals who initiated smoking early in life have been found to have less chance of quitting smoking later in life [33]. This might be due to lack of suitable interventions for students, which recalls the necessity of public health interventions that target this segment of students.

## Limitations

This study had three limitations: This study used a cross sectional study that cannot show direct causality of smoking, whether beneficial or harmful among university students. Secondly, restriction of the study participant's only undergraduate regular students. Additionally, we were used self-administered questionnaire which needs students to give self-reported about use of cigarettes smoking. Consequently; magnitude of smoking may have been underestimated by negative responses from students who smoke secretly.

## Conclusion

Currently over 20% (95% CI: 0.61, 0.25) of students among HUCM & HS had smoked cigarettes [21,22]. There were identified significant factors for cigarette smoking includes: year of education, health education information, ever chewing Khat, ever drinking alcohol and age at start of smoking.

Education and awareness creation on harmful effect of cigarette smoking especially among those third and fourth year students should be done. Emphasis also needs to be given for students in the age group 20-24 and  $\geq 25$ . Attention should not only be restricted to university students, but extend to their place of residence so that influences in the home environment and social surroundings that contribute to cigarette use are also tackled.

## Acknowledgement

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