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CIGARETTE SMOKING AND KHAT CHEWING AMONG UNIVERSITY INSTRUCTORS IN ETHIOPIA

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ABSTRACT

Objective: To assess the prevalence and risk factors of cigarette smoking and khat chewing.

Design: College based cross sectional.

Setting: Four colleges found in north west Ethiopia namely Gondar College of Medical Sciences, Gondar College of Teachers Education, Bahr Dar University Engineering Faculty, and Bahr Dar University Education Faculty.

Subjects: All instructors in these colleges.

Main outcome measures: Prevalence of cigarette smoking and khat chewing.

Results: Seventy six (42.0%) instructors were either lifetime smokers or lifetime khat chewers or both. The current prevalence rates of cigarette smoking and khat chewing were found to be 13.3% and 21.0%, respectively. The majority of the instructors started smoking (56.8%) and khat chewing (40.0%) while they were senior high school or first year college students. Most of the instructors (82.1%) knew that cigarette smoking is a risk factor for lung diseases including lung cancer. Statistically significant difference ($p < 0.05$) was seen between the outcome variable and the independent variables faculty, religion, education status, income and family history of khat chewing.

Conclusion: The prevalence of cigarette smoking seemed to decrease among university instructors but the prevalence of khat chewing is almost the same as it was some years ago. Instructors knew the common health risks associated with cigarette smoking. The high schools and colleges should inform their students about the health and socioeconomic problems associated with cigarette smoking and khat chewing. Additionally, college students need counseling service on ways of coping with their problems.

INTRODUCTION

Tobacco and khat are two of the many drugs which people can become addicted to. The nicotine in cigarette smoke is known to have an addictive effect(1-3). When khat (*Catha edulis*) leaves, which are known to contain psychoactive ingredients, cathinone, are chewed and ingested, they produce mild to moderate euphoria, suppress appetite, sustain alertness and abolish sleep(2,4,5,6).

Cigarette smoking causes lung cancer, atherosclerotic cardiovascular diseases and many other diseases. Passive smoking causes primarily an irritant effect and other problems associated with cigarette smoking(1,3,7-19). Some of the medical problems that are associated with heavy use of Khat are tooth decay, gross enamel staining, gastritis, constipation and in men spermatorrhoea and impotence. The incidence of psychiatric morbidity is also reported to increase among excessive khat users(20-23).

Although the percentage of population that smokes has declined in the United States and some other countries, it is increasing in less developed countries. The number of people who smoke is projected to rise from 1.1 billion in the late 1990s to more than 1.6 billion by 2025(19). In Ethiopia, in 1983, lifetime prevalence rate of cigarette

smoking among college students was reported to be 31.9%(24). There is a wide spread practice among people living in Eastern Africa and Southern Arabia of chewing the leaves of khat. Traditionally khat was used mainly by the Muslim populations in these countries, but recently it is used by many population groups including young non-Muslims(5,6,25). In Ethiopia khat is commonly used for social and religious purposes(2). The prevalence of khat chewing among Ethiopian college students was 22.3% in 1983(26). In the past, life time prevalence rates of khat chewing ranging from 9.2% - 55.0% were reported for different high school students of Ethiopia(2,3). Fifteen years ago one study revealed current prevalence rate of cigarette smoking of 28.9% among high school teachers in Ethiopia(27).

In Ethiopia there was no previous study done on cigarette smoking and khat chewing among university instructors. The main objective of this study was to assess the prevalence and risk factors of cigarette smoking and khat chewing among university instructors in Ethiopia. The level of knowledge of these instructors on the health risks and socio-economic problems associated with cigarette smoking and khat chewing was also assessed.

MATERIALS AND METHODS

This college based cross-sectional study was conducted in January 2001 in the four colleges of North west Ethiopia namely Gondar College of Medical Sciences (GCMS), Gondar College of Teacher Education (GCTE), Bahr Dar University Engineering Faculty (BUENGF), and Bahr Dar University Education Faculty (BUEDUCF). The GCMS trains medical students, health officers, nurses (different categories), environmental health officers, medical laboratory technologists and pharmacists. The GCTE trains diploma education students. The BUENGF trains students in different disciplines of engineering. The BUEDUCF offers four year courses in education students and two year training for business students. The total number of instructors in the four colleges in 2000-2001 academic year was 321 (87 in GCMS, 49 in GCTE, 72 in BUENGF and 113 in BUEDUCF).

All three hundred and twenty one instructors in the four colleges were initially considered to be included in the study. A pre-tested self-administered questionnaire, which was prepared in English, was used for data collection. The independent variables included were different sociodemographic variables and the main dependent variables were history of cigarette smoking and khat chewing. The questionnaire was distributed to all two hundred and forty one instructors who were available during the data collection period. The distributed questionnaires were collected within seven days by the principal investigator. For the sake of this study the following operational definitions were used: (i) Life time prevalence of smoking: the proportion of instructors who had ever smoked cigarettes in their life time; (ii) Life time prevalence of khat chewing: the proportion of instructors who had ever chewed khat in their life time; (iii) Current prevalence of cigarette smoking: the proportion of instructors who are smoking cigarettes within 30 days preceding the study; (iv) Current prevalence of Khat chewing: the proportion of instructors who are chewing khat within 30 days preceding the study; (v) Life time smoker. A person was considered as life time smoker even if he/she smoked only once in his/her life time and; (vi) Life time khat chewer. A person was considered as life time khat chewer even if he/she chewed khat only once in his/her life time.

Data was processed and analysed by a computer using the statistical package EPI INFO VERSION 6. Chi-square test was used to test the association between different variables.

Ethical clearance and permission was obtained from the Research and Publication Office of the Gondar College of Medical Sciences. Before data collection was started, permission was also obtained from the deans of the respective colleges. During distribution of the questionnaire instructors were informed that the information collected would be anonymous and only instructors who are willing should fill in the questionnaire.

RESULTS

Two hundred and forty one questionnaires were distributed to instructors who were available during the data collection period. Out of the total distributed questionnaires 181 were returned. Sixty were not returned. Eighty were not available during the data collection period. Eighty-seven (48.1%) of the respondents were from Bahr Dar University. One hundred and seventy (93.9%) were males. The mean age of the respondents was 35.2 years (SD=8.36). Most of them were Orthodox Christians (73.5%) followed by Protestants (12.7%). One hundred

and sixty six (91.7%) were Ethiopians. Ninety-six (53.0%) were married and 80 (44.2%) were single. Sixty-five (35.9%) earned a monthly salary of 1000.00 Ethiopian birr and lower. One hundred and twenty seven (70.2%) of the instructors had masters or doctoral degrees

The lifetime prevalence rate of cigarette smoking and khat chewing was found to be 28.2% and 32.6%, respectively. Thirty-eight (21.0%) are currently chewing khat and 24 (13.3%) are currently smoking cigarettes (Table 1). There was one lifetime and current female cigarette smoker. Two female instructors had ever chewed khat (one is also currently chewing).

Table 1

Prevalence of cigarette smoking and khat chewing among Ethiopian University instructors

Cigarette smoking or Khat chewing habit	No (n=181)	%
No history of smoking or chewing	105	58.0
Life time smokers	51	28.2
Life time khat chewers	59	32.6
Life time smoker and/or khat chewer	76	42.0
Life time smoker and khat chewer	34	18.8
Current smoker	24	13.3
Current khat chewer	38	21.0
Current smoker and/or khat chewer	48	26.5
Current smoker and khat chewer	14	7.7

NB: The total percentages do not add up to 100% since one category could be included in the other

Twenty-nine (56.9%) of the instructors started smoking while they were in senior high school or first year college. Twenty-four (40.0%) started chewing khat at this period of time (Table 2). On average the instructors started chewing khat at the age of 20.2 years (SD=4.94) and the average age for starting smoking was found to be 19.9 years (SD=2.98). The minimum age for starting khat chewing was 10 years and that of smoking was 14 years.

Table 2

Time Ethiopian university instructors started smoking or khat chewing

Time	Cigarette ever smokers (n=51) No (%)	Ever khat chewers (n=60) No (%)
Elementary school	1 (2.0)	4 (6.7)
Junior high school	0 (0.0)	4 (6.7)
Senior secondary school	17 (33.3)	16 (26.7)
1st year college	12 (23.5)	8 (13.3)
2nd year college	2 (3.9)	3 (5.0)
3rd year college	8 (15.7)	6 (10.0)
4th year college	2 (3.9)	3 (5.0)
5th year college	0 (0.0)	2 (3.3)
6th year college	1 (2.0)	0 (0.0)
After employed	8 (15.7)	14 (23.3)

Twenty seven (52.9%) of the ever smokers and 21 (35.0%) of the ever khat chewers declared that they have stopped smoking and khat chewing, respectively. On

average one smoker smoke 8.6 cigarettes per day. The average amount of money spent each day by one smoker and khat chewer was 2.7 and 3.0 birr, respectively.

The main reason given for smoking was "for relaxation with friends" (47.1% of the ever smokers) followed by "peer pressure" (23.5%). "To keep alert while reading" and "for relaxation with friends" were the main reasons for starting chewing, 40.0% and 31.7%, respectively. Table 3 shows the reasons for starting smoking and khat chewing.

Table 3

Reasons given by Ethiopian university instructors for starting cigarette smoking and khat chewing

Reason	Cigarette smoking	Khat chewing
	(n=51) No (%)	(n=60) No (%)
Relieve stress (only)	2 (3.9)	1 (1.7)
To keep alert while reading (only)	1 (2.0)	24 (40.0)
For relaxation with friends (only)	24 (47.1)	19 (31.7)
Peer pressure (only)	12 (23.5)	4 (6.7)
Family members chew khat (only)	-	3 (5.0)
I saw teachers smoking/chewing (only)	1 (2.0)	0 (0.0)
More than one reason	3 (5.9)	7 (11.7)
Other reasons	8 (15.7)	2 (3.3)

Many instructors believed that cigarette smoking and khat chewing had health risks, 95.6% (n=173) and 79.0% (n=143), respectively. Many of them (82.1%) knew that cigarette smoking is a risk factor for lung diseases including lung cancer. Mental problems and GI problems were mentioned as the main health problems of chewing khat, 60.1% and 44.8%, respectively. Tables 4 and 5 show the main health problems associated with cigarette smoking and khat chewing.

Table 4

Health risks of cigarette smoking as mentioned by Ethiopian university instructors

Health risk	No (n=173)	%
Lung diseases including lung cancer	142	82.1
Heart diseases	59	34.1
APH	1	0.6
IUGR	3	1.7
Cancer of other parts of the body	30	17.3
PUD	12	6.9
Loss of appetite	5	2.9
Susceptible to many diseases	4	2.3
Affect teeth	4	2.3
Addiction	10	5.8
Didn't mention any health risk	16	9.2

NB: the percentages do not add up to 100% because one person can mention more than one health risk

Nine hundred and fifty seven (86.7%) instructors believed that smoking had a socio-economic problem. Disagreement with family members, rejection by the society and economic problems were the frequently mentioned socio-economic problems. One hundred and

forty seven (81.2%) instructors believed that chewing khat causes socio-economic problems. The problems mentioned were similar to those in cigarette smoking.

Table 5

Health risks of khat chewing as mentioned by Ethiopian university instructors

Health risk	No. (n=143)	%
Mental problem	86	60.1
Abdominal problem	64	44.8
Teeth problem	24	16.8
Heart problem	19	13.3
Decreased sexual feeling	6	4.2
Cancer	6	4.2
Bacterial contamination	3	2.1
Didn't mention any health risk	14	9.8

NB: The percentages do not add up to 100% because one person can mention more than one health problem

Table 6

Factors associated with ever cigarette smoking and/or ever khat chewing among Ethiopian University instructors

Factor	Ever smoked and/or chewed khat		OR (95% CI)	P-value
	Yes	No		
<i>Faculty</i>				
GCMS	21	44		
GCTE	18	11	3.43 (1.26-9.49)	P<0.05
BUENGF	12	21	1.2 (0.45-3.15)2	
BUEDUCF	25	29	1.8 (0.8-4.08)	
<i>Religion</i>				
Protestant*	5	18		
Orthodox Christian	58	75	2.78 (0.90-9.16)	
Muslim	8	3	9.6 (1.46-73.89)	p<0.05
Other	5	9	2.0 (0.37-11.21)	
<i>Salary (Ethiopian Birr)</i>				
472-500	2	6	1.02 (0.13-6.73)	
501-1000*	14	43		p<0.01
1001-1000	60	56	3.29 (1.54-7.09)	
<i>Education status</i>				
Diploma	5	12	1.3 (0.3-5.56)	
Bsc*	9	28		p<0.01
Msc and above	62	65	2.97 (1.22-7.40)	
<i>Family history of chewing</i>				
Yes	21	12	3.15 (1.34-7.48)	p<0.05
No*	50	90		

*Referent category

Table 6 shows the results of the bivariate analysis between the outcome variable "ever smoked cigarettes or ever chewed khat or both" and different independent variables. Statistically significant difference (p<0.05) was seen between the outcome variable and the independent variables faculty, religion, education status, income, and family history of khat chewing. Instructors from the GCTE, those with masters degree and above, those with high income, Muslims, and instructors who had family members who chew khat were found to be at a higher risk of smoking and or chewing khat.

DISCUSSION

The current prevalence rate of cigarette smoking is lower than the previous finding for high school teachers and university students in Ethiopia(24,27). The current lower rate of cigarette smoking could be explained by: (i) the disadvantages of cigarette smoking are now widely known by the people so that only few instructors might have started smoking; (ii) A significant number of instructors who had started smoking in the past are now stopping this habit. On the contrary, in this study the current prevalence rate of khat chewing is 21.0%. In 1983 the prevalence among university students was 22.3%(23), which is almost the same as the current finding. The reason for observing the same prevalence of current khat chewing could be that the health risks of khat chewing are not well studied and disseminated in the colleges and to the general public.

Fourteen (7.7%) instructors are both smokers and chewers currently. On average one smoker and chewer spend 5.7 birr each day for cigarettes and khat. This indicates that the money spent by the instructors for cigarettes and khat is high. This may affect the economy of the family.

In this study 56.8% of the ever smokers and 40.0% of the ever chewers started smoking/ chewing when they were in the senior secondary school or as first year college students. In agreement with this statement is that the main reasons mentioned for starting smoking and chewing were "to keep alert while reading", "for relaxation with friends", and "peer pressure". This is an important indication to direct interventions towards decreasing the prevalence of these habits. By the time these people are in the senior high school or first year College, most of them are adolescents. During adolescence, especially middle adolescence, peer pressure has a significant role for starting such habits(24). Additionally first year students are new to the university environment in that the style of teaching is different and the contents to learn are many compared to the high schools. This may lead to stress, and as a means of escape from the stress the students might have started smoking or chewing khat.

Many instructors believe that cigarette smoking and khat chewing has health risks, 95.6% and 79.0%, respectively. About 82.1% of them knew that cigarette smoking is a risk factor for lung diseases including lung cancer. This indicates that the instructors are knowledgeable on the health risks of cigarette smoking. This might have contributed for observing low current prevalence of smoking. Additionally this knowledge of the health risks might have helped 52.9% of the lifetime smokers to stop smoking. These instructors, who stopped smoking and chewing, are good examples for the remaining smokers and chewers that stopping these habits is possible.

Muslims were found at a higher risk of smoking, khat chewing since khat chewing is a tradition for the Muslims(6). Significantly lower prevalence rate of cigarette smoking and khat chewing was seen among instructors of

GCMS. This might have happened since the instructors of the GCMS knew the health risks of cigarette smoking and khat chewing much better than the instructors in the other faculties. The risk of smoking and khat chewing was high for instructors whose income is high. Probably those who are earning high salary had spent much of their time for higher education. The successful conditions of the prolonged study might have predisposed them to smoking/ khat chewing. In line with this reasoning is the finding that those who had masters or doctoral degree are found at a higher risk of smoking and/or khat chewing. The presence of family members who chew khat was also found to be a risk factor for smoking/khat chewing. This is a real factor since adolescents can start to exercise what the elders are doing(28).

Even though the study was conducted in colleges found in the north west part of the country, the findings could be generalised for all instructors in Ethiopia since the instructors who are currently working in colleges of the North west Ethiopia are coming from the different parts of the country. One limitation of this study is that the sample size is small and 100% response was not obtained. Of course response rates are not usually high in studies that use self-administered questionnaires(29). Despite the limitations, the findings of this study will help to see the overall picture of cigarette smoking and khat chewing.

In general the prevalence of cigarette smoking seemed to be low among university instructors but the prevalence of khat chewing is almost the same as it was some years ago. Instructors knew the common health risks associated with cigarette smoking.

Based on the findings of the study the following recommendations are made: (i) Since many instructors started smoking and chewing khat when they were senior high school or first year College students, the high schools and colleges should educate their students about the health and socioeconomic problems associated with cigarette smoking and khat chewing; (ii) Colleges should teach and counsel their students on ways of coping with their problems in the colleges so as to forestall smoking and chewing khat; (iii) People in the agriculture sector need to promote cultivation of crops other than khat and (iv) Teachers in the high schools and colleges, and parents should be role models to their students and children by not smoking or chewing khat.

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