

Tobacco Chewing and Associated Factors Among Youth of Western Nepal: A Cross-sectional Study

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ABSTRACT

Background: Smokeless tobacco is found to be as addictive and harmful as smoking but have not been explored into, especially among youth. **Objectives:** This study was conducted to find the prevalence of tobacco chewing among college students in Nepal and the factors that have influence over their use. **Study design:** A cross-sectional study with a self-administered questionnaire. **Materials and Methods:** Five colleges of different streams in Pokhara city were selected for the study. A total of 816 students participated. The study was conducted during the period of May 2006–February 2007, using a semi-structured, self-administered questionnaire. **Results:** Overall prevalence of ever tobacco chewing was 21.3% (males 30.2% and females 10.9%) among the youth with average age of initiation 15.7 years. Pan masala and gutka were used by 63.6% and frequency of use varied widely and only 5.7% said they were daily users. Reasons cited for chewing were most commonly ‘just like it’ or ‘friends chew’. Multiple logistic regression analysis showed age, ever smoking status, being ever alcoholic, and having friends or family members who chewed were significantly associated with students’ tobacco chewing. Almost one-tenth of the students believed they were addicted to chewing tobacco and 42.5% of them had tried to quit the habit. **Conclusion:** The study shows a high prevalence of tobacco chewing by Nepali youth. Important factors that influenced the habit were having chewer friends, their own smoking and alcohol status and having family members who chewed. It is pertinent to consider these when formulating cessation and prevention programs

Keywords: Chewing, Nepal, tobacco, youth

Introduction

Tobacco is estimated to have killed 100 million people in the 20th century and continues to kill 5.4 million people every year and this figure is expected to rise to 8 million per year by 2030, 80% of which will occur in the developing countries.⁽¹⁾ Tobacco is used in different forms and the health effects are seen irrespective of the form in which it is used. Smokeless tobacco is found to

be as addictive and harmful as smoking yet more difficult to quit. Smokeless tobacco, especially in the form of chewing has been associated with various oral diseases including cancers and adverse reproductive outcomes.⁽²⁻⁵⁾ Tobacco chewing is prevalent in all parts of the world and all age groups, though it varies in extent.⁽⁶⁻⁹⁾

The prevalence and associated factors of tobacco chewing has not been studied as extensively as that of tobacco smoking. As the cost of cigarette and other forms of tobacco smoking are increasing all over the world and some countries have even banned smoking in public places, tobacco smokers as well as nonusers of any forms of tobacco are more vulnerable to use tobacco chewing, especially the youth.

Though Nepal has ratified the Framework of Convention

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for Tobacco Control (FCTC) in November 2007, it is too early to have made a significant impact on tobacco use in its population.⁽¹⁾ Knowledge of tobacco chewing and its correlates are necessary to have effective control measures in place as well as to evaluate the success of ongoing programs. This study was done to find the prevalence and pattern of tobacco chewing and its influencing factors among youth of Western Nepal.

Materials and Methods

Study participants

This cross-sectional study was conducted in Pokhara, capital city of Western region in Nepal. It constitutes one-fifth of the total population of Nepal, which is around 24 million.⁽¹⁰⁾ For the present study, sample size was calculated based on anticipated prevalence of 15%, absolute precision of 3% and 95% confidence interval, the minimum number required to be 544. Assuming a minimum participation of 100 students from one college, we selected five colleges of different streams. Two were professional colleges and the other three were general stream colleges. One professional college was medical and the other hotel management and the three other colleges were teaching arts subjects. All the students in these colleges were requested to participate in the study. The study was carried out during the period of May 2006–February 2007.

Data collection

A semi-structured questionnaire was constructed covering socio-demographic variables, tobacco chewing habit, its initiation, duration and amount, reasons for chewing tobacco, factors that influence their habit, whether they tried to stop the habit and their perception of what kind of users they were. Ever tobacco chewers were taken as those who had ever chewed any form of tobacco in the past and current chewers as those who had chewed any form of tobacco in the last 30 days. Socio-economic status was categorized according to household assets and profession of parents as it was not possible to get valid household economic information from students. Questionnaire was in the English language as the medium of instruction was English in all the colleges. They had an option in the questionnaire to either remain anonymous or reveal their identity and seek help if needed.

Permission for the study was obtained from the principals of respective colleges and investigators visited the colleges on prescheduled date and time. Students were first explained the purpose of study and its implications and verbal-informed consent taken from them. Questionnaire was distributed in their respective classrooms and sufficient time given to fill them. It took around 15–20 min to fill the entire questionnaire.

Data analysis

Data were entered and analyzed using SPSS (SPSS for windows, Rel. 15.0.1, 22 November 2006, SPSS Inc., Chicago, IL, USA). The results were reported as percentages, odds ratio and 95% confidence interval. Univariate followed by multiple logistic regression (using enter method) was used to see the association between various factors and chewing habit. Ever tobacco chewing was taken as the dependent variable and age, sex, socio-economic status, family members' chewing habits, number of friends as chewers and their own ever smoking and alcohol use were taken as independent variables. *P* value <0.05 was considered as statistically significant.

Results

A total of 816 students participated in the study out of which 441 (54%) were males and 375 (46%) were females. The prevalence of ever chewers of tobacco was 21.32% (*n*=174 and 95% CI [18.51, 24.13]) and current chewers was 8.3% (*n*=68 and 95% CI [6.41, 10.19]). The mean age at initiation for ever chewers was 15.7 years (standard deviation = 3 years) whereas for current chewers was 16.5 years (SD = 2.1).

Regarding the type of tobacco used by the students, 42.9% (75) used pan masala, 20.7% (36) used gutka and 8.1% (14) used only tobacco. Regarding the frequency of tobacco chewing, majority reported that the frequency varies and only 5.7% reported to be daily chewers and 5.8% reported chewing 4 days/week.

Majority of chewers (61.2%) reported that this habit was introduced first time to them by friends. Almost 20% said they started by themselves, 8.6% by their relatives and only 1.8% attributed their starting of this habit to influence of media.

Most common reason cited by students for chewing tobacco was 'just like it'.

Most of the chewers said that their parents did not know about their chewing habit and among them, 26% admitted that their parents would be extremely upset when they come to know about their chewing habit. Only 13.8% of the chewers reported that their parents were aware of their chewing habit.

Students' perception of their own habits revealed that 9.7% (17) believed they were addicted to chewing tobacco and 42.5% (74) of them had tried to quit their habit.

Since the number of current chewers was less, further analysis was carried out for ever chewers only. Univariate analysis of tobacco chewing habit with

socio-demographic and other variables showed that it was significantly higher among males at 30% compared to 11% in females, in older age group with 37% in ≥ 21 years as compared to 13% in < 18 years and among hotel management (32.6%) and medical (29.7%) students. There was also significant association between tobacco chewing and income category, ever smoking, alcohol use, having ≥ 3 chewer friends and family's chewing habits [Table 1].

Multiple regression analysis revealed that the independent variables that were associated with ever tobacco chewing among students were having ≥ 3 chewer friends, and their own ever smoking status. Other factors that had independent effect on ever chewers were their ever alcohol use, chewing habits of family members and older age [Table 2].

Discussion

Tobacco chewing is a habit with adverse consequences ranging from benign oral lesions to cancer. It plagues all countries from highly industrialized ones like Sweden and Canada to developing ones like Nepal and Bangladesh.^(9,11-13)

In the present study, 21.3% of the study population had

chewed tobacco at one time or the other. This is almost double compared to the prevalence of 11.6% of any form of ever tobacco use among youth in Global Youth Tobacco Survey (GYTS) and also higher than prevalence found in other studies done in Nepal and other countries in the youth population.^(6,8,13,14-16) The difference could probably be due to the fact that their study population was slightly younger and the samples were drawn from different areas. Nevertheless it is an important finding that by college going age, chances of youth having ever chewed tobacco becomes higher. This is also evident from the present study where prevalence among older age group was higher and more than doubled when age advanced from less than 18 to above 21 years. The distribution of prevalence increasing with age is similar to studies in Nepal, India and other nations, where the prevalence increased with age.^(6,9,13,16,17)

Age of initiation of ever chewing was almost similar to a study done in Nepal but lower than the age of 17 years seen in an Indian study whereas current chewers' age of initiation was closer at 16.5 years.^(13,17) Almost two-thirds of the students used pan masala and gutka, which is higher than the finding of Chandrashekar *et al*, who found the use to be about 57% for the same products.⁽¹³⁾ Frequency of tobacco chewing reported to be daily by 5.7% of the students and 5.8% reported chewing 4

Table 1: Univariate analysis for ever chewing habit and selected factors

Variables	Chewing habit		Odds ratio	95% CI	P value
	Yes (%)	No (%)			
Sex					
Female (n = 375)	41 (10.9)	334 (89.1)	1	(2.34, 5.16)	<0.001
Male (n = 441)	133 (30.2)	308 (69.8)	3.52		
Age groups (in years)					
≤ 18 (n = 262)	34 (13)	228 (87)	1	(0.81, 2.07)	0.279
19–20 (n = 315)	51 (16.2)	264 (83.8)	1.3	(2.55, 6.21)	<0.001
≥ 21 (n = 239)	89 (37.2)	150 (62.8)	3.98		
Undergraduate course					
Arts/BA (n = 401)	44 (11)	357 (89)	1	(2.59, 5.96)	<0.001
Management (n = 230)	75 (32.6)	155 (67.4)	3.93	(2.2, 5.35)	<0.001
MBBS (n = 185)	55 (29.7)	130 (70.3)	3.43		
Income category					
Low (n = 361)	62 (17.2)	299 (82.8)	1	(1.04, 2.23)	0.03
Middle (n = 304)	73 (24)	231 (76)	1.52	(1.07, 2.65)	0.026
High (n = 151)	39 (25.8)	112 (74.2)	1.68		
Number of chewer friends					
No (n = 519)	55 (10.6)	464 (89.4)	1	(2.52, 5.98)	<0.001
1 or 2 (n = 165)	52 (31.5)	113 (68.5)	3.88	(5.59, 13.52)	<0.001
3 or more (n = 132)	67 (50.8)	65 (49.2)	8.7		
Family members chewers					
None (n = 469)	90 (19.2)	379 (80.8)	1	(0.53, 1.35)	0.48
Other relatives (n = 162)	27 (16.7)	135 (83.3)	0.84	(1.27, 2.76)	0.001
Parents/ siblings (n = 185)	57 (30.8)	128 (69.2)	1.89		
Ever smokers					
No (n = 537)	49 (9.1)	488 (90.9)	1	(5.55, 11.78)	<0.001
Yes (n = 279)	125 (44.8)	154 (55.2)	8.08		
Ever alcoholic					
No (n = 480)	45 (9.4)	435 (90.6)	1	(4.13, 8.79)	<0.001
Yes (n = 336)	129 (38.4)	207 (61.6)	6.02		

Table 2: Multiple logistic regression forever chewing habit

Variables	Odds ratio	95% CI	P value
Sex			
Female	1	(0.78, 2.04)	0.35
Male	1.26		
Age groups (in years)			
≤ 18	1	(0.49, 1.53)	0.63
19–20	0.87	(1.18, 3.89)	0.01
≥ 21	2.14		
Undergraduate course			
ARTS/BA	1	(0.73, 2.26)	0.38
Management	1.29	(0.51, 1.83)	0.89
MBBS	0.95		
Income category			
Low	1	(0.54, 1.41)	0.58
Middle	0.87	(0.38, 1.29)	0.25
High	0.70		
Number of chewer friends			
No	1	(1.42, 3.85)	0.001
1 or 2	2.34	(3.29, 9.55)	<0.001
3 or more	5.61		
Family members chewers			
None	1	(0.46, 1.40)	0.43
Other relatives	0.80	(1.16, 3.07)	0.01
Parents or siblings	1.89		
Ever smokers			
No	1	(2.51, 6.40)	<0.001
Yes	4.00		
Ever alcoholic			
No	1	(1.28, 3.41)	0.003
Yes	2.09		

Hosmer and Lemeshow test P value = 0.93

days/week is similar to the other observations made in India.^(15,16)

Majority of the students were introduced to the product by friends followed by self experimentation and relatives and similar results observed in study by Ary *et al*,⁽¹⁸⁾ Very small percentage attributed their starting of this habit to influence of media, which is contrary to the finding of an Indian study where 82% of the students opined that advertisements did influence and 40% of them had tried it after seeing advertisements.⁽¹⁴⁾

Reasons students cited for chewing tobacco was 'just like it', because their friends chewed, relaxation effects, boredom and to look more mature. Few other studies have looked into the aspect of reasons for chewing tobacco and have found similar reasons along with craving.^(7,14) Craving was not found to be a major reason in the present study but was one of the major factors in the study done among baseball players in US.⁽⁶⁾ Both Nepal and Indian studies revealed that almost a fourth of the students felt that using tobacco made them feel more attractive as well as they would have more friends.^(6,14,16,19) Less than one in four students said that their parents knew about their chewing habit and among those who hid the habit from their parents, only 26% (39) reported that their parents would be extremely upset when they

come to know about it. This observation of few parents getting upset is similar to the Myanmar study which said that parents and teachers show less concern over children chewing tobacco due to misconception that it is less harmful than smoking.⁽¹⁶⁾

Even though only one-fifth of the students believed that they were addicted to chewing tobacco, almost half of the chewers admitted that they had tried to quit their habit. Another study in Nepal has revealed a higher percentage (57%) of students who had tried to quit the tobacco chewing habit.⁽¹³⁾ This shows that students do know that they need to stop the habit but end up continuing due to various reasons and these have to be worked upon while planning on cessation programs.

Most substance abuses are more prevalent in males and tobacco chewing seems to follow the same gender difference which is seen in other studies in Nepal.^(13,19) This trend appears to be common in other parts of the world, irrespective of whether country is least developed like Bangladesh and Myanmar or developed like Sweden.^(9,17,20)

The present study reveals that tobacco chewing was most prevalent in hotel management students, which is a service industry followed by medicos and then the arts group. Two other Indian studies have seen course variation in prevalence and found that professional and diploma students had lower prevalence than other colleges in contrast to ours.^(15,16) This could be attributed to various factors like in the service industry, exposure to smoking, alcohol and other substances tend to be higher, in the medical students it could be due to higher level of stress. This indicates that there may be some variation in the reasons that make students of different courses chew tobacco. Inclusion of such group specific factors may make cessation programs more effective.

There was significant association between tobacco chewing and gender, income group and type of course on univariate analysis but did not hold ground in multivariate analysis whereas association remained significant with age, ever smoking, alcohol use, having ≥3 chewer friends and family's chewing habits on multivariate analysis. Similar results were reported in studies done in India and US.^(6,13,15,16) Main limitation of the study was that the sample was not a random one, so the results cannot be extrapolated to the entire youth in Nepal. There may be variation among youth in rural and urban areas and college going and non-college going, which needs to be studied further. Further limitations are that it is a cross-sectional study design with its inherent deficiencies, and a sample size not large enough to be able to do multivariate analysis on current chewers only.

Conclusion

The study shows one of the higher figures of prevalence of tobacco chewing by Nepali youth. It was more prevalent among higher age group, males and students pursuing professional courses. Important factors that influenced the habit were having friends who chewed tobacco themselves, their own smoking and alcohol status and having family members who chewed. It is pertinent to consider these when formulating cessation and prevention programs.

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