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Adolescent Smoking Behavior and Its Determinants Among Youths Living in Jumla, Nepal

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ABSTRACT

This cross sectional study was carried out among 290 respondents of age group 14-19 years with an objective of exploring the attitude and belief of adolescents, towards smoking and other forms of tobacco use and to assess their exposure to second hand smoking (SHS). A validated, translated section of the Global Youth Tobacco Survey (GYTS) was used for this survey. Data revealed that the overall prevalence of "ever-smokers" was 45.9% and the prevalence of current users was 10.7%. Among the total respondents, 21% used other forms of smoked tobacco like beedi, hookah and chur or were "any tobacco users". Among the current smokers, 78.3% reported that they wanted to quit smoking sometime.It was reported by 31.4% of the respondents that in the past 7 days, they had been exposed to second hand smoke (SHS) inside their homes and 37.9% were exposed to second hand smoke in places besides their homes. Among the respondents, 32.8% believed that SHS was "definitely" harmful and 56.2% felt that smoking should be banned from enclosed public places. Bivariate analysis showed that respondents exposed to second hand smoking had higher odds of being current smokers (OR=3.7, p-value 0.001, CI 1.69-8.45). Adjusted odd's ratio showed that adolescents exposed to SHS at home were three times more likely to be current users than those who were not (OR=3.69, p-value 0.003, CI 1.57-8.67), associated significantly, after adjusting for age group and gender. Multivariate analysis revealed that late adolescents were more likely to be ever users (OR=1.862, CI 1.01-3.19, p-value 0.046). However, gender (OR=0.8, CI 0.49-1.31, p-value 0.38) and exposure to second hand smoking (OR=1.12, p-value 0.667, CI 0.66-1.9) , were not significantly associated with ever smoking behavior.

Keywords: Adolescents, Nepal, Smoking behavior

INTRODUCTION

Smoking accounts for 8.8% of annual deaths worldwide. It is practiced by about a third of world population aged 15 years or older.[1] Nepal ratified the WHO Framework Convention for tobacco control (WHO-FCTC) on 7th November 2006 and it entered into force for Nepal on 5th February, 2007.[2] Nepal implemented a legislation that ensured protection from exposure to tobacco by prohibiting smoking in public places.[3] Globally, 48% of men smoke, whereas, for women it accounts to 22% in developed countries and 9% in developing countries. Almost six million people die from tobacco use every year, both from direct tobacco use and second-hand smoke. By 2020, this number is estimated to increase to 7.5 million accounting for 10% of all deaths. Smoking is estimated to cause about 71% of lung cancer, 42% of chronic respiratory disease and nearly 10% of cardiovascular disease.[4] Smokers ingest tobacco which contains nicotine that is addictive. It contains more than a thousand chemicals among which 401 are poisonous substances like cyanide and 43 of them have also been found to be carcinogenic.[5] A study done in different ecological regions of Nepal indicated that prevalence of tobacco use was 68.4% in rural Kathmandu, 37.0% in urban Kathmandu 54.7% in Terai region and 77.7% in mountain region.[4] The aim of this study was to identify the smoking behavior of middle (14-15 years) and late adolescents (16-19 years), to explore their attitude and beliefs towards smoking and other forms of tobacco use and to assess their exposure to second hand smoking (SHS).

MATERIALS AND METHODS

The study was conducted in Chandanath Village Development Committee in the district of Jumla, situated on the mountainous region of Western Nepal. The study fofl lowed a cross sectional design using a self administed questionnaire. A validated, translated section of the Global Youth Tobacco Survey(GYTS) was used for this survey. The researcher was present at all times with the participants to help them fi ll out the questionnaire. Respondents in middle (14-15 years) and late adolescence (16-19 years) from grades 9-12 were included in the study after obtaining consent.

Sampling: The Global Youth Tobacco Survey includes defined geographic sites that can be countries, provinces, cities, or any other sampling frame, including sub national areas, non-WHO member states, or territories of other countries. Out of the 75 districts of Nepal,

purposive sampling was done and Jumla Village Development Committee (VDC) was selected. From among 30 VDCs in Jumla, Chandanath VDC was selected purposively. Out of the 9 wards, one ward was selected in random. The GYTS uses a two stage cluster sample design that produces representative samples of students in grades associated with ages 14–19 years. The sampling frame in this study included all educational institutes, attended by students of Jumla containing any of the identified grades. At the first stage, the probability of educational institute being selected is proportional to the number of students enrolled in the specifi ed grades. At the second sampling stage, students of specified age group and grades within the selected schools are selected. Out of three educational institutes in this site, all were included in the study and all students attending the educational institutes on the day the survey , eligible to participate were included in this study. The GYTS sample design produces representative, independent, cross-sectional estimates for all sites. The prevalence of tobacco use was taken from a previous study as 35% for use in the calculation of sample size.[6] For this survey, a sample size of 242.7 was derived (least estimated difference/permissible error=0.06) using the formula for estimation of sample size by proportion.[7] An excess of 20% was added to cover withdrawal issues and the minimum sample size was calculated to be 290. From among the students of age 14-19 years in the educational institutes in Chandanath VDC, 290 students were included in the study.

Definition of the variables

Ever user: Ever user was defined as one who had not used smoked tobacco in the past 1 month but had tried in the past. To assess the ever use, participants were asked, 'Have you ever tried or experimented with cigarette smoking, even one or two puffs?"[8]

Current user: Current user was defined as one who had smoked a cigarette in the past 30 days [8]. Ever User was the dependent variable. The other variables discussed here are age, gender, attitude and belief towards tobacco use and Exposure to Second hand Smoking (SHS).

Data collection was done using structured self administered questionnaire using an adapted version of the Global Youth Tobacco Survey questionnaire. It consisted of the General Information section primarily and remaining sections comprising of questions to assess the patterns of tobacco use, the attitude and belief of the adolescents on tobacco use , and lastly their exposure to second hand smoking (SHS). Each child was provided around 30 minutes to answer the questions and fill out the questionnaire. The time period for data collection was 30 days in August 2015. Analysis was performed using Statistical Package for Social Sciences (SPSS) version 17. Descriptive statistics was used to calculate the mean and average. Pearson's chi square was used to measure the association between the variables with the permissible error kept at 0.05. Bivariate and multiple logistic regression was done to examine for levels of association between the dependent and independent variables.

Ethical Consideration: Ethical approval was taken from the Research and Ethical Sub Committee, Nepal Medical College (NMC-RESC)

RESULTS

Among the total participants (290), 51.7% were females and 49.3% were males. Participants from age group 14-15 (middle adolescents) contributed to 23.1% of the total population. The prevalence of ever-smokers was 45.9% (133) and the prevalence of current user was 10.7%(28) (Table 2).The proportion of female ever smokers (48.7%) was found to be higher when compared to male adolescents (42.9%, p-value: 0.321), which was not statistically significant. It was seen that the prevalence of ever smokers was higher among late adolescents' age group (49.3%) than among middle adolescents, which was statistically significant (p-value:0.031) (Table 1 and 2).

Table 1: Distribution of respondents by age and gender

Variable	n	%
Age		
14-15 yrs	67	23.1
16-19 yrs	223	76.9
Gender		
Female	150	51.7
male	140	48.3

Table 2: Prevalence of current smokers, and ever smokers by general characteristics and exposure to SHS.

Variables	Current smokers			Ever smoking		
	n	%	p-value	n	%	p-value
Age group (years)						
14-15	7	9.4	0.48	23	34.3	
16-19	21	10.4		110	49.3	**0.02**
Gender						
Females	11	7.3	0.11	73	48.7	
Males	17	12.1		60	42.9	0.19
Exposed to second hand smoking At home						
Yes	11	5.6		44	47.3	
No	17	18.3	0.001	89	45.2	0.415
In public						
Yes	19	17.3		55	50.0	
No	9	5.0	0.001	78	43.3	0.163
Over all	28	9.7		133	45.9	

Among the total respondents, 21% had used other forms of smoked tobacco like beedi, hookah and churot "any tobacco users". The results revealed that 9.3% of the respondents smoked their fi rst cigarette at the age of 7 years or less and the average number of cigarettes smoked per day was one or less (27.2%). When asked if they wanted to smoke fi rst thing in the morning" only 1% replied positively. The prevalence of ever tobacco chewers was 42.4%. It was also seen that 63% of smokers preferred smoking inside their homes rather than at public places or at friend's residence. Data presented that 16.2% preferred buying cigarettes in packs rather than a few or one at a time and 18.3% bought them from shops. Among the respondents 10.7% were refused cigarettes in shops because of their age. Among the ones who were not refused, 31.1 % of the adolescents were below the age of 18 or "minors".

The other section assessed the respondent's perception towards tobacco use regardless of whether they used tobacco or not. When asked if the respondents agreed to the statement "that they would enjoy smoking a cigarette", 14.5% "strongly agreed" and 34.3% "disagreed". More than half (63.1%) thought smoking made a person more comfortable in social gathering and 44.1% of the respondents thought that once a person starts smoking, it would "defi nitely not" be difficult for him/her to quit. On inquiring if the participants would "accept if their best friend offered them a cigarette", 75.9% said that they would "defi nitely not" accept it. Among the current smokers, 78.3% reported that they wanted to quit smoking and 6.9% reported that in the next 12 months, they may use one or some form of tobacco.

It was reported by 31.4% of the respondents that in the past 7 days, they had been exposed to second hand smoke inside their home and 37.9% were exposed to SHS in places except their homes (Table 3). One half of the respondents (50.7%) said they had seen someone smoking inside the school, among which 19.7% fell in the age group 14-15 years. Among the respondents, 32.8% believed that SHS was "defi nitely" harmful and 56.2% felt that smoking should be banned from enclosed public places.

Data revealed that the proportion of ever smokers among late adolescents (49.3) was higher than that of middle adolescents (34.3), which was signifi cant (p-value 0.03). The prevalence of current smokers was 9.7%, among which higher proportion was females (60.7%) .However, this was not statistically signifi cant. Higher Proportion of Late Adolescents (77.1%) were seen to be current smokers compared to middle adolescents. However, this was not statistically signifi cant.It was also seen that 43.7% of respondents said that smoking made them more comfortable at celebrations and parties and 56.3% said smoking probably made people less comfortable at gatherings. This was not signifi cantly associated.(Table 2)

Analysis showed that respondents exposed to second hand smoking at home had higher odds of being current smokers (OR=3.7, p value 0.001, CI 1.69-8.45). No significant difference was found among current smokers and age (OR=0.89, p value 0.8, CI=0.36-2.2) and gender (OR=1.7, p value 0.170, CI=0.79-3.87). Late adolescents were more likely to be ever smokers than middle adolescents (OR=1.86, P value 0.032, CI=1.05-3.29), associated significantly. However, no significant difference was found among ever users and gender (OR=0.80, p-value 0.389, CI 0.49-1.32). Similarly, exposure to second hand smoking at home showed no significant association with respondents being ever smokers (OR=1.12, p-value 0.66, CI 0.66-1.9) (Table 3 and 4)

Multivariate analysis showed that late adolescents were more likely to be ever users (OR=1.84, CI 1.03-3.28, p value 0.038). However, gender (OR=0.8, CI 0.49-1.31, p value 0.80) and exposure to second hand smoking at home (OR=0.97, p value 0.92, CI 0.54-1.73) and in public, were not significantly associated with ever smoking behavior. Adjusted odd's ratio showed that adolescents exposed to SHS at home were more likely to be current users than those who were not (OR=2.38, p value 0.63, CI 0.95-5.59), significantly, after adjusting for age group and gender. Those exposed to SHS in public were, however, more likely to be current smokers than those not exposed (adjusted OR=2.71, 95%CI 1.08-6.77, p-value=0.001), when controlled for age, gender, and exposed to secondhand smoking at home. However, no significant association was seen between current smokers and age group (OR=0.79, p-value =0.626, CI=0.31-2.03) and current smokers and gender. (Table 3 and 4)

Table 3.Crude and adjusted association between factors and current smokers

Variables	Crude association			Adjusted association*		
	OR	95%CI	p-value	OR	95%CI	p-value
Gender						
Female	1			1		
Male	1.74	0.78-3.87	0.17	1.22	0.51-2.89	0.64
Age group						
14-15	1			1		
15-19	0.89	0.36-2.19	0.80	0.89	0.34-2.31	0.81
Exposure to Second hand smoking at home						
No	1	1.63-8.45	0.001	1	0.95-5.59	0.63
yes	3.78			2.38		
Exposure to Second hand smoking in public						
No	1			1		
yes	3.96	1.72-9.12	0.001	2.71	1.08-6.77	0.032**

*Controlled for or adjusted for all variable in table.

**significant variable.

Table 4.Crude and adjusted association between factors and smoking among ever smokers.

Variables	Crude association			Adjusted association*		
	OR	95%CI	p-value	OR	95%CI	p-value
Gender						
Female	1			1		
Male	0.79	0.49-1.25	0.32	0.80	0.49-1.32	0.80
Age group						
14-15	1			1		
15-19	1.86	1.05-3.28	0.03	1.84	1.03-3.28	0.038**
Exposure to Second hand smoking at home						
No	1			1		
yes	1.00	0.65-1.78	0.73	0.97	0.54-1.73	0.92
Exposure to Second hand smoking in public						
No	1			1		
yes	1.30	0.81-2.10	0.269	1.38	0.81-2.36	0.22

*Controlled for odd's ratio adjusted for all variable in the table.

**significant variable

DISCUSSION

Tobacco use is a major worldwide contributor to deaths from chronic diseases, and findings from the GYTS suggest that current dire warnings of a doubling of the death toll to 10 million deaths per year by 2020 could be a conservative estimate.[9] Small differences in patterns of tobacco use between boys and girls, high use of tobacco products other than cigarettes, and widespread exposure to secondhand smoke suggest even more morbid future outcomes caused by tobacco use.[9] Results from previous studies have shown that men are more likely to smoke cigarettes than women.[4] In contrast, GYTS data have shown that boys aged 13–15 years were only 2·3 times more likely to smoke than girls, and in many countries there are no differences by sex in cigarette smoking and other tobacco use.[10] Higher proportion of females in our study were seen to be ever smokers than males. Raised tobacco use by girls and narrow sex differences in tobacco use by adolescents is a recent and unexpected behavioral change in many parts of the world where tobacco prevalence in women is low compared with men.[9]The World Health Organization's "STEP" wise approach to non communicable disease risk factor surveillance (STEPS) was carried out in Nepal in 2007, which revealed otherwise; the prevalence of smoking among females was 15% and that among males was 35%.[11] The prevalence of use of other tobacco products has also seen to be very high (21%).Recent GYTS reports have also reported the use of other tobacco products to be as high or even higher than cigarette smoking.[9] This study presented that out of the total respondents, 9.3% had their first cigarette at the age if 7 or less. Various studies have reported that the earlier the age of initiation, bigger the chances of nicotine addiction would be present.[12]

Perceptions regarding tobacco use was measured based on certain questions to assess the belief and attitude of respondents towards tobacco use and smoking cessation. Less than half (44.1%) believed that it would not be "diffi cult" for a smoker to quit and 63 % of the respondents said smoking made people " feel more comfortable at gatherings" and 4.1% said that they might accept if "their best friend offered them a cigarette". Similar fi ndings were reported in another study conducted in Nepal which concluded that adolescents agreed that smoking made them feel more attractive.[13]A certain study conducted primarily to examine adolescents' attitudes toward smoking, the presence of a false consensus effect, and the influence of peer and parental attitudes about smoking choices on being a susceptible, never smoker; an experimenter; and a current smoker found that the importance of the opinions of one's friends and parents about his/her choice to smoke was associated with smoking behavior.[14] In developing countries, documented factors implicated in the initiation of tobacco use among youth include experimentation, peer pressure and sense of feeling more mature.[15] Access is another important component that affects smoking behavior.[16]This study reports that 90.3% of the respondents were not refused cigarettes at shops, 31.1% of them being minors and most of them bought cigarettes at shops, 4.5% of them still buying them in individual sticks rather than packets. This is concurrent to another study where 95% of the adolescents were not refused cigarettes because of their age.[16] The new tobacco control bill was approved in Nepal in April 2015 which bans the sale of individual cigarettes, prohibits unlicensed vendors from selling tobacco products, deems tobacco sales to minors (under 18 years of age) and pregnant women as offenses, and requires tobacco companies to cover 75% of cigarette and other tobacco product packaging space with pictorial health warnings.[2] However, a strong indication for the need to reinforce and implement legislation on the access of cigarette products for minors is the extremely high percentage of students being able to buy cigarettes from stores (90.3%). Increase in cigarettes sale among low and middle income countries (LMCs) is also associated with recent exploding of young population, weak implementation of tobacco control policies and lower levels of health awareness.[17] This study reported that 31.7 % of the respondents had been exposed to second hand smoking in the past 7 days inside their homes and 37.9% in places other than their homes. Secondhand smoke (SHS) includes smoke produced by the burning of a cigarette, pipe, cigar, or other smoked tobacco and the smoke exhaled from the lungs of smokers.

A paper presenting findings from the Global Youth Tobacco Surveys (GYTS) conducted in 132 countries between 1999 and 2005 indicated that a large proportion of students in every World Health Organization Region are exposed to secondhand smoke at home (43.9%) and in public places (55.8%).[18] The South-East Asia Region developed a specific objective "to promote awareness on the dangers of exposure to secondhand smoke and to protect the youth from exposure to secondhand smoke by taking measures to ban smoking within educational facilities, in public places, and in public transport" after reviewing data gathered under the GYTS.[19] This has been in interest to the long established link between the occurrence of respiratory illnesses with long term, repeated second hand smoke exposure. Findings from this study also showed significant association between exposure to second hand smoking and current smoking behavior. Similar findings have been reported in a study conducted in secondary schools in western Nepal, where odds of respondents being smokers was significantly associated with exposure to second hand smoke at home and at public places.[13] This would suggest a possible increment in the prevalence of tobacco use among people, probable cause being the continuous exposure of non smokers to second hand smoke everyday at home and in public places.

This study was designed as a cross-sectional one thereby the temporal relationship between the independent variables and tobacco use cannot be established. The assessment of tobacco-use status was based entirely upon the response of the participants, considering they were true. This was not validated by biomarkers. Sample size of the study was small and limited to adolescents of Jumla only, hence the results of this study cannot be generalized to the rest of western Nepal. An important revelation from this study would be the high prevalence of exposure to Secondhand smoke and the use of tobacco in public places and its sales besides implementation of anti tobacco legislations in Nepal. Preventing the initiation and continuation of smoking among adolescents would require interventions that address individual perceptions with respect to tobacco and primarily addressing anti tobacco laws so as to ensure its better implementation.

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