Tobacco Use among Adolescent Students in Secondary Schools of Pokhara Sub Metropolitan City

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Abstract

Introduction	Tobacco use is one of the chief preventable causes of death and illness in the world. The World Health Organisation (WHO) attributes some 5 million deaths a year to tobacco, a figure that is expected to rise to 8.4 million deaths a year by 2020, more than a third of them in developing countries. Recent trends indicate an earlier age of initiation and rising smoking prevalence rates among children and adolescents especially among those from developing countries.
Objective	A cross sectional descriptive study to determine the magnitude and type of tobacco use among adolescent students of Pokhara sub metropolitan city, their knowledge about the health hazards of tobacco use, and their exposure to tobacco promotional advertisements and environmental tobacco smoke.
Methods	This is a cross sectional descriptive study among adolescent students of grade 8, 9 and 10 in Pokhara sub metropolitan city. Multi stage random sampling was applied. Data collection was carried out by using anonymous self-administered questionnaire.
Results	Nearly half (47.1%) of adolescent students had ever used either smokeless or smoked forms of tobacco products. Nearly one in seven (13.2%) were current users; one in four (22.7%) were experimental users and one in ten (10.6%) were past users of any tobacco product. The average age of initiating tobacco use was 12.64 years. Nearly one third (32.3%) of students reported seeing tobacco promotional advertisements in the media or at sporting or social events during last thirty days. About three of five students (7.4% regularly and 50.9% occasionally) were exposed to environmental tobacco smoke in their home. More than four of five students (3% regularly and 80.3% occasionally) were exposed to environmental tobacco smoke in public places.
Conclusions	High percentages of students were ever users of tobacco (both smoked and smokeless tobacco products). The age of initiating tobacco use was low. The proportion of regular tobacco users is likely to increase as a high proportion of users are currently experimental users, knowledge about the health hazards of tobacco use was poor among the students surveyed, and they reported being frequently exposed to tobacco promotional advertisements and environmental tobacco smoke. School based programs to discourage the uptake and use of both smoked and smokeless tobacco products seems necessary. Complete ban in tobacco advertisements and promotional activities as well as strict monitoring to control smoking in public places is necessary.
Key words	Tobacco use, Adolescent students, Pokhara

Introduction

Tobacco use is one of the chief preventable causes of death and illness in the world. The World Health Organization (WHO) attributes some 5 million deaths a year to tobacco use, a figure that is expected to rise to 8.4 million deaths a year by 2020.[1] This increase will not, however, be shared equally: deaths in developed region are expected to rise 50% from 1.6 to 2.4 million and deaths in developing countries are expected to rise by 400%, from 1.5 to 6 million.[2] Recent trends indicate an

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earlier age of initiation and rising smoking prevalence rates among children and adolescents especially among those from developing countries.[3]

As tobacco use in developed countries is decreasing, multinational tobacco companies are targeting youths of developing countries through different promotional activities and advertisements. Moreover, use of smokeless tobacco products is increasing in Nepal and other developing countries,[4] as tobacco control programs are very limited and focused only on tobacco products that are smoked.

High-risk behaviours are not only more prevalent, but also result in more serious health complications to adolescents than adults. In this context, protecting every adolescent from initiating tobacco use is the best intervention for the promotion of the health. Unfortunately, there is very limited information to describe the magnitude of the tobacco use problem, nor are there data systems that would allow for the characterisation of patterns of use.[5]

This study aims to estimate the magnitude and type of tobacco use among school-going adolescents in Pokhara sub metropolitan city, their level of knowledge about the health hazards of tobacco use, and their exposure to tobacco promotional advertisements and environmental tobacco smoke. This information will be useful for designing effective tobacco control programs.

Methods

This is a cross sectional descriptive study among adolescent students of grade 8, 9 and 10 in 18 secondary schools within Pokhara sub metropolitan city. Multi stage cluster sampling design was used. Schools were selected on the basis of probability proportional to enrolment size and classes were selected randomly. All students in the selected class were eligible for participation. Data collection was carried out during January 5-26, 2003. Anonymous self-administered questionnaire was used for data collection after explaining the purpose of the study. Informed verbal consent was obtained from the school authority and students. The participation in the study was completely voluntary. The sample size of the study was 2032 (school response rate=100%, student response rate=96.8%). Data was entered in a database and analysed by using EPI Info 2002. Proportions and mean with confidence interval were calculated.

Results

General characteristics

The majority (51.7%) of the respondents were of the age group 13-15 years. Nearly equal proportion of boys (51.5%) and girls (48.5%) participated in the study. About three fifths (60.5%) of the respondents were from governmental schools and two fifths (39.5%) were from non-governmental schools. Most of them were Brahmin (31.1%), followed by Gurung (27.3%), Chhetri (16.3) and Magar (10.5%) ethnic groups.

Tobacco use

Of the total respondents, nearly half (47.1%) of adolescent students ever used any tobacco product (either smoked or smokeless tobacco). About half (51.4%) of the boys and one-third (30.3%) of the girls ever used *pan masala* or *gutkha*. The use of tobacco was significantly higher among boys (60.6%) than girls (32.8%) and more common among students of non-governmental schools (61.1%) than those from governmental schools (38.0%). Students of the Gurung/Magar ethnic group were the most frequent users of all forms of tobacco, followed by students of the Newar and Brahmin/Chhetri ethnic groups. In general, the use of smokeless tobacco product was more common (44.2%) among students than tobacco products that are smoked (14.7%). Some of the students reported using more than one form of tobacco product.

Table I: Prevalence of ever tobacco use by type of tobacco product (n=2032)

Category		Type of tobacco			
		Any tobacco product	**Cigarette Bidi**	**Surti Khaini**	**Pan masala Gutkha**
Sex:	Boys	**60.6** (± 3.1)	**22.9** (± 2.2)	**5.0** (±1.4)	**51.4** (± 3.1)
	Girls	**32.8** (± 3.0)	**5.9** (± 1.6)	**0.9** (± 0.7)	**30.3** (± 3.0)
School:	Government	**38.0** (± 2.8)	**11.7** (±1.9)	**2.4** (± 0.9)	**31.3** (± 2.7)
	Non Government	**61.1** (± 3.4)	**19.3** (±2.8)	**4.0** (± 1.4)	**56.3** (± 3.5)
Ethnicity:	Brahmin/Chhetri	**43.4** (± 3.2)	**10.5** (± 2.1)	**2.6** (± 1.1)	**38.6** (± 3.2)
	Gurung/Magar	**53.2** (± 3.7)	**19.4** (± 2.9)	**3.5** (± 1.4)	**45.6** (± 3.7)
	Newar	**46.0** (± 9.0)	**12.7** (± 6.2)	**2.4** (± 3.2)	**40.5** (± 8.9)
	Others	**43.8** (± 6.5)	**17.9** (± 5.1)	**3.3** (± 2.6)	**37.9** (± 6.3)
Total		**47.1** (± 2.2)	**14.7** (±1.6)	**3.0** (± 0.8)	**41.2** (± 2.2)

Note: Values in the parenthesis indicate 95% Confidence Interval

Of the total respondents, nearly one in seven (13.2%) were current (either regular or occasional) users of any tobacco products, one in four (22.7%) were experimental users (i.e. used any tobacco products not more than 10 times) and one in ten (10.6%) were past users of any tobacco product. More boys (17.4%) were currently using tobacco products than girls (8.6%) and more students of non-governmental schools (18.2%) were using tobacco currently than students from governmental schools (10.0%). More students from the Gurung/Magar ethnic group were current users (16.9%) and past users (23.4%) of tobacco products than those from other ethnic groups. Higher proportions of students from Newar ethnic group (25.4%) were experimental users followed by those from Brahmin/Chhetri (23.3%), Gurung/Magar (22.2%) and other (20.8%).

Table II: Proportion of adolescent students using tobacco by frequency of use (n=2020)

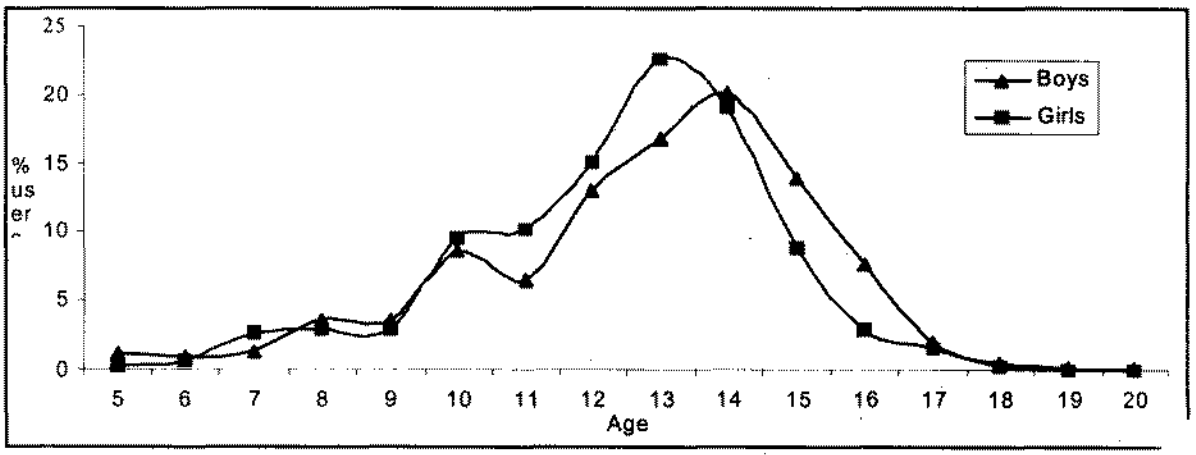
Category		Frequency of tobacco use			
		Current user (Regular or occasional)	Past user	Experimental user	Never user
Sex:	Boys	**17.4** (± 2.4)	**14.8** (± 2.3)	**27.9** (± 2.8)	**39.9** (± 3.1)
	Girls	**8.6** (± 1.8)	**6.1** (± 1.6)	**17.4** (± 2.5)	**67.9** (± 3.0)
School:	Government	**10.0** (± 1.8)	**7.9** (± 1.6)	**19.5** (± 2.3)	**62.6** (± 2.8)
	Non Government	**18.2** (± 2.8)	**14.7** (± 2.5)	**27.6** (± 3.2)	**39.5** (± 3.5)
Ethnicity:	Brahmin/Chhetri	**10.7** (± 2.1)	**8.7** (± 1.9)	**23.3** (± 2.8)	**57.3** (±3.3)
	Gurung/Magar	**16.9** (± 2.8)	**13.4** (± 2.5)	**22.2** (± 3.1)	**47.5** (± 3.7)
	Newar	**11.9** (± 6.1)	**8.7** (± 5.4)	**25.4** (± 7.9)	**54.0** (± 9.0)
	Others	**12.5** (± 4.4)	**10.0** (± 4.0)	**20.8** (± 5.3)	**56.7** (± 6.5)
Total		**13.2** (± 1.5)	**10.6** (± 1.4)	**22.7** (± 1.9)	**53.5** (± 2.2)

Note: Values in the parenthesis indicate 95% Confidence Interval
Twelve cases not reporting the frequency of use were excluded in analysis

Age of initiation

The average age of initiating tobacco use was 12.64 (± 0.2) years. Initiation of tobacco use was earlier by a few months among girls (12.40 yrs) than boys (12.76 yrs). Some students reported initiation of tobacco use as early as 5 years of age and nearly one fifth (18.9%) of ever tobacco users initiated tobacco before they were 10 years of age. Initiation of tobacco use was found to dramatically increase after nine years of age, as shown in Figure I.

Figure I: Age of initiating tobacco use by sex



Knowledge about health hazards of smoking

Students were asked if they were aware of the harmful effects of tobacco use. Of the total respondents, 1857 (91.4%) students claimed to have knowledge about the hazards of tobacco use and 175 (8.6%) reported that they do not have knowledge about the hazards of tobacco use. Among these students who reported having knowledge about the health hazards of tobacco

use, 846 (46.5%) have ever used tobacco and 993 (53.5%) have never used tobacco.

These students were requested to list the main health hazards of tobacco use. More than one fourth (26.8%) reported asthma and/or bronchitis; more than one tenth (11.7%) reported heart diseases; nearly seven in ten (68.5%) reported cancers of different organs and only a few (0.5%) reported chronic bronchitis and/or COPD. They also reported many other short-term effects of tobacco use such as tooth discoloration, cough, smelling mouth etc.

Students' level of knowledge about the hazards of tobacco use was determined by considering how many of the following health hazards they were able to recall in the questionnaire: asthma and/or shortness of breath; heart problems e.g. increased heart rate and/or heart attacks; lung and/or other cancers; and chronic bronchitis and/or COPD.

Table III: Proportion of adolescent students by level of knowledge about health hazards of tobacco use (n=1857)

Category	Level of knowledge about hazards of tobacco use		
	Good knowledge [a]	Some knowledge [b]	Poor knowledge [c]
Boys	**28.1** (± 3.1)	**46.0** (± 3.3)	**25.9** (± 2.9)
Girls	**33.9** (± 3.1)	**39.6** (± 3.2)	**26.4** (± 3.0)
Total	**31.0** (± 2.2)	**42.8** (± 2.3)	**26.2** (± 2.0)

Note: Values in the parenthesis indicate 95% Confidence Interval

Among the students who reported to have knowledge about the health hazards of tobacco use, 42.8% could recall just one tobacco related hazard/illness (*some knowledge*), nearly one-third (31.0%) recalled at least two major hazards/illnesses (*good knowledge*), and the remaining 26.2% could not report any of the major tobacco related hazards/illnesses *(poor knowledge).*

Exposure to tobacco promotional advertisements

A total of 1966 (92.9%) students provided information regarding their exposure to pro tobacco advertisements. Exposure to pro tobacco advertisements was defined as "one who reports seeing pro tobacco messages on billboards, in newspapers or in magazines, in any electronic media, or at sporting or other events during 30 days preceding the survey".

Table IV: Proportion of adolescent students by their exposure to pro-tobacco advertisements (n=1966)

Category	Seen any tobacco promotional advertisement in media or events during last 30 days	
	Yes	No
Boys	**36.5** (± 3.0)	**63.5** (± 3.0)
Girls	**27.5** (± 2.9)	**72.5** (± 2.9)
Total	**32.3** (± 2.1)	**67.7** (± 2.1)

Note: Values in the parenthesis indicate 95% Confidence Interval

Nearly one third (32.3%) of the total respondents replied that they had seen tobacco promotional advertisements in the media or at events during the last thirty days. Proportion of ever tobacco users was high among those reported seeing tobacco promotional advertisements than those reported not seeing tobacco promotional advertisements (52.0% vs 45.0%). Although the advertisement of tobacco products in national electronic media (i.e. Radio and Television) is already banned, national newspapers and magazines with high youth readerships are still publishing the attractive advertisements of tobacco products. In addition, youths are being targeted through large billboards on city corners and through sporting events, music concerts, street festivals and other social events and gatherings that are sponsored by the tobacco companies. Different catchy slogans in advertisement banners e.g. *"safalta ko pratik"* (symbol of success), *"sahasi ko ek matra chahana"* (the demand of the brave person), *"my Nepal my pride: Surya King"* etc. are being used to target and attract adolescents to take-up tobacco. The clips of smoking film stars in different cinemas also influence students to use tobacco. Other promotional advertisements of tobacco companies include shop decoration, distribution of gifts etc. All these promotional advertisements depict tobacco use as a pleasurable, relaxing and sociable behavior.

Exposure to Environmental Tobacco Smoke

Exposure to second hand smoke could influence adolescents to initiate tobacco use and also adversely affects their health. Thus, respondents were asked about exposure to second hand smoke at home and in public places.

Table V: Proportion of adolescent students by their exposure to environmental tobacco smoke

Category		Exposed to environmental tobacco smoke		
		Regular	Occasional	Never
At home	Boys	**8.3** (± 1.9)	**49.7** (± 3.3)	**42.0** (± 3.3)
(n= 1791)	Girls	**6.7** (± 1.8)	**52.3** (± 3.4)	**41.1** (± 3.4)
	Total	**7.4** (± 1.3)	**50.9** (± 2.4)	**41.7** (± 2.3)
In public places	Boys	**3.5** (± 1.2)	**79.7** (± 2.6)	**16.8** (± 2.4)
(n=1845)	Girls	**2.5** (± 1.1)	**81.3** (± 2.2)	**16.2** (± 2.5)
	Total	**3.0** (± 0.9)	**80.3** (± 1.9)	**16.6** (± 1.7)

Note: Values in the parenthesis indicate 95% Confidence Interval

Less than ten percent (7.4%) of students were exposed regularly to environmental tobacco smoke in their home, while more than half (50.9%) were exposed occasionally. As expected, more tobacco users than non-users were exposed to environmental tobacco smoke at home: tobacco users (8.3% regularly and 53.0% occasionally); non-users (6.6% regularly and 49.0% occasionally).

Presently, smoking in public places, governmental offices and other institutions is restricted in Nepal. Very few (3.0%) students reported being *regularly* exposed to environmental tobacco smoke in public places. However, about four out of five (80.3%) students reported that they were *occasionally* exposed to environmental tobacco smoke in public places. More tobacco users were exposed (3.9% regularly and 83.4% occasionally) to environmental tobacco smoke in public places than non-users (2.3% regularly and 77.5% occasionally).

Discussions and Conclusions

High proportion (47.1%) of adolescent students were ever-users of tobacco. Smokeless tobacco products like *pan masala and gutkha*, were more commonly used by these students than tobacco products that are smoked. Most of the ever-users initiated tobacco use by 13 years of age. The majorities of them are currently experimental users, but are potential regular users in the future. A higher proportion of students of the Gurung/Magar ethnic group used tobacco than other ethnic groups. Only about one-third of students had good knowledge about the hazards of tobacco use. This combination of factors underscores not only the alarming scenario of current tobacco use among school adolescents, but also presents the potential for increased use by students in the future. Thus, programs to discourage the uptake of tobacco among non-users and cessation programs for current users is necessary. All tobacco control programs should concentrate equally on both smokeless and smoked tobacco products. These activities should be culturally appropriate and able to address the issue of ethnic variation in tobacco use.

Youths are targeted by tobacco companies through advertisements in billboards, magazines and newspapers, and by sponsorship of social and other events that are of interest to youth. As a large proportion *(among whom significant numbers were never users of tobacco)* of students were exposed to tobacco promotional advertisements, the proportion of tobacco users is likely to increase in the future. Although advertisements of tobacco products were banned in electronic media in Nepal, there is a need to legislate a complete ban of all-direct and indirect tobacco advertisements and promotional activities in the country.

Adolescent's exposure to environmental tobacco smoke is a doubly concerning issue. First, exposure to environmental tobacco smoke results in detrimental health effects for both tobacco users and non-users and second, the exposure to environmental tobacco smoke at home and/or in public places increases the likelihood of adolescents taking up the tobacco habit. An overwhelming proportion of students *(with substantial proportion of never users)* were exposed at least occasionally to environmental tobacco smoke at home and/or in public places limiting their right to live in smoke-free environments. To address this issue, firstly people should be better educated about the hazards of second-hand smoke; and secondly the rules to prohibit smoking in public places should be strictly enforced and regularly monitored.

Tobacco use and other high-risk behaviours are emerging as significant problems in Nepalese society. The unhealthy behaviours acquired during adolescence are continued throughout the life cycle, resulting in adverse effects on the individual, family and society. Therefore, adolescents and school-aged children should be a primary focus for intervention strategies.

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