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Smoking Susceptibility and Intention to Smoke among Secondary School Adolescents in Nepal

Aryal UR,[1] Bhatta DN[2,3]

[1]Department of Community Medicine, Kathmandu Medical College, Kathmandu, Nepal, [2]Faculty of Medicine, Epidemiology Unit, Prince of Songkla University, Thailand, [3]Department of Public Health, Nobel College, Pokhara university, Kathmandu, Nepal.

ABSTRACT

Background: Smoking Susceptibility (SS) and Intention to Smoke (IS) are important characteristics of early stages of smoking career of adolescents. Several psychosocial factors play crucial roles in prevention of smoking initiation among adolescents. This study utilized the recent Global Youth Tobacco Survey (GYTS) data of Nepal with the main aim to correlate factors associated with SS and IS.

Methods: Nationally representative data on 2,878 school going Nepalese adolescents were collected through second GYTS using two-stage cluster sampling. An anonymous and self –administrated questionnaire was used to collect information on smoking related variables. We applied multivariable logistic regression to examine relationship between risk factors (demographic, environmental, motivating and programmatic variables) and SS and IS.

Results: The prevalence of SS and IS among never smokers was 22.8% (95% CI: 21.2, 24.5) &11.4% (10.2, 12.6) respectively. Factors found associated with respect to different variables were as follows: SS –being a male (AOR: 1.32; 95% CI 1.04, 1.69), friend smoking (1.97; 1.53, 2.52), offered free cigarettes (1.41; 1.03, 1.93), parental smoking (1.68; 1.32, 2.12); IS –being a male (1.43; 1.04, 1.97), and parental tobacco use (1.52; 1.11, 2.08). The following factors were protective measures for SS and IS - age, and antismoking messages.

Conclusions: Smoking susceptibility and intention to smoke is prevalent in Nepalese school going adolescents. Several aforementioned factors are responsible to become susceptible and intention to smoke. Therefore, an understanding of the influencing factors of adolescents provides important insight for comprehensive school based tobacco intervention programs.

Keywords: Factors; intention; smoking; susceptibility.

INTRODUCTION

Tobacco use among adolescents is a neglected public health challenge in Nepal. Several studies have reported majority of smokers have initiated their first cigarette during adolescence.[1,2] They need to pass several stages to become an established smoker.[3] Both smoking susceptibility (SS) and intention to smoke (IS) are two important characteristics in the earlier stages of smoking behaviors among adolescents.[4,5] SS is a lack of strong commitment not to smoke in the future or when offered a cigarette by best friends while IS is plan to smoke within a year.[4,5] Several psychosocial factors influence adolescents to initiate smoking during each stage.[6-9] Demographic, environmental, motivational and programmatic variables are the important psychosocial factors that motivate them to initiate smoking.[10]

Previous community based study showed that nearly 50% adolescents were susceptible to smoking and 21.9% intended to smoke within a six months.[9,11-12] These two categories help stakeholders to prevent initiation of smoking as well as to become future smokers.[4,5] However, there is sparse literature related to SS and IS among school adolescents.

Correspondence: Dr Umesh Raj Aryal, Department of Community Medicine, Kathmandu Medical College, Kathmandu, Nepal. Email: aryalumesh@gmail.com, Phone: 9841238191.

Therefore, we used Global Youth Tobacco Survey (GYTS) data[13,14] to identify prevalence of SS and IS among school going adolescents and to measure its relationship with demographic and several environmental, motivational and programmatic variables.

METHODS

We accessed the raw data from recent GYTS Survey[15] and the analysis was done between December 2014 and January 2015. The detailed methodology of GYTS was available elsewhere in the literature. In brief, GYTS used self-administer standard questionnaire with core questions and country specific questions.[13,14] The survey adopted two stage sampling techniques in which primary sampling unit is all secondary schools having grade 7-10.[13] The secondary stage of sampling unit was classes from each selected school during the first stage of sampling.[13] A survey was conducted in randomly selected 50 schools with 76 class rooms of 31 districts. A total of 2878 students participated in the study of which 1602 were age group of 13-15 years.[13] Data were collected through answer sheet that could be directly scanned into computer.[13]

The following definitions and variables were used for the study.

i. Smoking Susceptibility: It was defined by asking following three questions related to intention and peer pressure.[3]

   a. If one of your best friends offered you a cigarette do you smoke it?

   b. At anytime during the next 12 months, do you think you will smoke a cigarette?

   c. Do you think you will be smoking cigarettes 5 years from now?

Option included: 1= definitely not, 2= probably not, 3= probably yes, 4= definitely yes for all the questions.

If anyone responded as "definitely not" in all three above questions will be not susceptible to smoking, If anyone responded as "definitely not" in any one or two question is susceptible to smoke. The reliability coefficient was 0.77.

ii. Intention to Smoke: in question b, if anyone answered other than "definitely not" is defined as Intention to smoke.[5]

iii. Demographic variables: it included age, sex and grade of the school going adolescents.

iv. Environmental variables: It included exposure to parental smoking, friend smoking, enclosed places and outdoor places.[9,10]

v. Motivational variables: It included offering free cigarettes by a representative of Tobacco Company, exposure to pro-tobacco messages, and exposure to actor smoking in TV and movies.[10]

vi. Programmatic variables: It included taught about danger signs of smoking in school, taught about effects of smoking in school years, family member discussed about harmful effects of smoking, and exposure to anti-tobacco messages.[10]

Statistical analyses were performed in using SPSS version 20 software. We generated frequencies and their percentage with 95% CI. Adjusted odds ratios were presented using multivariable logistic regression to measure association between dependent variable (SS and IS) and independent variables (see above iii-v). Missing values were excluded from the analysis. The level of significance (α) was set at 0.05.

RESULTS

A total of 2878 students participated in the study of which 1398 were females. Five out of ten participants were in grade 9 and 10.The median age of respondents was 15 years (Table 1).

More than 50% participant's friends were tobacco users and nearly 50% of the participants were exposed to smoking at enclosed places. Nearly 6 out of 10 participants were exposed to smoking at outdoor places and 5 out of 10 participants reported that their parents were smokers (Table 1).

Nearly 2 in 10 participants reported that they were ever offered free cigarettes by a representative of Tobacco Company, Nearly 7 in 10 had exposure to

pro-tobacco advertisement (messages) and 8 in 10 had seen actor smoking in TV and movies (Table 1).

Nearly 9 in 10 participants explained that they were exposed to anti-smoking media messages, 6 in 10 had reported that family member discussed about harmful effects of smoking, 8 in 10 reported that there were taught about dangerous signs of smoking at school and 7 in 10 reported that they were taught about harmful effects of smoking in school (Table 1).

Table 1. Descriptive statistics on demographic, environmental, motivational and programmatic factors, GYTS 2011.

Items	Total n (%)	95% CI
Demographic factors		
Age in years (N=2792)		
<15 years old	48.2	46.37,50.12
≥ 15 years old	51.8	49.88,53.63
Sex (N=2776)		
Female	50.4	48.48,52.24
Male	49.6	47.76,51.52
Educational grade (N=2804)		
Seventh	26.1	24.52,27.81
Eighth	23.5	21.91,25.08
Ninth	34.1	32.37,35.92
Tenth	16.3	14.91,17.68
Environmental factors		
Parental tobacco use (N=2777)		
Yes	49	47.13,50.89
No	51	49.11,52.87
Friends tobacco use (N=2862)		
Yes	52.2	50.32,54.01
No	47.8	45.99,49.68
Exposure to smoking in enclosed public places (N=2855)		
Yes	48.1	46.21,49.91
No	51.9	50.09,53.79
Exposure to smoking in outdoor public places (N=2851)		
Yes	57.3	55.44,59.11
No	42.7	40.89,44.56
Motivational Factors		
Exposure to actor smoking in TV, videos (N=2865)		
Yes	83.1	81.65,84.43
No	16.9	15.57,18.35
Exposure to advertise to cigarette (N=2835)		
Yes	66.9	66.11,69.59
No	32.1	30.41,33.89
Offered free cigarettes (N=2819)		
Yes	16.5	15.14,17.92
No	83.5	82.08,84.86
Programmatic factors		
Exposure to anti-smoking media messages (N=2848)		
Yes	87.0	85.75,88.26
No	13.0	11.74,14.25
Taught about danger signs of smoking in school (N=2846)		
Yes	78.7	77.19,80.23
No	21.3	19.77,22.81
Taught about harmful effects of smoking in school years (N=2831)		
Yes	66	65.20,68.71
No	33	31.29,34.80
Family discuss about harmful effects (N=2850)		
Yes	59.1	57.25,60.90
No	40.9	39.10,42.75

N includes both smokers and non-smokers adolescents

Out of 2518 never smoker respondents, 22.8% (95% CI: 21.2-24.5) were susceptible to smoking and 11.4% (10.2-12.6) had intention to smoke cigarettes. Multivariable logistic regression reveals that being a male (AOR =1.32; 95% CI: 1.04, 1.69), parental tobacco use (1.68; 1.32, 2.12), friend tobacco use (1.97; 1.53-2.52) and offered free cigarettes (1.41; 1.03, 1.93) were more likely to be susceptible to smoking. Further, being a male (1.43; 1.04, 1.97) and parental tobacco use (1.52; 1.11, 2.08) were more likely to be intention to smoke (Table 2).

Table 2. Factors associated with smoking susceptibility and Intention to Smoke, GYTS 2011 (N=2518).

Items	Smoking susceptibility			Intention to smoke		
Demographic factors	AOR	95% CI	P value	AOR	95% CI	P value
Age in years (<15 vs. ≥ 15#)	.70	0.54,0.92	.01	0.59	0.41,0.84	0.00
Sex (Male vs. Female)	1.32	1.04,1.69	.02	1.43	1.04,1.97	0.03
Educational grade (< 9 vs. ≥ 9#)	.88	0.68,1.15	.36	1.15	0.81,1.64	0.43
Environmental factors						
Exposure to smoking in enclosed places (Yes vs. No#)	1.00	0.75,1.33	.99	1.08	0.74,1.58	0.68

Exposure to smoking in outdoor public places (Yes vs. No#)	1.14	0.85,1.52	.37	0.93	0.63,1.36	0.71
Parental tobacco use (Yes vs. No#)	1.68	1.32,2.12	0.00	1.52	1.11,2.08	0.01
Friends tobacco use (Yes vs. No#)	1.97	1.53,2.52	0.00	1.19	0.86,1.65	0.30
Motivational factors						
Exposure to advertise to cigarette (Yes vs. No#)	1.46	0.79,2.67	.23	1.44	0.64,3.22	0.38
Exposure to actor smoking in TV, videos (Yes vs. No#)	1.03	0.73,1.43	.88	1.05	0.69,1.62	0.81
Offered free cigarettes (Yes vs. No#)	1.41	1.03,1.93	.03	1.20	0.79,1.81	0.40
Programmatic factors						
Taught about harmful effects of smoking in school years (Yes vs. No#)	.71	0.50,0.99	.04	0.69	0.45,1.06	0.09
Taught about danger signs of smoking in school (Yes vs. No#)	.97	0.72,1.29	.82	0.88	0.61,1.28	0.51
Family discuss about harmful effects (Yes vs. No#)	.87	0.69,1.10	.25	0.76	0.55,1.03	0.08
Exposure to anti-smoking media messages (Yes vs. No#)	.68	0.47,0.97	.03	0.58	0.38,0.90	0.02

Reference, AOR = Adjusted Odds Ratio, CI = Confidence Interval, All the variables are adjusted in model

Respondents who were less than 15 years (SS: 0.70; 0.54, 0.92 & IS: 0.59; 0.41, 0.84), who were taught about effects of smoking in school years (SS: 0.71; 0.50, 0.99), and exposure to anti-smoking messages (SS: 0.68; 0.47, 0.97& IS: 0.58; 0.38, 0.90) were less likely to be susceptible to smoking as well as intention to smoke (Table 2).

DISCUSSION

This is first paper to examine relationship between smoking susceptibility and intention to smoking with several psychosocial factors on national representative sample among school going adolescents. We analyzed the role of demographic, environmental, motivational and programmatic factors in smoking susceptibility and intention to smoke. Our findings are consistent with previous studies from different countries.[7-9, 16]

Our study reveals that the parental smoking and friend smoking is strongly associated with susceptibility to smoking. Dutch study reveals that adolescents with smoking parents were more likely to be affiliated with smoking friends.[17] The same study reveals that parental smoking has linked with choosing a friendship. Further, it is necessary to understand mechanisms by which peer affect youths on smoking behavior.[18] Adolescents have tendency to choose a friend based on their behaviors and attitudes.[17-19] Therefore, it is necessary to understand a nature of peer social context in Nepal in order to implement effective anti-smoking programs.

Our study also suggests that teaching effects of smoking at school and exposure to anti-smoking messages are significantly associated with SS and IS but taught about dangerous signs of smoking at school is not associated. A study from Pakistan reveals similar findings and suggested that the health educational classes were ineffectively conducted .[20] Swedish study described knowledge based intervention at school alone do not impact on behavior.[21] Health promotion activities should also include all the components of health literacy i.e. attitudes, motivational behaviors, personal-skill and self-esteem to prevent tobacco use among adolescents.[22]

Several studies reported gender role is associated with initiation of smoking among adolescents and variation in findings.[7,8,20] We found female were less likely to susceptible to smoking because of the social stigma which they would not share their smoking behaviors. Another reason may be male smoking is established social norms elsewhere including Nepal.

Our study reveals one fifth of school going adolescents are susceptible to smoking which is serious public health burden for the nation in order to prevent non-communicable diseases. The validity of susceptibility to smoking has been already confirmed and recommended as a strong predictor for experimentation with smoking.[4] Thus, Identifying of susceptible youth is essential to prevent smoking initiation. Further, intention to smoke is also crucial for public health policy and tobacco control program in the country.[5]

This study has both strengthens and limitations. One of the strengths is national representative sample which can be generalized. However more extensive follow up study are needed to confirm the validity of the results. Limitations of this study including responses bias, does not representative of adolescents who are outside the school and who were absent on survey day. We cannot establish causality among different factors with SS and IS. Moreover, missing data were excluded from analysis.

CONCLUSIONS

Smoking susceptibility and intention to smoke is prevalent in Nepalese school going adolescents. Several factors including demographic, environmental, motivational and programmatic variables are responsible to become susceptible and intention to smoke among adolescents. Therefore, an understanding of these influencing factors of adolescents provides important insight for comprehensive school based tobacco intervention programs.

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