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Prevalence of tobacco use and its contributing factors among adolescents in Bangladesh: Results from a population-based study

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Abstract

Background: Tobacco use is an alarming public health problem worldwide and causes significant morbidity and mortality. In many developing countries tobacco use starts at a relative younger age. However, data on tobacco use among adolescents in Bangladesh is scarce. **Objectives:** The main objective of this study was to estimate the prevalence of tobacco use and its contributing factors among adolescents in Bangladesh. **Materials and Methods:** We used data from the Global Youth Tobacco Survey (GYTS) Bangladesh 2007 which was a school-based survey of 2,135 students aged 13-15 years in grades 7-10. **Analysis:** A two-stage cluster sample design was used to produce representative data for Bangladesh. At the first stage, schools were selected with probability proportional to enrollment size. At the second stage, classes were randomly selected and all students in selected classes were eligible to participate. The GYTS sample design produced representative, independent, cross-sectional estimates for Bangladesh. **Results:** The overall prevalence of ever cigarette smokers in Bangladeshi students was about 9%, which was more than 3 times higher in boys compared to girls (15.8% versus 4.8%). Almost 4 in 10 students start smoking before the age of 10 in Bangladesh. In addition to current cigarette smoking, another 6% also reported to use other tobacco products currently. Nine in 10 current smokers reported that they had ever received help to stop smoking. More than 4 in 10 students were exposed to smoke from other people in public places. Among current smokers, 38.3% reported that they usually buy tobacco in a store and of which 97.8% reported that they were not refused cigarette purchase because of their age. **Conclusion:** Implementation and enforcement of tobacco control act is an urgent public health priority in Bangladesh.

Key words: Adolescents, Bangladesh, Global Youth Tobacco Survey, low- and middle-income countries, prevalence, tobacco use

Introduction

Tobacco use is recognized as one of the major causes of noncommunicable diseases such as cardiovascular diseases, respiratory diseases, diabetes, and cancers. Tobacco use among adolescents is a priority health risk behavior that contributes to increased morbidity and mortality, which is mostly preventable. Adolescents are the largest segment of population in Southeast Asian countries and are more susceptible to tobacco use epidemic.[1] In developing countries, more than half of the adolescents who start smoking at an early age become regular tobacco users.[2] Furthermore, those who smoke below 18 years have a substantial chance to die prematurely from tobacco-related diseases and complications.[3] In Bangladesh, cigarette smoking and smokeless tobacco use have become an increasingly prevalent problem.[4]

Several social and cognitive factors influence tobacco use among adolescents. It is essential to identify these risk factors for health planning and developing prevention policies. However, there is paucity on data for adolescent smoking in Bangladesh. The World Health Organization (WHO) and the US Center for Disease Control and Prevention (CDC) pioneered the Global Youth Tobacco Survey (GYTS) in 151 countries which measures the prevalence of tobacco use among the school going children and their knowledge, attitudes, and perceptions on its use.[5] The aim of this study was to estimate the prevalence of tobacco use and its contributing factors among adolescents of Bangladesh using data from the 2007 GYTS study.

Materials and Methods

The 2007 Bangladesh GYTS is a school-based survey of defined geographic sites including sub-districts in a country. The study methodology is available elsewhere.[6] In short, the survey uses a two-stage cluster sample design that produces representative samples of students in secondary school grades 7–10, associated with ages 13–15 years. The sampling frame included all secondary level schools in Bangladesh. At the first stage, the probability of schools being selected was proportional to the number of students in the specified grades. At the second sampling stage, classes within the selected schools were randomly selected. All students in the selected classes were eligible to participate, which was voluntary and anonymous, by means of self-administered data collection procedures. The GYTS sample design produced representative, independent, and cross-sectional estimates for Bangladesh.

The Bangladesh GYTS included data on the prevalence of cigarette and other tobacco use as well as information on five determinants of tobacco use: Access/availability and price, exposure to second-hand smoke (SHS), cessation, media and advertising, and school curriculum. Written permission was obtained from all school authorities prior to data collection and all study participants provided written informed consent. The study protocol was approved by the Ethical Review Committee of Bangladesh Medical Research Council.

A weighting factor was applied to each student record to adjust for nonresponse and variation in the probability of selection at the school, class, and student levels. A final adjustment sums the weights by grade and gender to the population of school children in the selected grades in each sample site. SUDAAN, a software package for statistical analysis of correlated data, was used to compute standard errors of the estimates and produced 95% confidence intervals. We used *t*-tests to determine the differences between sub-populations. $P < 0.05$ was considered significant. All data reported were gender stratified.

Results

A total of 3113 students participated in this study representing 52 schools.[6]

Prevalence

Overall, 9% of the students reported that they had ever smoked

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cigarettes, even one or two puffs, which was significantly higher among boys compared to girls (15.8% vs. 4.8%). Almost 4 in 10 students (38.6%) smoked first cigarette before the age of 10 years. Among the students, 2% were current cigarette smokers, and there was no significant difference between boys (2.9%) and girls (1.1%). In addition to current cigarette smoking, another 6% students also used other tobacco products, and there was no significant difference between boys (8%) and girls (4.2%). Among current smokers, 1% reported that they felt like having a cigarette first thing in the morning (i.e., cigarette dependency). Only 6.9% students reported that they used any tobacco product at the time of the interview (boys = 9.1% and girls = 5.1%). Among never smokers, 13.2% participants indicated that they were interested to initiate smoking within a year.

Cessation

Almost three quarters of current smokers (70.7%) reported that they desired to stop smoking and more than 8 in 10 (85.0%) tried to stop smoking during the past year, but failed. Nine in ten current smokers (90.1%) reported that they had ever received help to stop smoking. There were no statistical differences by gender for any of these indicators of cessation.

Exposure to second-hand smoke

About one-third of the students (34.7%) reported exposure to smoke from other people in their home during the past week and 42.2% were exposed to SHS in public places. A smoking ban in enclosed public places was supported by 74.9% students. About 83.3% participants considered SHS harmful to them, 41.1% had one or more parents smoking, and 2.4% had most or all friends smoking. There were no statistical differences by gender for any of these indicators.

Media and advertising

Almost three-fourth of the students (73.5%) noticed several cigarette advertisements on billboards and 64.0% in newspapers or magazines within the past month. For indirect advertising, 12.8% students reported having an object (e.g., t-shirt, cap, etc.,) with a cigarette or tobacco company logo, with no significant difference between boys (15.3%) and girls (10.9%). About 87.6% students saw anti-smoking media messages during the past month and 6.4% were offered free cigarettes by a tobacco company representative.

Access and availability

Among current smokers, 38.3% reported point of purchase in a store, of which 97.8% were not refused purchase because of their young age. About 10% students were offered free cigarettes by a tobacco company representative, which was not significantly different between boys (8.6%) and girls (4.6%). About 5% students usually smoke at home.

School curricula

More than half of the students (54.2%) reported to be taught about the dangers of tobacco use in school and 36.9% reported that they discussed in class, during the past year, about the reasons of tobacco use by young students.

Discussion

The overall prevalence of ever cigarette smokers was about 9%, which was more than 3 times higher in boys compared to girls (15.8% vs. 4.8%). The overall smoking prevalence in our study was less compared to GYTS reports from India, but the higher trend among boys was similar,[7] which could be due to higher freedom of boys in both the family and society. While the prevalence of current smoking is 2%, about 13.2% never smokers expressed their willingness to initiate smoking within the next year. Our study found all the contributing factors such as peer pressure, exposure to SHS, smoker parents or siblings, tobacco advertisement, accessibility, and availability of cigarette play critical role to transform an adolescent to a smoker.

Accessibility and availability play a critical role in influencing adolescents to become smokers. In this study, 38.3% of the adolescents purchased cigarettes from a store and 97.8% were not refused to purchase. Willingness to quit smoking among adolescents was high (70.7%) and 85.0% students tried to quit smoking during the past 1 year, highlighting the lack of necessary support. Bangladesh has laws restricting smoking in public places. Our data showed that 34.7% participants were exposed to SHS at home and 42.2% were exposed in public places indicating that the scope and enforcement of these laws are not adequate.

The anti-tobacco legislation in Bangladesh prohibits any kind of direct and indirect advertisement of tobacco-related products.[8] The majority of our participants reported observing tobacco advertisements. While Bangladesh has laws banning free distribution of tobacco products; nontobacco products identified with tobacco brand; and events sponsored by tobacco companies, all these dealings were reported in our study. A study conducted on pro-tobacco advertisement among adolescents in low- and middle-income countries reported a high prevalence of tobacco advertisement exposure,[9] which is similar to our findings. Such high exposure to advertisement and deals offered by tobacco companies might influence adolescent smoking.[10] These findings suggest the need for intensification tobacco control acts in Bangladesh.

This study had some limitations. First, the GYTS results represent only school going population aged 13–15 years present on the day of survey and might not represent all population in this age group in Bangladesh. Second, our study findings are based on self-reports from students who may under- or over-report their use of tobacco, behavior, and knowledge. Cultural norms and the unacceptability of smoking by girls in Bangladeshi society might result in underreporting of tobacco use.

Conclusion

Results of this study suggest that the current tobacco control programs need to be strengthened and enforcement of existing policies, as well as expansion into additional programs are priority public health problems in Bangladesh, failing which, tobacco attributed morbidity and mortality will continue to rise. There is a need to develop the smoking cessation support at both the health facility and the community levels.

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Conflicts of interest

There are no conflicts of interest.

References

1. Rao S, Aslam SK, Zaheer S, Shafique K. Anti-smoking initiatives and current smoking among 19,643 adolescents in South Asia: Findings from the Global Youth Tobacco Survey. Harm Reduct J 2014;11:8.
2. Rudatsikira E, Abdo A, Muula AS. Prevalence and determinants of adolescent tobacco smoking in Addis Ababa, Ethiopia. BMC Public Health 2007;7:176.
3. Smoking and Adolescence. Available from: http://www.drugabuse.gov/

publications/research-reports/tobacco/smoking-adolescence. [Lats accessed on 2016 Mar 05].
4. Islam SM, Purnat TD, Phuong NT, Mwingira U, Schacht K, Fröschl G. Non-communicable diseases (NCDs) in developing countries: A symposium report. Global Health 2014;10:81.
5. Warren CW, Lee J, Lea V, Goding A, O'Hara B, Carlberg M, *et al.* Evolution of the global tobacco surveillance system (GTSS) 1998-2008. Glob Health Promot 2009;16 2 Suppl: 4-37.
6. World Health Organization. Report on Global Youth Tobacco Survey (GYTS) and Global School Personnel Survey (GSPS) 2007 in Bangladesh. New Delhi, India: World Health Organization, Regional Office for South-East Asia; 2008.
7. Das S, Ghosh M, Sarkar M, Joardar S, Chatterjee R, Chatterjee S. Adolescents speak: Why do we smoke? J Trop Pediatr 2011;57:476-80.
8. World Health Organization. National tobacco control law. Bangladesh: WHO; 2014.
9. Agaku IT, Adisa AO, Akinyamoju AO, Agboola SO. A cross-country comparison of the prevalence of exposure to tobacco advertisements among adolescents aged 13-15 years in 20 low and middle income countries. Tob Induc Dis 2013;11:11.
10. Arora M, Gupta VK, Nazar GP, Stigler MH, Perry CL, Reddy KS. Impact of tobacco advertisements on tobacco use among urban adolescents in India: Results from a longitudinal study. Tob Control 2012;21:318-24.