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Original Research Article

Knowledge, attitudes and practices relating to tobacco smoking in undergraduate students in a selected university of Bangladesh

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ABSTRACT

Background: Tobacco smoking is one of the leading causes of preventable morbidity and mortality in the world, and is responsible for many premature deaths. The prevalence of smoking and smoking-related mortality are still high in developing and low-income countries. This survey was aimed to determine knowledge, perception and practices of tobacco smoking behavior in the undergraduate students of Bangladesh University of Health Sciences, Bangladesh.
Methods: A descriptive type of cross-sectional study was conducted among the Health Sciences students during January 2018. A self-administered semi-structured questionnaire was used for data collection from 260 undergraduate students. Data was analyzed using SPSS version 25 (Statistical Package for Social Studies).
Results: The prevalence of overall current tobacco smokers was 12.3% (21.2% for males and 0.9% for females). Nonsmokers had a better knowledge than smokers regarding smoking as a risk factor for lung cancer (98.4%; versus 92.9%; p=0.038), association between second hand smoke and serious illness (94.2% versus 82.9%; p<0.001) and likelihood of dying earlier than nonsmokers (84.2% versus 61.4%; p<0.001). In general, students had positive antismoking perception.
Conclusions: Despite having a good understanding of the detrimental effects of tobacco smoking, smoking prevalence among students at Bangladesh University of Health Sciences is high. To reduce smoking among university students, effective smoking prevention and cessation intervention programs are necessary.

Keywords: Bangladesh, Tobacco knowledge, Tobacco perception, Tobacco smoking, University students

INTRODUCTION

Tobacco smoking is one of the main causes of death worldwide.[1] It has become a global epidemic which has caused millions of people suffering from chronic disabilities and premature deaths.[2] It is estimated that, each year around 7 million deaths occur due to tobacco consumption; which is, more devastating than AIDS, tuberculosis, and malaria combined, WHO warns that tobacco could kill up to 1 billion people this century.[3] Among this 7 million, 6 million deaths are caused by direct tobacco use whereas around 890000 are the result of non-smokers being exposed to second-hand smoke.[4] It is also found that smokers who do not stop smoking lose an average life expectancy of 10 years compared to non-smokers and begin to suffer from old age diseases about 10 years before non-smokers.[5]

Though prevalence of smoking and mortality are decreasing in developed countries, those are still high at developing and low-income countries.[6] It is found 80% of the smokers live in low-income and middle-income countries.[6] Nearly two third of the world's population, aged 15 years or above, are smokers, the higher number

especially in developing countries.[7] Around 80% of the 1.1 billion smokers live in low- and middle-income countries, where the burden of tobacco-related illness and death is heaviest.[4]

According to the Global Adult Tobacco Survey Bangladesh (2017), 18% overall (19.2 million adults) currently smoked tobacco, 36.2% of them were men and 0.08% of them were women and 16.4% of the population daily smoked tobacco, 33.1% of them were men and 0.07% of them were women.[8,9]

Smoking causes cancer (mainly lung cancer), respiratory disease (mainly chronic pulmonary obstructive disease-COPD), and cardiovascular disease (mainly coronary heart disease), leading to death.[5] Smoking is an important factor in the risk of stroke, blindness, soreness, back pain, osteoporosis and peripheral vascular disease (leading to amputation).[5] On average, after the age of 40, smokers have higher pain and disability than nonsmokers.[5] There was a positive association between average daily cigarette consumption and the risk of smoking-related diseases, but the association is not linear in the case of cardiovascular disease, so that low levels of cigarette consumption carry a higher risk than would be expected from a simple linear relationship.[5] Studies suggested that nicotine damages the adolescent brain, but there is no evidence of clinically significant cognitive or emotional deficits in adults who smoked and then stopped during adolescence.[5]

Exposure to second-hand smoke poses a significant risk for both adults and children.[5] Nonsmokers exposed to a smoky environment are therefore also at increased risk of cancer, heart disease and respiratory disease.[5]

Unfortunately, nicotine addiction is most likely to develop during adolescence and it is found that adults are highly likely to become daily or regular smokers if they begin to use tobacco in their adolescence.[10] In Bangladesh, 18.94% of the people aged between 18-24 years are smokers.[10] About 17.62% of the total population were enrolled in universities for tertiary education in 2017, 20.63% of them were men and 14.48% of them were women.[11] This adds tremendous importance to conduct studies for assessing knowledge, perception and practices of undergraduate students of universities. There is little data regarding the knowledge, perception and practices among university students in Bangladesh though some studies conducted among school adolescents. Thus, the purpose of this study was to identify the knowledge, perception and practices of tobacco smoking behavior among the undergraduate students of a selected university of Bangladesh.

METHODS

Participants and study site

A descriptive type of cross-sectional study was conducted among undergraduate students of Bangladesh University of Health Sciences (BUHS), Bangladesh during January 2018. The students aged 18 years and above were included in the study. Masters' students and students who were not willing to participate in the study were excluded.

Sample size and sampling technique

Simple random sampling technique was conducted to obtain the desired sample. Overall percentage of current tobacco smokers in Bangladesh is 18%.[9] Thus, the calculated sample size for the study was 227 students with 95% confidence level, 18% proportion and total error margin of 5%. Considering the encouraging response from students, a total of 260 students were recruited in the study.

Research instrument and research tool

A semi-structured questionnaire was used for data collection. This questionnaire was adopted from previous studies and modified according to the condition and situation of the study area. The developed tool was pretested with 20 undergraduate students to test the feasibility of the proposed study.

Study variables

The response variables on knowledge, attitude and practice were coded as strongly disagree -1, disagree -2, do not know -3, agree -4 and strongly agree-5. Explanatory variables tested for association were gender, age, participant's academic semester, participant's residence during study, residential area of participant's family, household monthly income, participant's daily pocket money in BDT, presence of father in family, smoking history of participant's family (Does any member of your family smoke?) and psychological pressures.

Interview procedure

Two experienced data enumerators were trained to collect data. Based on the experience of the pilot study, undergraduate students were contacted in their classroom before or after lectures by student helpers. The data enumerators explained the research objectives, and distributed the questionnaire to students who gave written consent to participate. The students who consented were asked to complete the questionnaire in the classroom. Respondents required 12 to 15 minutes to complete the questionnaire. After completion of the interviews, data enumerators checked the questionnaires for completeness and, where needed, clarified responses with the participants.

Statistical analysis

The collected data were organized, tabulated, and statistically analyzed using SPSS version 25 (Statistical Package for Social Studies) created by IBM, Chicago, IL,

USA. For categorical variables, the frequency and percentage were calculated and differences between subcategories were tested by chi square (χ^2). When chi-square was not appropriate, Fisher's exact test was implemented. For numeric variables, frequency percentage, range, mean, SD were calculated. The level of significant was adopted at $p<0.05$.

RESULTS

Socio-demographic characteristics of respondents are shown in Table 1. Among the 260 respondents (mean age: 21.62±2.19), 146 (56.2%) were males (mean age: 22.18±2.26) and 114 (43.8%) were females (mean age: 20.89±1.88). The sample consisted of 70 (26.9%) smokers and 190 (73.1%) non-smokers. The highest prevalence of smoking was recorded in the mid-academic-year students (34.8%) followed by 21.2% for those first-academic-year pupils. Where lower prevalence was found in the final year students (2.3%). These differences were statistically significant ($p<0.05$).

Nearly half of the students (46.5%) live with their families followed by the students live alone or with friends (35.8%), where the highest prevalence of smoking was for students living with relatives (47.1%) followed by those living alone or with friends (36.6%). These differences were statistically significant ($p=0.004$). Students of rural residence showed a higher prevalence (34.9%) of smoking compared with their urban and semi-urban peers (25.7% and 23.9%, respectively) which was found not statistically significant ($p=0.423$).

Table 1: Socio-demographic characteristics of respondents and differences between smokers and nonsmokers.

Variables	Smokers (n=70), n (%)	Nonsmokers (n=190), n (%)	Total (n=260), n (%)	P value
Age				
<21	24 (19.4)	100 (80.6)	124 (100)	0.007_a
21-23	27 (29.3)	65 (70.7)	92 (100)	
>23	19 (43.2)	25 (56.8)	44 (100)	
Gender				
Male	65 (44.5)	81 (55.5)	146 (100)	$<0.001_a$
Female	5 (4.4)	109 (95.6)	114 (100)	
Academic year				
First year	24 (21.2)	89 (78.8)	113 (100)	0.038_a
Mid-year	40 (34.8)	75 (65.2)	115 (100)	
Final year	6 (18.8)	26 (81.3)	32 (100)	
Residence during study				
With family	24 (19.8)	97 (80.2)	121 (100)	0.004_b
With relative	8 (47.1)	9 (52.9)	17 (100)	
Student's residence (Dormitory)	4 (13.8)	25 (86.2)	29 (100)	
Alone or with friends	34 (36.6)	59 (63.4)	93 (100)	
Residence of family				
Urban	44 (25.7)	127 (74.3)	171 (100)	0.423_a
Semi-urban	11 (23.9)	35 (76.1)	46 (100)	
Rural	15 (34.9)	28 (65.1)	43 (100)	
Presence of father in family				
Living in together in same house	48 (24.9)	145 (75.1)	193 (100)	0.014_b
Working outside Bangladesh	8 (22.2)	28 (77.8)	36 (100)	
Died	9 (36.0)	16 (64.0)	25 (100)	
Separated/divorced	5 (83.3)	1 (16.7)	6 (100)	
Household monthly income in BDT				
Lower income (≤8000 BDT)	6 (46.2)	7 (53.8)	13 (100)	0.230_b
Lower middle-income (8001-15000 BDT)	11 (28.9)	27 (71.1)	38 (100)	
Middle income (15,001-30,000 BDT)	22 (32.4)	46 (67.6)	68 (100)	
Higher middle-income (30,001-60,000 BDT)	19 (20.7)	73 (79.3)	92 (100)	
Higher income (>60,000 BDT)	12 (24.5)	37 (75.5)	49 (100)	

a. χ^2 test; b. Fisher's exact test

Table 2: Association of smoking history of family and psychological pressures with smoking status.

Variables	Smokers (n=70), n (%)	Nonsmokers (n=190), n (%)	Total (n=260), n (%)	P value
Smoking history of participant's family				
Yes	40 (38.5)	64 (61.5)	104 (100)	0.001a
No	30 (19.2)	126 (80.8)	156 (100)	
Psychological pressures				
No	18 (15.7)	97 (84.3)	115 (100)	<0.001b
Rarely	16 (59.3)	11 (40.7)	27 (100)	
Sometimes	28 (25.9)	80 (74.1)	108 (100)	
Most of the times	8 (80.0)	2 (20.0)	10 (100)	

a. χ^2 test; b. Fisher's exact test

Household with lower income showed higher prevalence (46.2%) of smoking followed by 32.4% for those with middle-income range. Household monthly income had no significant effect on smoking prevalence (p=0.230).

Students reporting the absent of a father in the family due to divorce or separation showed a higher prevalence of smoking of 83.3% compared to others. Presence of fathers in the family had a significant effect on the prevalence of smoking.

Family history of smoking significantly (p=0.001) affected smoking prevalence where the prevalence was highest (38.5%) among those who belonged to families with smoking history. Psychological pressure had a highly significant effect on smoking prevalence (p<0.001) and the prevalence was highest among those who feel psychological pressures most of the times (80.0%).

Table 3: Practice related to tobacco smoking.

Items	Total n (%)
Experimented with cigarette smoking, even one or two puffs	
Yes	70 (26.92)
No	190 (73.08)
Smoking history	
I have never smoked (nonsmoker)	190 (73.1)
I previously smoked (ex-smoker)	17 (6.5)
I smoke now (current smoker)	32 (12.3)
I smoke a little (occasional smoker)	21 (8.1)
Stage of starting smoking	
Primary education	1 (3.1)
Secondary education	11 (34.4)
Higher secondary education	13 (40.6)
University education	7 (21.9)
Number of cigarettes smoked daily	
1 cigarette per day	3 (9.4)
2 to 5 cigarettes per day	23 (71.9)
6 to 10 cigarettes per day	5 (15.6)
11 to 20 cigarettes per day	1 (3.1)

The overall prevalence of current tobacco smoking was found at 12.3%, 21.2% of males and 0.9% of females currently smoked tobacco. The majority of current smokers started smoking from higher secondary education (40.6%) followed by secondary education (34.4%) where the primary education had the lowest prevalence of 3.1%. Of all the participants, 26.92% tried with cigarette smoking for even one or two puffs.

Table 4: Comparison of smoking-related knowledge between smokers and non-smokers.

Knowledge	Smokers n (%)	Non-smokers n (%)	P value
Smoking is harmful	66 (94.3)	185 (97.4)	0.087
Smoking causes lung cancer	65 (92.9)	187 (98.4)	0.038
Smoking causes heart attack	61 (87.1)	165 (86.8)	0.351
Smoking causes stroke	60 (85.7)	159 (83.7)	0.489
Secondhand smoke cause serious illness	58 (82.9)	179 (94.2)	<0.001b
You will avoid or decrease serious health problems by quitting smoking	61 (87.1)	174 (91.6)	0.419
Nicotine is a drug and it is addictive	62 (88.6)	180 (94.7)	0.134
Smokers usually die younger than nonsmokers	43 (61.4)	160 (84.2)	<0.001b

a. χ^2 test; b. Fisher's exact test

Table 4 shows the difference in knowledge between smokers and non-smokers. The knowledge about smoking causes lung cancer (p=0.038), secondhand smoke causes serious illness (p<0.001) and smokers usually die younger than nonsmokers (p<0.001) was significantly higher for non-smokers than smokers.

Table 5: Perception towards tobacco smoking among all respondents.

Statement	Strongly agree/agree	Do not know	Strongly disagree/disagree
Advice to quit smoking is more acceptable from non-smoking students	76.5%	10.4%	13.1
Students should be non-smoking model for the nation	90.0%	2.3%	7.7%
Selling tobacco products to adolescents should be prohibited	86.9%	5.8%	7.3%
Smoking increases attractiveness of the smokers	55.0%	14.2%	30.8%
Smoking is a personal matter that should not concern students	24.2%	10.0%	55.8%
Smoking helps to socialize and have friends	19.6%	9.2%	71.2%
Smoking should be prohibited at workplace	85.4%	7.3%	7.3%
Information about smoking hazards should be included in university courses	85.0%	6.2%	8.8%
Youth smoking is a problem in Bangladesh	92.3%	3.8%	3.8%
Youth should not have a right to smoke if he or she wishes	63.5%	13.5%	23.1%
Media (cinema, newspaper, social sites, advertisement and others) has influence on youth smoking	78.7%	11.2%	10.1%

Perception towards tobacco smoking among respondents

In the research, a majority of the respondents revealed negative perceptions of cigarette smoking. They agreed that tobacco was a poor practice that would cause negative health impacts. They also agreed that tobacco is a youth problem in Bangladesh, selling tobacco products, smoking should be prohibited at the workplace and information about the adverse effects of smoking should be included in a university course. The responses to the details were shown in Table 5.

DISCUSSION

The overall prevalence of current smoking among undergraduate students was 12.3% which was found to be 21.2% and 0.9% of male and female participants, respectively. These results were lower than that of the general population, estimated as 36.2 and 0.8% of males and females, respectively.[9]

The prevalence of tobacco smoking was lower in most neighboring countries than study population. In India, the prevalence for males (19.0%) was lower and for females (2.0%) was higher than study population, where in Myanmar, the prevalence for current smokers was 36.1 and 6.6% for males and females, respectively.[9] Study conducted in Nepal found that 27.0 and 10.3% of males and females currently smoked tobacco, respectively.[12]

The smoking rates among female students were lower in this study that is analogous to the results rumored from alternative surveys. In Asian countries, that area unit typically conservative society, smoking is taken into account as unacceptable and thought to offend the social customs. However, as compared to previous surveys there's was small increase in smoking rates among feminine students.[12] This could be attributed to improvement in women's rank i.e. education, employment, urbanization and conjointly promoting of lighter cigarettes to make those attractive to girls by the tobacco industry.[12]

Age, gender and academic year had a significant association with tobacco smoking in this study. As for age, there was a significant relationship (p=0.007) between age and tobacco smoking behavior. The highest prevalence of cigarette smoking was found in older age students, with tobacco smoking percentage increasing with advancing age. This finding was not comparable with a study conduce in Pakistan, which found the opposite direction of the relationship.[12]

This study reveals that mid-year students tend to smoke more than others, similarities found in an analogous type of study.[13] Apparently, smoking prevalence might not increase with academic year, where some studies stated the opposite.[14]

In this study, tobacco smoking is more prevalent among those who feel psychological pressures most of the times. In another study, no significant effect was found.[14] In Bangladesh, psychological pressure is one of the most dominant cause of tobacco smoking initiation.[13]

This study indicates the highest prevalence of tobacco smoking among the students with rural residence. This may be due to the lack of proper knowledge about the harmful consequences of tobacco smoking.

Non-smokers had higher knowledge than smokers in this study. Smokers are less likely to believe that secondhand smoke cause serious illness (p<0.001) and smokers usually die younger than non-smokers (p<0.001). Overall knowledge of participants of the present study was higher than India, China and some African countries, for instance Nigeria.[12]

This study has certain limitations. First, as smoking is socially unacceptable in the Bangladeshi community especially for women, under-reporting and may be over-reporting thus could not be ruled out. Second, self-administered questionnaire was used to determine smoking habits and related risk factors among the students without physiological or biochemical measurements of nicotine levels or any other method to confirm tobacco use. Finally, as the study was conducted in one private university of Bangladesh, it may not be fully representative to all undergraduate students of this country studying at different universities.

CONCLUSION

This survey indicated that students had an antismoking perception and good knowledge in general. This survey also identified a high prevalence of smoking cigarettes among BUHS students, which can constitute a major public health problem in the future. This study's findings show that in order to minimize smoking among university students, comprehensive smoking prevention and cessation intervention programs are needed.

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