Tobacco Use Insights

Prevalence and Pattern of Smoking among Bus Drivers of Dhaka, Bangladesh

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ABSTRACT

BACKGROUND: Smoking is an increasingly prevalent habit in Bangladesh, particularly among men with low socioeconomic status.

AIM: The aim of this study was determining the prevalence and pattern of smoking among bus drivers of Dhaka city, Bangladesh.

METHODS: A cross-sectional study was carried out from 15 to 26 March 2013 among four hundred bus drivers of Dhaka city, Bangladesh aged between 18 and 50 determining the prevalence, pattern, and socioeconomic determinants of smoking. Data were input into a pre-designed access database with data management and analysis using standard statistical tools (SPSS-15) to assess significance through cross-tabulation.

RESULTS: The overall prevalence of smoking among bus drivers was 93%, and 20% of their daily income was spent on smoking. Though most (32.3%) of the drivers started smoking before involving in driving profession, but excessive smoking had been promoted by occupational and environmental stress experiencing hectic work schedule. Individuals with no education were three times (odds ratio (OR) 2.8; 95% CI 1.2–6.13) more likely to be smoker. Smoking was detected among 53.2% of smokers aged 26 or above ($\chi^2 = 8.30$, $P < 0.05$), and they showed significantly high prevalence. The reasons behind smoking were almost exclusively habit (38.1%), peer influence (26.8%), and thinking of stress relief (25.3%). Smoking can also worsen poverty among users and their families because most of the drivers reported chest pain (34.4%), heart disease (25.8%), and other health complications caused by smoking depriving families of much-needed income and imposing additional costs of health care.

CONCLUSION: Interventions and preventions by policy makers, public health experts, and other stakeholders should be introduced considering high prevalence of smoking among Bangladeshi bus drivers with detrimental health sequel.

KEYWORDS: smoking, bus drivers, Dhaka city, low socioeconomic status, environmental stress, peer influence, health complications

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Introduction

Smoking is one of the leading causes of premature death particularly in developing countries,[1] counting about 6 million deaths each year that is expected to reach at 8 million yearly by 2030.[2] Bangladesh is one of 10 countries that make up two-thirds of the world population of smokers[3] involving approximately 43% of adults into smoking.[4] The prevalence of smoking among adult males in Bangladesh was 46.36% in 2009, whereas a slight increase was observed from 43.3% in 2011[5] to 60% in 2013.[6] Smoking is the leading cause of preventable illness and death worldwide. Worldwide tobacco-attributable deaths were 4.83 million in 2000,[7] which are projected to reach at 6.4 million in 2015 and 8.3 million in 2030. It causes many different cancers as well as chronic lung[4,8] and heart disease.[9,10] Smoking-related diseases kill 1 in 10 adults globally increasing the risk for cardiovascular diseases, cancer, and respiratory diseases.[11–13]

In the past 10–15 years, manufactured cigarettes'[14] consumption has more than doubled.[15,16] The cost of tobacco consumption at the national level is found to be associated with the increased health-care costs, loss of productivity because of illnesses and early deaths, and environmental damages.[17] Multiple levels of influence[18] from intra-individual factors

to social influences cause influence on smoking. Arguably having greater stresses, financial incompetence, lack of educational potentiality, people of lower class are more addicted to cigarette smoking compared to rich. A total of 71% of men of the lower socioeconomic class in Bangladesh are smokers. Men who work long hours or are in high stress jobs are more likely to smoke. The bus drivers who smoke always keep their daily income aside for smoking. Sometimes, they maintain budget at the cost of his/her personal losses, family losses that lead social losses as a whole. The objective of this present study was to determine the prevalence and pattern of smoking among Bangladeshi bus drivers living a life below standard considering socioeconomic impact on national growth and prosperity.

Methodology

A cross-sectional study was carried out from 15 to 26 March 2013, among bus drivers of Dhaka city, Bangladesh. A total number of 450 bus drivers aged between 18 and 50 were randomly selected from different routes of bus stands located in different areas of Dhaka city, Bangladesh. The size of the total pool for registered bus drivers of Dhaka city was 1000, which has been obtained from the Dhaka Metropolitan Data Record system. Considering an expected prevalence of 50% and using a confidence level of 95%, the sample size of the cross-sectional study was calculated as 450. Drivers who were regular in their profession were included in the study and those who were not currently involved in driving were excluded from the study. All of them ($N = 450$) were well informed about the study subject and procedure, and requested to be a part of the study. Among them, 400 bus drivers (88.9%) agreed to continue the study with their direct cooperation. Another 50 (11.1%) bus drivers refused to be a part of the study showing different reasons. There were no specific reasons to refuse their participation from the study showing only personal matter. A semi-structured pre-tested questionnaire was developed considering bus driver's socioeconomical status including their age, educational level, working hour, daily income, smoking habit, expenditure on smoking, number of cigarettes used by drivers, associated disease pattern, and cause and effective triggering factors behind their smoking, and administered to respondents by a team of investigators. Data were collected through each interview section. All of the collected data were analyzed by using SPSS v-15.0 program. Descriptive statistics including mean and standard deviation were obtained. All analysis was done with the test of significance (P value, chi-square).

Results

This paper represents prevalence, pattern, and socioeconomic impact of smoking among bus drivers of Dhaka city, Bangladesh. After surveying on 400 bus drivers and comparing various data, it was found that 93% of respondents were smokers whereas only 7% reported to be non-smokers. Smokers aged 26 or above showed the highest frequency of smoking (53.2%). In the survey, it was found that most of the smokers (60.5%) were illiterate, where completion of primary level of education was reported by 39.5%. All the cases started their smoking between the age of 13 and 26 (mean 19.24; SD 3.1). Most of the smokers (53.8%) started their smoking aged 13–18 indicating the initiation of smoking before reaching their adulthood. Most of the drivers (54.2%) reported to be in driving profession for more than eight years (mean 8.96; SD 7.2). A total of 26.8% smokers used about 5–20 cigarettes per day, whereas 21–40 and more than 40 cigarettes were used by 44.9 and 22.9% smokers, respectively. The mean income of smokers was reported as 477.50 BDT (SD 104.5). Considering the price of cigarettes, it was identified that smokers loss about 20% of their daily income on purchase of cigarettes. In all, 38.1% of the smokers smoke because of pleasure or habit; on the other hand, 25.3 and 26.9% smoke wishing to get relief from tension and influenced by others, respectively. Among all the stressful conditions each of the smokers faced, traffic jam (37.6%) was being reported as the most stressful event where drivers were supposed to smoke more. In Dhaka city, traffic jam is one of the most common phenomenons that has been faced by bus drivers during their working period. In all, 22, 21.2, and 15% of people were reported to promote excessive smoking because of occupational stress, financial condition, and family crisis, respectively. Chest pain (34.4%), heart disease (25.8%), pulmonary disease (17.2%), and gastric (25.8%) were detected among these smokers by self-report. Table 1 shows the details on habits and patterns of smoking of the respondents. Most of them (68.8%) wanted to stop smoking, but the cruel truth is that they do not know how to stop.

Unadjusted odd ratio for smoking by age of respondents was established in this study. Smoking was found to be significantly associated with age and educational level. Respondents aged 26 or above (odds ratio (OR) 3.4; 95% CI 1.4–8.21) and respondents lacking education (OR 2.8; 95% CI 1.2–6.13) were more likely to be smokers (Tables 2 and 3).

Smoking was detected among 53.2% of smokers aged 26 or above ($\chi^2 = 8.30$, $P < 0.05$) and 60.5% of smokers lacking education ($\chi^2 = 6.59$, $P < 0.05$), respectively, showing significantly high prevalence (Table 4).

Among the considered factors affecting smoking, age and education have substantial effect on smoking. Age and status of illiteracy were positively correlated with smoking; although the amount of correlation is weak, but they surely have a noticeable influence on smoking (Table 5).

Discussion

In this survey on 400 bus drivers of Dhaka city, Bangladesh, it was found that prevalence of smoking was 93% whereas only 7% were reported to be non-smokers. This study shows the highest prevalence of smoking among bus drivers of

Table 1. Habits and patterns of smoking among bus drivers.

CHARACTERISTICS	RESPONDENTS (%)
Smoking pattern	
Smoker	372 (93%)
Nonsmoker	28 (7%)
Smoking by age group	
18–25	174 (46.8%)
26–50	198 (53.2%)
Smoking by educational level	
Literate	147 (39.5%)
Illiterate	225 (60.5%)
Smoking initiation by age	
13–18	200 (53.8%)
19–26	172 (46.2%)
Smoking agent (Cigarette) used by smokers	
5–20	100 (26.8%)
21–40	167 (44.9%)
>40	104 (22.9%)
Reasons behind smoking	
Habit/pleasure	142 (38.1%)
Relief from tension/stress	94 (25.3 %)
Peer influence	100 (26.9%)
Others	31 (8.3%)
Stressful conditions promoting excessive smoking	
Traffic jam	140 (37.6%)
Occupational stress	82 (22%)
Financial stress	79 (21.2%)
Family crisis	56 (15%)
Others	15 (4.2%)
Health complications among smokers	
Chest pain	128 (34.4%)
Gastric	80 (21.5%)
Heart disease	96 (25.8%)
Pulmonary disease	64 (17.2%)
Others	4 (1.1%)

Table 2. Unadjusted ORs for smokers by age.

	SMOKERS	
AGE	n	OR (95% CI)
≥26	198	3.4; 1.4–8.2

prevalence of smoking was 68%.[22] The overall prevalence of tobacco use was 85.9% in another prospective study among power loom workers.[23] Another study showed the prevalence of smoking was 66.3% among the workers of asbestos processing plant. This study showed the highest prevalence of smoking in Bangladeshi population with low socioeconomic status.

Different levels of sociodemographical status were associated with smoking in drivers of Dhaka city, Bangladesh. Among the considered factors affecting smoking, age and education have substantial effect on smoking. Age and status of illiteracy were positively correlated with smoking; although the amount of correlation is weak, but they surely have a noticeable influence on smoking. Smoking was more prevalent among the age group of 26 or above. Educational level was also a determinant of smoking among the respondents of the study. Lacking education was directly related to smoking. Individuals with no education were 2.8 times (OR 2.8; 95% CI 1.2–6.13) more likely to smoke. A population-based cross-sectional study in Brazil showed that smoking is associated with education level, whereas lacking education is related to smoking (OR 1.35).[24] This study also represents that smoking was more prevalent among illiterate bus drivers compared to literate individuals. Highest tobacco consumption was observed in another study among the illiterate and low educational status subjects as compared to more literate.[25] Educational level was inversely associated with tobacco use in another population-based cross-sectional study in India.[26] Another study in India shows that men with no education were 1.8 (1.5–2.0) times more likely to be smokers than those with college education,[27] whereas this study's result also shows that drivers with no education were 2 times more likely to be smokers. It was reported by most of the drivers (53.8%) that they started their smoking before the age of 15 (13–26). It indicates most of them started smoking before reaching adulthood. Smokers started smoking either for pleasure or environmental influence, but with time it turned into a habit. Some reported smoking wishing to reduce tension or work pressure. It was observed that involving in driving profession facilitates the smoking initiation

Bangladesh. A study showed the prevalence of smoking among rickshaw pullers of Dhaka city, Bangladesh was 75.9%,[19] whereas this study showed the prevalence among bus drivers of Dhaka city, Bangladesh was 93%. Another study showed the prevalence of tobacco consumption was 59% among Bangladeshi adult men;[20] whereas the result of this current study showed the highest prevalence. Another study on male population of Bangladesh showed the prevalence of smoking was 53.6%.[21] Thus, the current study features the increasing trend in smoking among Bangladeshi population. A study on slum dwellers of Dhaka city, Bangladesh also showed the

Table 3. Unadjusted ORs for smokers by educational level.

	SMOKERS	
EDUCATIONAL LEVEL	n	OR (95% CI)
Illiterate	225	2.8; 1.2–6.13

Table 4a. Distribution of smokers according to being in specific age groups.

CHARACTER	PRESENT/ ABSENT	18–25 YEARS	26–50 YEARS	STATISTICAL VALUES
Smoking	Present	174 (46.8%)	198 (53.2%)	$\chi^2 = 8.30$, $P < 0.05$
	Absent	21 (75%)	7 (25%)	

Table 5. Correlation analysis.

CORRELATIONS			
	SMOKING	ILLITERACY	AGE
Smoking	1	**0.186**	**0.166**
Illiteracy	0.186	1	−0.008
Age	0.166	−0.008	1

as well as continuation. The mean income of smokers was reported as 477.50 BDT (SD 104.5). Considering the price of cigarettes, it was identified that smokers loss about 20% of their daily income on purchase of cigarettes that showed economical burden on low-income driver society. It facilitates poverty among low-income society. Occupational and environmental stress promotes excessive smoking behavior among drivers all day long.

Most of the drivers reported to have different types of diseases caused by smoking with heart disease and chest pain more prevalent. Tobacco consumption was associated with cardiovascular disease in a case–control study in Bangladesh.[28] An elevated risk of death from ischemic heart disease (OR 1.87, 1.08 3.24) was associated with current cigarette/bidi smoking in a study in Bangladesh.[29] In India, about 32% of tuberculosis deaths can be attributable to smoking.[30] This study also showed the risk of cardiovascular disease among bus drivers.

It is hard to believe but is a fact that smoking creates multitude diseases that ultimately lead to disability or death. Most of the drivers well knew about the detrimental health effect of smoking, and most of them wanted to quit smoking, but they did not find any suitable strategy.

Our study has a number of limitations. The data were self-reported, and the study is cross-sectional and does not infer causal relationships. Furthermore, we examined only one city of Bangladesh; caution should be taken to generalize the data for other zones outside Dhaka city.

Conclusion

Tobacco expenditures exacerbate the effects of poverty and cause significant deterioration in living standards among the poor Bangladeshi people. Expenditure on tobacco, particularly cigarettes, represents a major burden for impoverished Bangladeshis. Most of the bus drivers in our country are not able to support their children's education, living costs, shelter, and nutrition although they maintain their smoking costs promoting a vicious circle of poverty. By monitoring tobacco use and prevention policies; protecting people from tobacco use; offering help to quit tobacco use; warning about the dangers of tobacco; enforcing bans on tobacco advertising, promotion, and sponsorship; and raising taxes on tobacco, prevalence of smoking would be controlled.

Recommendations

1. Smoking is more prevalent among illiterate people. Hence, both government and non-government efforts to improve education among the general population should be in place.
2. Peer influence is considered a predictor for smoking initiation. Hence, parents should be careful about the environment in which their children spend time.
3. Tax should be enforced on smoking products, for both importation and purchase.
4. Government should take some steps to stop people smoking in public places, especially on public vehicles.

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Author Contributions

Conceived and designed the experiments: SG. Analyzed the data: SG. Wrote the first draft of the manuscript: SG. Contributed to the writing of the manuscript: SG. Agree with manuscript results and conclusions: SG and MSB. Jointly developed the structure and arguments for the paper: SG and MSB. Made critical revisions and approved final version: SG and MSB.

Table 4b. Distribution of smokers according to the presence or absence of specific educational level.

CHARACTER	PRESENT/ ABSENT	ILLITERATE	LITERATE	STATISTICAL VALUES
Smoking	Present	225 (60.5%)	147 (39.5%)	$\chi^2 = 6.59$, $P < 0.05$
	Absent	10 (35.7%)	18 (64.3%)	

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