

Original article

Teachers Perception on Tobacco Free School in Bangladesh

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Abstract:

Introduction: Comprehensive tobacco-free school policy benefits everyone by reducing exposure to second-hand smoking and creating a system that reinforces tobacco-free norm and attitudes, which in turn affect tobacco use having an impact on the health of the community.

Objective: This study aims to assess the perception of teachers on tobacco free school environments and factors supporting it. **Methods:** A two-stage cluster sampling technique was used for the selection of schools with selection probability proportional to enrolment size followed by stratified random sampling of government and private schools. Data were collected from 559 secondary school teachers using a structured questionnaire. **Results:** Estimation indicated that 48.3% (95% CI: 44.5%, 52.6%) of the teachers were less supportive and 51.7% (95% CI: 47.4%, 55.5%) were more supportive for smoking free school. Logistic regression analysis revealed that non tobacco user teachers were more likely to be supportive (OR=1.891, 95% CI: 1.197, 2.986) for tobacco free school. However, no statistically significant association was found between perceived supportive tobacco free school and age, sex, level of education, type of school and family size (p>0.05). Exposure to second hand smoking and curriculum content of tobacco issues were not significantly related with tobacco free school. **Conclusion:** Comprehensive school based programme with participation of school personnel and community can effectively implement tobacco free school programmes.

Keywords: Bangladesh; secondary school teachers; second hand smoking; tobacco free school

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Introduction:

Adolescents worldwide, should be adopting a healthy lifestyle, is increasingly acquiring a deadly habit. Adolescent tobacco use is rising worldwide¹. The prevalence of tobacco use among adolescents varies from, a prevalence of 9.1% male and in 5.1% female in Bangladesh as against 15.4% and 11.1%, in the United States². Adolescent smoking is associated with a variety of socio-cultural and behavioural factors such as age, ethnicity, family structure, parental socioeconomic status, personal income,

parental smoking, parental attitude, sibling smoking, peer smoking, peer attitude and norms, family environment, attachment to family and friends, school factors, risk behaviours, lifestyle, stress, depression/distress, self-esteem, attitude, and health concern³. Other identified determinants are tobacco use among adolescents include exposure to parental and teacher smoking⁴. A recent prospective cohort study in Brazil found that social environment and circumstance such as single parenting, alcoholism and low socioeconomic status are early determinants

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of smoking among adolescence⁵. Study in Bangladesh found that smoking by teachers appeared to be a strong predictor of students smoking behaviour⁶. Students smoking behaviour is closely linked to the school environment especially the teacher's use of tobacco. Although Article 16 of the Framework Convention on Tobacco Control (FCTC) exists to

premises is almost non-existent. Teachers may be prohibited from smoking within the class or within the school, but it does not discourage them outside the school premises. A Malaysian survey in 1994 reported that 20% of high school teachers were current smokers⁸. Tobacco free school policy exists in many countries and it is vitally important that managers

Table 1 Socio-demographic characteristics of the teachers (n=559)

<i>Characteristics</i>	<i>Frequency</i>	<i>%</i>	<i>95% CI</i>	
			<i>Lower bound</i>	<i>Upper bound</i>
Age in years				
<40	304	54.4	50.3	58.5
≥40	255	45.6	41.5	49.7
Sex				
Female	167	29.9	26.3	33.5
Male	392	70.1	66.5	73.7
Designation				
Head teacher	35	6.3	4.5	8.4
Assistant teacher	495	88.6	85.9	91.1
Others	29	5.2	3.4	7.2
Level of education				
Secondary	82	14.7	11.8	17.5
Graduate	177	31.7	28.1	35.4
Master	300	53.7	49.9	57.8
Monthly expenditure (Tk)				
≤5000	61	10.9	8.4	13.8
5001-10000	187	33.5	29.7	37.4
10001-15000	183	32.7	28.8	36.9
>15000	128	22.9	19.5	26.3
Family size				
<6	388	69.4	65.8	73.2
≥6	171	30.6	26.8	34.2
Ceiling materials				
Tin	328	58.7	54.6	62.6
Concrete	231	41.3	37.4	45.4
Type of school				
Government	323	57.8	53.7	61.9
Private	236	42.2	38.1	46.3

prohibit sale of tobacco products to minors and Article 8 allows countries to enact laws to protect public from exposure to tobacco smoke which covers schools⁷. However, enforcement of law is weak, especially in schools, where most countries have designated as a tobacco free premises, having a written school policy on teacher smoking within and outside school

premises is almost non-existent. Teachers may be prohibited from smoking within the class or within the school, but it does not discourage them outside the school premises. A Malaysian survey in 1994 reported that 20% of high school teachers were current smokers⁸. Tobacco free school policy exists in many countries and it is vitally important that managers of schools and teachers implement this policy strictly. A written and strictly enforced school policy significantly reduces the prevalence of daily smoking in schools⁹⁻¹¹. Tobacco free school policy also influences teacher's behaviour in school. It was reported that in schools which apply non-smoking regulation or advocate anti-tobacco, the percentage of teachers smoking in front of pupils is significantly lower¹². Unfortunately, teachers themselves, who are role models for their students, smoke and many admit smoking on school premises. A study in Denmark found that almost 90% of students have seen a teacher smoking within school premises although a school no-smoking policy exists¹³, but is poorly enforced. Tobacco use among teachers in school influences

of schools and teachers implement this policy strictly. A written and strictly enforced school policy significantly reduces the prevalence of daily smoking in schools⁹⁻¹¹. Tobacco free school policy also influences teacher's behaviour in school. It was reported that in schools which apply non-smoking regulation or advocate anti-tobacco, the percentage of teachers smoking in front of pupils is significantly lower¹².

smoking behaviour of school students and having a strict tobacco-free policy in school reduces smoking among school students^{9,14}. Teachers play an important role in implementing this policy and yet there is a paucity of research on the teacher's perception of this policy. The objective of this study was to examine the determinants of teacher's perception on tobacco free school policy in Bangladesh.

Materials and Methods:

Study design and sampling procedure: This was a school-based cross-sectional study conducted in all administrative divisions of Bangladesh. A multistage

characteristics, smoking habits and its pattern, perception on smoking free school, exposure to second hand smoking, tobacco related curriculum in school. Each item had a multiple-choice question with a single answer. There was no skipping or branching pattern of any question. Data were collected by using an anonymous self-administered questionnaire. Informed verbal consent from the school authority was obtained after explaining the purpose of the study. The questionnaire was distributed to the teachers after explaining the purpose of the study and the instructions to fill in the questionnaire. Teachers

Table 2 Percentage distributions of teachers by perceptions on strategies for tobacco free school

Policy options	n	Strongly agree	Agree	Disagree	Strongly disagree
Smoking in the hostel	553	0.5	0.5	9.8	89.2
Smoking in the dining hall	553	0.5	0.2	10.8	88.4
Smoking by less than 18 years	556	0.5	0.2	14.4	84.9
Smoking in all the buildings in school	553	1.1	0.5	12.5	84.8
Smoking in the canteen	556	0.4	0.9	15.8	82.9
Sale tobacco product in the school	556	0.5	1.1	18.0	80.4
Giving cigarette, bidi or tobacco product to the persons aged less than 18 years	555	0.4	0.4	21.1	78.2
Tobacco advertisement in the educational campus	556	4.3	1.8	16.5	77.3
Participation and donation of fund for school cultural show, prize etc by the tobacco company	556	1.1	2.7	27.3	68.9

were assured that the information they provided would remain confidential and were encouraged to be honest in their responses. They were informed that their participation was voluntary and they could withdraw from the study at any time. The study proposal was approved by the Technical Review Committee of the Directorate General of Health Services (D G H S), Bangladesh. The field operation was conducted after obtaining the permission

cluster sampling technique was adopted to select 30 districts using probability proportional to enrolment (PPE), i.e. schools with a high number of students were more likely to be selected than schools with a small number of students. In the second stage, all the schools in the district were divided into government and private, and one school from each selected district was then selected randomly. All the available teachers on the day of the survey were included in the sample.

Instruments development and data collection procedure: A structured questionnaire was developed consisting of socio-demographic

from the Directorate of Secondary and Higher Education, Ministry of Education and of the Headmasters of the selected schools. Ethical clearance was also taken from the Institutional Review Board (IRB) of the National Institute of Preventive and Social Medicine (NIPSOM), Mohakali, Dhaka-1212.

Data analysis: Incomplete and inconsistent data were discarded and were not included for final analysis. Finally, data from 559 respondents were used for analysis. Data analyses were done using SPSS version 19 software (Statistical Package for Social Sciences). Simple frequencies, bi-variate, multivariate analyses were done as appropriate. Statistical significance was

tested at 5% probability level.

Results:

Socio-demographic characteristics

A total of 559 secondary school teachers were participated in the study. The mean age of the teachers was 40.0 (95% CI:38.4, 39.8 years) years. More than two-thirds of the teachers were male (70.1%) and the rest were female (29.9%). The majority of the teachers were assistant teachers (88.6%) followed by head teacher (6.3%). More than half of the teachers had a master’s level of education (53.7%) followed by graduation (31.7%). The mean monthly expenditure of the teachers was Tk. 12694 (95% CI: 12160.2, 13260.0). The mean family size of teachers was 5.11 (95% CI: 4.94, 5.28) with 69.4% had a family size less than 6 members and 30.6% had more than 6 members. Two-fifths (41.3%) of the teachers had a good economic condition with house ceiling made of concrete. More than half (57.8%) of the teachers were from government schools and the rest were from private schools (Table 1).

Perceptions on strategies for reducing smoking

Table 2 refers to the teacher’s perception on different strategic options for smoking free school. There were ten questions with four answer options. Each question was scaled at 1 for ‘strongly agree’, 2 for ‘agree’, 3 for ‘disagree’ and 4 for ‘strongly disagree’. Positive or supportive attitude toward smoking free school was indicated by higher score. However, the last question of imposing penalty for sale of tobacco product in the campus was reverse score that is 4 marks were given for ‘strongly agree’ and so on. Eighty to 90% of the respondents were strongly disagreeing on smoking in the hostel (89.2%), smoking in the dining hall (88.4%), smoking by less than 18 years (84.9%), smoking in all the buildings in schools(84.8%), smoking in the canteen (82.9%) and sale tobacco product in the schools(80.4%). Seventy to 80% of the respondents strongly disagreed for giving cigarette, bidi or tobacco product to persons aged less than 18 years (78.2%), tobacco advertisement in the educational campus (77.3%) and participation and donation to fund for school cultural show, prize etc, by the tobacco company (68.9%). Only half (51.5%) of the teachers strongly agrees for imposing penalty for sale of tobacco product in school campuses’. After excluding missing data, log transformation was done for skewed distributions of score on perception. Then the data were classified into “less supportive” for less than 50th percentile and “supportive” for score more than the 50th percentile. Estimation indicated that 48.3% (95% CI:44.5%, 52.6%) of the teachers were

less supportive and 51.7% (95% CI: 47.4%, 55.5%) were strongly supportive for tobaccofree school.

Factors influencing smoking free school

environment: Logistic regression analysis

To identify the factors influencing perceived smoking free school environment, a logistic regression model was fitted with supporting smoking free school (dichotomous) being the dependent variable, and the selected independent variables on socio-demographic characteristics, environmental

Table 3 Teacher’s perceptions of supportive smoking free school policy: Logistic regression analysis

Independent variable	Odds ratio	95% CI	
		Lower bound	Upper bound
Age in years			
<40	1.396	0.984	1.981
≥40 (RC)	-	-	-
Sex			
Female	1.474	0.988	2.199
Male (RC)	-	-	-
Level of education			
Secondary (RC)	-	-	-
Graduate	1.365	0.785	2.373
Master	1.388	0.796	2.418
Family size			
<6	1.304	0.896	1.898
≥6 (RC)	-	-	-
Type of school			
Government	1.371	0.902	2.082
Private (RC)	-	-	-
Tobacco use			
No	1.891**	1.197	2.986
Yes (RC)	-	-	-
Constant	0.252***		
Model chi square	34.448		
df	7		
n	553		

p value *<0.05; ***p*<0.01; ****p*<0.001; Hosmer and Lemeshow test >0.05
RC (Reference category)

variables showing statistical significance in the chi-square analyses. Although several factors were significantly associated with the supportive smoking free environment in bi-variate analysis, in logistics analysis, only current smoking were appeared to be an important influencing factor for smoking free school environment ($p < 0.05$). The result showed that non-smoker teachers were more likely to be supporting (OR=1. 891, 95% CI: 1.197, 2.986) for smoking free school. However, no statistically significant association was found between perceived supportive smoking free school and age, sex, level of education, type of school and family size ($p > 0.05$).

Discussion:

Enforcement of tobacco free premises in any environment has been shown to reduce the prevalence and consumption of tobacco use^{15,16}. This directly reduces environmental tobacco smoke (ETS) and, its health effects. Having a tobacco free school policy not only reduces prevalence of tobacco use and increases cessation rates¹⁷, but also has an additional health effect of reducing environmental tobacco smoke exposure. This reduction in environmental tobacco smoke has been shown to improve health related quality of life among non-smokers¹⁸. In our study, 32.8% respondents have encountered situations where others have smoked in their presence in schools in the past 7 days, but this was not significantly associated with support for a tobacco free school policy.

In bi-variate analysis, it was found that female teachers showed strongly supportive attitude towards smoking free school compared to their male counterparts. This is reflective of tobacco use among females in this study group, with only 2.4% of female teachers being tobacco users. This is unlikely related to gender specific issues but likely due to support for tobacco free school policy among non-tobacco users. A study among college students in the United States reported that non-tobacco users were more supportive of a tobacco-free school policy than tobacco users¹⁹. In another study, current smokers were only 0.30 times as likely to favour smoke-free school grounds (OR = 0.30, 95% CI 0.20–0.46) compared to non-smokers²⁰. A similar result was observed in our study, indicating that non tobacco users were 1.891 times higher supportive for tobacco free school policy. Teachers are trained to educate the students. They are the effective socio-behavioural tool to transmit their knowledge in order to change the lifestyle of students.

Higher level of education enables one to have greater

access or awareness of knowledge of the health effects of tobacco use and hence support for a tobacco free school. Although a direct causal effect linking higher education and support for tobacco free school policy remains to be clarified, some studies have iterated an indirect causality, where higher education increases knowledge of the health effects of tobacco use^{21, 22}. Level of education is also related to socioeconomic factors. Among teachers, a higher education level translates to have a better teaching post with better salary and income, leading to a higher socioeconomic status. The 2002 International Tobacco Control (ITC) Four Country survey found that awareness on health effects of smoking was better in those from a higher socioeconomic status²¹. However, our study did not find any statistically significant supportive attitude towards tobacco free school ($p > 0.05$) among the highest educated teachers. This study was not without its limitations. Although the respondents were anonymous, many still fear repercussions if they did not support tobacco free school policy as it is advocated by the Government of Bangladesh, hence the data were skewed towards support for this policy. This is also reflected by the low figure of current tobacco user among teachers, which may be an under reported figure. Future studies are needed to confirm these findings.

Conclusion:

De-normalizing tobacco use through positive role modelling is one important step mediated by school personnel. Though, the study finding revealed that only non-smoker teachers are more likely to be supportive tobacco free school, but other demographic, socio-cultural and environmental factors might be associated with smoking in school, that need to be explored by further study. Our study recommended that prohibition of tobacco use should be comprehensive involving all the school personnel. Effectiveness in preventing and controlling tobacco use can be enhanced by increasing the consistency and visibility of its enforcement of law and community participation.

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References

1. Maziak WP, Rzehak UK & Weiland SK. Smoking among adolescents in Muenster, Germany: increase in prevalence (1995-2000) and relation to tobacco advertising. *Preventive Medicine* 2003; **36**: 172-176. [http://dx.doi.org/10.1016/S0091-7435\(02\)00020-8](http://dx.doi.org/10.1016/S0091-7435(02)00020-8)
2. World Health Organisation World Health Statistics 2011. World Health Organization., 2011.
3. Tyas SL & Pederson LL. Psychosocial factors related to adolescent smoking: a critical review of the literature. *Tobacco control* 1998; **7**: 409-420. <http://dx.doi.org/10.1136/tc.7.4.409>
4. Wium N & Wold B. Family and school influences on adolescent smoking behaviour. *Health Education* 2006; **106**: 465-479. <http://dx.doi.org/10.1108/09654280610711415>
5. Menezes APC, Hallal & Horta BL. Early determinants of smoking in adolescence: a prospective birth cohort study. *Cadernos de Saude Pública* 2007; **23**: 347-354. <http://dx.doi.org/10.1590/S0102-311X2007000200011>
6. Rahman MM, Ahmad SA, Karim MJ & Chia HA. Determinants of Smoking Behaviour among Secondary School Students in Bangladesh. *Journal of Community Health* 2011; **36**(5): 831-838. <http://dx.doi.org/10.1007/s10900-011-9382-6>
7. World Health Organisation. WHO Framework convention on tobacco control. 2005.
8. Yaacob I & Harun MH. Smoking habits and attitudes among secondary school teachers. *The Southeast Asian Journal of Tropical Medicine and Public Health* 1994; **25**(1): 74-79.
9. Piontek D, Buehler A, Rudolph U, Metz K, Kroeger C, Gradl S, Floeter S & Donath C. Social contexts in adolescent smoking: does school policy matter? *Health Educ. Res.* 2008; **23**(6): 1029-1038. doi: 10.1093/her/cym063 <http://dx.doi.org/10.1093/her/cym063>
10. Lipperman-Kreda S, Paschall MJ & Grube JW. Perceived enforcement of school tobacco policy and adolescents' cigarette smoking. *Preventive Medicine* 2009; **48**: 562-566. <http://dx.doi.org/10.1016/j.ypmed.2009.03.008>
11. Moore L, Roberts C & Tudor-Smith C. School smoking policies and smoking prevalence among adolescents: multilevel analysis of cross-sectional data from Wales. *Tobacco Control* 2001; **10**: 117-123. doi: 10.1136/tc.10.2.117 <http://dx.doi.org/10.1136/tc.10.2.117>
12. Barrueco M, Hernández-Mezquita MA, Jiménez-Ruiz C, Torrecilla M, Vega MT & Garrido E. Attitudes of teachers about tobacco prevention at school. *Allergologia et Immunopathologia* 2000; **28**: 219-224.
13. Poulsen LH, Osler M, Roberts C, Due P, Damsgaard MT & Holstein BE. Exposure to teachers smoking and adolescent smoking behaviour: Analysis of cross sectional data from Denmark. *Tobacco Control* 2002; **11**: 246-251. doi: 10.1136/tc.11.3.246 <http://dx.doi.org/10.1136/tc.11.3.246>
14. Sinha DN, Gupta PC, Warren CW & Asma S. Effect of school policy on tobacco use by school personnel in Bihar, India. *Journal of School Health* 2004; **74**: 3-5. <http://dx.doi.org/10.1111/j.1746-1561.2004.tb06592.x>
15. Farrelly MC, Evans WN & Sfkas AES. The impact of workplace smoking bans: results from a national survey. *Tobacco Control* 1999; **8**: 272-277. doi: 10.1136/tc.8.3.272 <http://dx.doi.org/10.1136/tc.8.3.272>
16. Brownson RC, Hopkins DP & Wakefield MA. Effects of Smoking Restrictions in the Workplace. *Annual Review of Public Health* 2002; **23**: 333-348. <http://dx.doi.org/10.1146/annurev.publhealth.23.100901.140551>
17. Fichtenberg CM & Glantz SA. Effect of smoke-free workplaces on smoking behaviour: systematic review. *BMJ* 2002; **325**: 188. <http://dx.doi.org/10.1136/bmj.325.7357.188>
18. Kiyohara K, Itani Y, Kawamura T, Matsumoto Y & Takahashi Y. Changes in the SF-8 scores among healthy non-smoking school teachers after the enforcement of a smoke-free school policy: a comparison by passive smoke status. *Health and Quality of Life Outcomes* 2010; **8**: 44. doi: 10.1186/1477-7525-8-44. <http://dx.doi.org/10.1186/1477-7525-8-44>
19. Rigotti NA, Regan S, Moran SE & Wechsler H. Students' opinion of tobacco control policies recommended for US colleges: a national survey. *Tob Control* 2003; **12**: 251-256. doi: 10.1136/tc.12.3.251 <http://dx.doi.org/10.1136/tc.12.3.251>
20. Trinidad DR, Gilpin EA & Pierce JP. Compliance and support for smoke-free school policies. *Health Educ. Res* 2005; **20** (4): 466-475. doi: 10.1093/her/cyg143. <http://dx.doi.org/10.1093/her/cyg143>
21. Siahpush M, McNeill A, Hammond D & Fong GT. Socioeconomic and country variations in knowledge of health risks of tobacco smoking and toxic constituents of smoke: results from the 2002 International Tobacco Control (ITC) Four Country Survey. *Tobacco Control* 2006; **15**, iii65-iii70. doi: 10.1136/tc.2005.013276 <http://dx.doi.org/10.1136/tc.2005.013276>
22. Brownson RC, Jackson-Thompson J, Wilkerson JC, Davis JR, Owens NW & Fisher EB Jr. Demographic and socioeconomic differences in beliefs about the health effects of smoking. *American Journal of Public Health* 1992; **82**(1): 99-103. <http://dx.doi.org/10.2105/AJPH.82.1.99>