Adolescent Perception on School Environment and Smoking Behavior: Analysis of Isfahan Tobacco use Prevention Program

Hamidreza Roohafza, Kamal Heidari[1], Razieh Omidi[2], Tahereh Alinia[3], Masoumeh Sadeghi[4], Gholamhossein Mohammad-Shafiee[5], Mehdi Naji[6]

Cardiac Rehabilitation Research Center, Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences, Isfahan, Iran, [1]Social Determinants of Health Research Center, Isfahan University of Medical Sciences, Isfahan, Iran, [2]Provincial Health Center, Isfahan University of Medical Sciences, Isfahan, Iran, [3]Department of Epidemiology, Faculty of Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran, [4]Cardiac Rehabilitation Research Center, Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences, Isfahan, Iran, [5]Isfahan Provincial Education and Training Organization, Isfahan, Iran, [6]Welfare Organization, Isfahan, Iran

Correspondence to:
Dr. Tahereh Alinia,
Department of Epidemiology, Faculty of Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
E-mail: alinia@sbmu.ac.ir

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ABSTRACT

Background: School provides a set of condition which is very important determinant for student smoking behavior. This study aims at exploring the association of the school environment on Iranian middle and high school students smoking.

Methods: A self-administered anonymous questionnaire was circulated among 5500 randomly selected students with 98.3% response rate. The questionnaire asked on demographic information, student smoking status, and their perception on the school environment. School environment factor was consist of teacher smoking, implementation of smoke-free policy at school, student adherence to this policy, student perception of school personnel attitude and attention on smoking and finally receiving information on smoke-related issues via teachers. Analyses were performed with SPSS software using Chi-square and multiple logistic regression.

Results: Boys with higher level of witness to teachers smoking had higher odds of being smoking (odds ratio [OR] =1.62, 95% confidence interval [CI] =1.17, 2.25); significant relationship was seen between boy's perception regarding school anti-smoking rules and their smoking (OR = 1.40, 98% CI 1.12, 1.75); fewer concern of school personnel on student smoking behavior was correlated to boys smoking behavior (OR = 1.31, 98% CI 1.06–1.63). Among girls, only higher perceived teacher smoking (OR = 2.59, 95% CI = 1.04, 6.44) was associated with their smoking.

Conclusions: Teachers have a crucial role in student smoking; therefore, they strategies must be taken to persuade the student, school staff, and students to adhere free-smoking policies in and out of school.

Keywords: Adolescent, perception, school, smoking

Original Article

INTRODUCTION

The varieties of factors have been identified as motivators of adolescent smoking including sociodemographic status, social bonding, personal factors (low self-esteem, refusal skills, and

attitudes toward smoking), academic achievement, peer or family pressure, acceptability, and availability of tobacco products.[1] Schools are in a uniquely powerful position to play a major role in reducing the serious problem of smoking by adolescents. Furthermore, student's perception on this environment characteristics may affect smoking practice.[2]

School environment which effect student smoking behavior encompass teacher smoking, smoke-free policy, students adherence to these rules, school personnel care on their students smoking behavior and school training. Teachers can contribute to youth opinions about smoking. Use of tobacco by teachers and approval of tobacco use among those significant persons is likely to increase the probability of students smoking because of perceptions that tobacco use is normative, usual or acceptable behavior.[3] Adolescents who have seen school members smoking are more likely to perceive smoking as a socially acceptable behavior.[4] Some studies have reported the importance of teachers as role models. Teachers' smoking is likely to increase the probability of smoking, through the imitation of powerful role models.[5]

Smoke-free legislation is another dimension of the school environment which smoking is prohibited anywhere on the school ground. Students who lack no-smoking policy in school would perceive smoking as being normative, resulting in intentions to take up the habit.[6] Research reports a linkage between placing restriction on smoking at school and significantly lower rates of student smoking.[7,8] In addition, students adherence to a smoke-free policy is another important feature of the school environment[9] and strict enforcement of laws are vital.[10,11] A study measured the level of strength of enforced school smoking bans by measuring instances when teenagers perceived that most or all students obeyed the rule, found an association with reduced smoking rate[8] Continuous enforcement of these policies brings about fewer observations of smoking on school property, as well as lower rates of smoking behavior.[12,13]

Teaching staff and school governor's attendance represent crucial role for tobacco-control efforts.[14] Their understanding of dangers of smoking can be helpful in organizing activities around smoking in school.[5,14] They have a duty of care to those students who smoke and are committed to help them to break the habit. Consistent and supportive messages from the personnel side on no-smoking may have amazing results in reducing smoking rate.[5] Student may need to receive advice on how to stop smoking. However, if a student is found smoking, the disciplinary action must be taken to deter and re-educate them. Another important way to control tobacco use is to encourage schools to teach and talk about tobacco issues. School should ensure incorporating smoking-related topics into class. The student perception on the extent of teaching about smoking might help the student to stay smoke-free.

The relation between the school environment and student smoking has been examined in numerous studies, but few have focused on the student perception on influence of the school environment and their smoking. Our research was designed to explore the opinions of Iranian middle and high school students on the school environment in relation to their smoking behavior. These results lack in previously conducted research on Iranian student.

METHODS

Study design

Data were from the Isfahan Tobacco Use Prevention Program, which conducted among school students (grade 6–12) in Isfahan Province, in 2010. Isfahan is the second populated province in center of Iran and has forty educational districts with more than 800,000 students.

Sample size estimated 5000 based on the study in 2003 with 14% of smoking prevalence[15] and 95% confidence interval and 0.01 error. To compensate reduced level of reliability due to incomplete or unanswered questionnaires, sample size increased to 5500. A questionnaire with <10% of blank left questions was considered incomplete one. Multistage stratified cluster random sampling procedure was selected students. Clusters include educational districts. Schools were then selected randomly from among each cluster, and finally, students were taken from among the selected schools using a random numbers table. Within each cluster, stratified sampling was done based on the school level (high/middle school), gender and area of residence (rural or urban area). All

participants required to sign a consent form after receiving the knowledge on the study goal and design. The students answered the questionnaires in a 30-min period during class time. Trained staff members collected the data and gave help to students in completing the questionnaires. 5,408 questionnaires were completed and returned, corresponding to a 98.3% response rate. The study was approved by ethic committee of the Isfahan University of Medical Science.

Measurements

Background information

Student's age, grade, sex were collected using a self-administered questionnaire.

Control variables

Adolescents, it is argued, who already smoke are more likely to seek out and spend time with other smokers, and adolescents who smoke tend to overestimate the smoking prevalence of their friends. Therefore, the effect of friend and parent has been controlled to assess the net effect of the school environment characteristics.

Perceived friends smoking were assessed by asking, "In your opinion, how many of your friends smoke (cigarette or water pipe)?" Responses were consisted of (1) none of them, (2) some of them, (3) half of them, (5) most of them, (6) all of them. Strata 1 and 2 considered as low, 3 as moderate and 4 and 5 as high. Parent smoking was asked via a yes or no question.

Dependent variable

Student was asked about smoking status, via a yes/no question: "Have you ever tried cigarette (or water pipe) smoking, even one puff?" Individuals who responded "yes" were named "ever-smokers" and those who responded "no" called "never-smokers."

Independent variable

Student's view on the school environment was explored by 5 items including (1) do any of your teachers smoke on your school ground? (few, less than half, nearly half, more than half, nearly all), (2) does your school have a clear set of smoke-free legislation? (Yes, No, I don't know), (3) to what extent do students obey the smoke-free laws on the school ground? (none of them, some of them, half of them, most of them, All of them), (4) to what extent do you think that school personnel, care about smoking behaviors of students? (not at all, rarely, sometimes, often, always). (5) Does your teacher train on smoke-related issues on the class? (Yes, No, I don't know). For items with 5 response types, the first and second strata named low, the third strata called categorized as moderate and the last two as high.

Data analysis plan

Analysis was conducted for girls and boys separately as we suppose difference perception of them on the school environment.[2] In order to adjust analyses for other key variables known to be associated with smoking, measures of exposure to smoking among parents, friends were also included. Friends and parent smoking treated as a control variable to keep its effect constant and adjusted. Student perception was regarded as dependent variable and was consist of teacher smoking, implementation of smoke-free policy at school, student adherence to this policy, student perception of school personnel attitude and attention on smoking and finally receiving information on smoke-related issues via teachers. Student perception was assessed by their smoking status. At first univariate analysis was run, and data were shown as absolute and percent relative frequencies. Chi-square test compared ever-smoker and never-smokers. All reported statistical tests were two-sided, and $P < 0.05$ considered statistically significant. Then multiple logistic regression was conducted, and odds ratio (OR) with 95% confidence interval (CI) was shown. Effect of friend and parent smoking were controlled. Analyses were performed with SPSS software version 15 (SPSS Inc., Chicago, Illinois, USA).

RESULTS

Totally, 5408 completed questionnaires were returned (with response rate of 98.33%). Students were grade 6-12 corresponding to 12–18 years old. Of all participants, 2702 (50.0%) were girls and 2706 (50.0%) were boys. 2445 (45.2%) were studding in middle school and 2962 (54.8%) in high school. The extent of owning smoker friends was related to youth smoking behavior. Among boys, 2.9% of never-smokers versus 16.9% of ever-smokers had a large number of smoker friends ($P < 0.001$). The figure in girls was 0.8% for never-smokers versus 4.3% for ever-smokers ($P < 0.001$). 41.4% and 48.1% of smoker boys and girls reported that their parent smoke, respectively.

Table 1 reports univariate analysis of the relation between student's perception on the school environment and their smoking behavior for boys and girls. There was a significant difference between never and ever-smoker with regards to their perception on teachers smoking. More ever-smoker boys expressed owning higher extent of smoker teacher. Out of 17.9% of never-smokers boys and 27.4% of ever-smokers revealed that there is no ban on smoking in the school ground ($P < 0.001$). Low perception on student adherence was more prevalently belonged to ever-smoked boys (23.8% among ever-smokers vs. 18.8% among never-smokers). Smoker boys additionally expressed that the school personnel pay a fewer concern to student smoking affaire less farther than never-smokers. 54.5% of never-smoked boys and 59.7% of ever-smoked boys declared they received no training on smoking on the class time. Data demonstrated a significant difference of girls perception on their teacher smoking, anti-smoking policy administration, school personnel concern, and teacher teaching on smoking-related issues between ever and never-smokers, although it was not egregious.

Multiple logistic regression analysis was conducted to explore the relation between the school environment and student smoking behavior, controlling for owning smoker friends and parent. Data are presented in Table 2. Significant relations were found after controlling for the effect of friends and parent smoking. Among boys sample,

Table 1: Percentage of student perception on school environment and their smoking behavioral

	Boy			Girl		
	Never-smoker	**Ever-smoker**	***P***	**Never-smoker**	**Ever-smoker**	***P***
How many of your friends smoke?						
Low	1330 (94.5)	936 (74.4)	<0.001	2031 (98.2)	527 (89.9)	<0.001
Moderate	37 (2.6)	109 (8.7)		21 (1.0)	34 (5.8)	
High	41 (2.9)	213 (16.9)		16 (0.8)	25 (4.3)	
Do your parents smoke?						
No	1022 (72.7)	1042 (58.6)	<0.001	1487 (71.9)	305 (51.9)	<0.001
Yes	384 (27.3)	803 (41.4)		582 (28.1)	283 (48.1)	
To what extent do your teachers smoke on the school ground?						
Low	1138 (81.5)	817 (65.0)	<0.001	1970 (97.7)	538 (95.4)	<0.001
Moderate	179 (12.8)	261 (20.8)		33 (1.6)	11 (2.0)	
High	79 (5.7)	178 (14.2)		13 (0.6)	15 (2.7)	
Does your school have a clear set of smoke-free legislation?						
Yes	1154 (82.1)	912 (72.6)	<0.001	1669 (80.9)	457 (77.6)	0.042
No	252 (17.9)	344 (27.4)		393 (19.1)	132 (22.4)	
To what extent do students obey the smoke-free laws on the school ground?						
High	1045 (75.7)	852 (66.2)	<0.001	1555 (79.3)	433 (76.2)	0.059
Moderate	76 (5.5)	101 (8.1)		51 (2.6)	25 (4.4)	
Low	260 (18.8)	297 (23.8)		355 (18.1)	110 (19.4)	
To what extent do you think that school personnel, care about smoking behaviors of students?						
High	950 (68.6)	708 (56.6)	<0.001	1404 (71.1)	364 (64.5)	0.011
Moderate	105 (7.6)	146 (11.7)		110 (5.6)	36 (6.4)	
Low	330 (23.8)	396 (31.7)		462 (23.4)	164 (29.1)	
Does your teacher teach on smoke-related issues on the class?						
Yes	639 (45.5)	504 (40.3)	0.008	948 (45.8)	236 (40.1)	0.015
No	765 (54.5)	746 (59.7)		1121 (54.2)	352 (59.9)	

there was a rising chance of being smoker for students with higher level of witness to teachers smoking (OR = 1.62, 95% CI = 1.17, 2.25); there were a significant relationship between student perception regarding school anti-smoking rules and being smoker (OR = 1.40, 98% CI = 1.12, 1.75); fewer concern of school personnel on student smoking affaire was correlated with their smoking behavior (OR = 1.31, 98% CI = 1.06–1.63). However, among girls, only higher perceived teacher smoking (OR = 2.59, 95% CI = 1.04, 6.44) was associated with their smoking behavior.

DISCUSSION

The purpose of the current study was to explore the relationship between how student perceives school environment and the smoking behavior. To date, little research has been conducted in this area, specifically among Iranian students. The present work was conducted on a representative, large sample of middle and high school students with a proper sampling scheme and high response rate which is strengths of the study. To sum up, the finding is based on the relations that were significant in the multiple logistic regression model as complete one. Boy respondent's perception on their teacher smoking, along with their opinion on the existence of smoke-free rules and school personnel concern on the smoking behavior of theirs were important correlates of their smoking behavior. There was no significant difference between perception of ever and never-smokers girls except their view on the teacher smoking.

One of the important findings of this study was a positive association between knowing teacher smoking and student smoking. This influence either boys or girls in a great amount. This finding is in the same direction of previously conducted studies.[9] Teachers have function of role models in school.[5] According to social cognitive theory, adolescent who are witness to role models

Table 2: Adjusted OR and 98% CI of students smoking in relation to perceived exposure to school-related factors

	Boy	Girl
How many of your friends smoke?		
Low	1	1
Moderate	3.36 (2.20, 5.13)	4.77 (2.53, 9.00)
High	5.55 (3.73, 8.25)	5.35 (2.57, 11.10)
Do your parents smoke?		
Yes	1	1
No	1.83 (1.52, 2.20)	2.07 (1.67, 2.56)
To what extent do your teachers smoke on your school ground?		
Low	1	1
Moderate	1.47 (1.15, 1.87)	1.40 (0.64, 3.04)
High	1.62 (1.17, 2.25)	2.59 (1.04, 6.44)
Does your school have a clear set of smoke-free legislation?		
Yes	1	1
No	1.40 (1.12, 1.75)	1.22 (0.94, 1.59)
To what extent do students obey the smoke-free laws on the school ground?		
High	1	1
Moderate	1.06 (0.74, 1.51)	1.43 (0.83, 2.46)
Low	1.17 (0.93, 1.47)	1.07 (0.81, 1.42)
To what extent do you think that school personnel, care about smoking behaviors of students?		
High	1	1
Moderate	1.64 (1.20, 2.22)	1.20 (0.78, 1.84)
Low	1.31 (1.06, 1.63)	1.16 (0.90, 1.49)
Does your teacher teach on smoke-related issues on the class?		
Yes	1	1
No	1.09 (0.91, 1.31)	1.13 (0.91, 1.41)

CI=Confidence interval, OR=Odds ratio

smoking have a higher likelihood of smoking uptake.[9] This is as a result of student perception on the high tolerance toward smoking at school and inspiration of its acceptability and normality among adolescents.[16,17] Then this belief brings about smoking imitation by adolescents.[18] The only significant factor for smoker girls is teachers smoking. This may be as a result of narrower social network for girls which make teacher the more important role model for them. That implies that the school should tackle the issue of students' exposure to teachers smoking. Comprehensive policies which prohibit teacher smoking out and inside school could decrease student exposure to smoking behavior.[9]

Boy's perception regarding the existence of smoke-free laws was related to taking up smoking behavior. Schools with anti-smoking policies have a lower rate of smoking,[7,8] however, absence of stringency of its implantation can convey a mixed message to students.[19] The existence and enforcement of these policies both promote and are a reflection of norms against smoking as an acceptable behavior for everyone.[8] The result of the present work is in the same direction.

Boy's believing that teachers and school staff would not mind if they smoked predicts future smoking uptake. The similar finding has been found in a study by McNeil *et al*.[20] Students believe that smoking-related instruction would not affect their smoking behavior. This indicated that sole training on the smoking related issues could not have enough effect on impeding from smoking, rather setting a clear set of rules along student and teacher compliance is a roadblock to student smoking. Support of educational programmers with teacher's adherence to anti-smoking rules is important.

These findings are subjected to some limitations. First, these data are from a cross-sectional survey, which limits attributions about the direction of claimed causality between variables. Future longitudinal designs should be conducted to assess the association. Second, student perception could be under influence of their personally to tend project their own behavior onto others. For example, smokers are more likely to be aware of their teachers who smoke. Third, we did control for friend and parent smoking, there may be other factors that influence teenage smoking. Finally, we did not explore the reasons for the principal question that why girls does not have a different perception on smoking-related characteristics of their school based on their smoking status. This is the area for future investigations.

CONCLUSIONS

This research contributes to tobacco control objectives by identifying school environment characteristics associated with student smoking behavior. It identifies teachers' role in student smoking. Therefore, increased efforts are necessary to communicate to teachers the importance of their modeling of appropriate behavior. Placement of strict role and strategies to increase the student obedience might result in reduced smoking prevalence in school.

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