

Smoking among high school students of an area with medium socioeconomic status

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Abstract

Objective: To observe the smoking patterns among high school students in Sarakhs County, Iran.

Methods: This is a cross sectional school based survey. The study population was 943 high school students grade 9-12, from Sarakhs County in study year 2010-2011. Study tool was a self-administrated questionnaire.

Results: From 943 participating students, 181(19.2%) had history of smoking. The mean age of smokers was 16.59 ± 1.1 , and the mean age of initiating smoking was 14.35 ± 2.1 years. Of the smokers, 121(66.9%) were male and 124(68.7%) students were aware of smoking hazards. Public broadcasting, family, and newspapers were the most common sources of students' knowledge about smoking. Recreation and entertainment, peer group impact, and curiosity were the most frequent predisposing factors for smoking from students' perspectives. The relationship between smoking and school type, field of study, school failing, and having a smoker father, brother or friend was significant ($p < 0.001$). The concomitant use of illegal drugs was more common between smoker students; marijuana 4.9, alcohol 1.2, Psychoactive Pills 2.5 and Betel Nut (Nas) 3.4 times were more common.

Conclusion: This study showed that smoking prevalence among high school students of an area with average socioeconomic status (Sarakhs County) is similar to that reported by most of the other Iranian studies, and compared to a few studies it was even lower. Our results are supportive for the programmes that aim to change high risk behaviours simultaneously.

Keywords: Students, Cigarette Smoking, Prevalence, Predisposing factors, Socioeconomic status. (JPMA 64: 291; 2014)

Introduction

Smoking is one of the most important and most preventable causes of early death and morbidity in the world. World Health Organization estimated that a billion people worldwide are smokers and they smoke 6 trillion cigarettes yearly.¹ Around 80-100 thousand young people start to smoke each day, which most of them belongs to the developing countries.² The number of yearly deaths blamed on tobacco and smoking will increase from 4 million at present to 10 million in year 2025, which 7 million of these deaths being in developing countries.³ The death rate of smokers is 2 to 3 times more than nonsmokers in each age group and 5% of those who start to smoke in adolescence, will be eventually killed by that.⁴ Separation and divorce, impulsive behaviour, illiteracy, aggression, alcohol consumption, and other illegal substance usage are more common among smokers.⁵

Adolescent smoking is now a major concern of public health, and is also one of the main problems in controlling

tobacco. Adolescents and youth are the most vulnerable group for nicotine dependency.¹ Almost half of smokers start smoking under 18 years of age.⁶ In Iran 66.7% of smokers had tried their first cigarette when they were 14 years old.¹ Recent reports have shown that the incidence of smoking is increasing in adolescents and the starting age is decreasing.² Trying only a few cigarettes during teenage years will increase the chance of being a smoker in adulthood to 16 folds.⁷

Studies that have been done in European and American countries reported the prevalence rate of smoking from 5.5% in Sweden to 35% in Poland and starting age was reported 16 years.^{5,7-11} Studies of Asian countries also showed dissimilar results for prevalence of smoking among students; prevalence of 3.3% to 9.7% have been reported.¹²⁻¹⁶ Iranian studies that have been conducted in last decade (2000-2010) reported prevalence of 9.8% to 33.8%, (10.1%-35% in males and 5.5%-25.9% in females).^{1,17-22}

Adolescence is a critical period in one's life and behavioural patterns that develop in this period will affect person's entire life.¹ Studies have determined that following are predisposing factors for smoking: parents low education level, personality factors, having a smoker

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in family or friends, inappropriate cultural condition of community, parents weak authority, family conflicts, parents' divorce, easy access to cheap cigarettes, and lack of knowledge.¹ Based on Iranian Statistic Center more than 70% of Iranian adolescents (10-19 years old) are students.²¹ Since school is the first social-educational environment after family, it has an important role on shaping a person's behaviour. This study was conducted with the aim of finding smoking patterns among adolescents and youth students in Sarakhs town, which is special because of its cultural and religious characteristics, presence of large immigrant population, and low to medium socio-economic status of people. The study results will help to develop appropriate interventions for smoking prevention and treatment in this age group.

Methods

This is a cross sectional school based survey. Study population were high school and technical school students grade 9 to 12 of Sarakhs county (41 schools with 5243 students) in school year 2010-2011. Calculated study size based on different of proportion in two groups ($\alpha = 0.05$ and $d = 1.4p$) was 325. The number was multiplied by three for cluster sampling (975). Study sample were divided between clusters with appropriate proportion to their population. At next step four schools were randomly selected from each cluster. The calculated study samples for each cluster were divided between schools appropriate to their population. In each school, students were selected with simple sampling method. Students were justified by a team consisting of researchers and teachers. They were informed that participation is optional. A self-administrated questionnaire including questions about demographic, personal and family information; and also questions about previous smoking experience, smoking in the family, and relatives, were completed by students. Questionnaire was designed based on previous studies, and its validity was confirmed by experts. Students were assured that their information will remain confidential and participation in the study is not mandatory. Based on study sample size estimation 975 questionnaires were filled, 32 were excluded because of incomplete information. Data were analyzed with SPSS 11.5. Chi-squared and Spearmen test were used to detect the relation between variables, Mann-Whitney test was used to detect the difference between means of independent variables, and finally a multivariable regression model was used to assess all variables. In all calculation $P < 0.05$ was considered as significant.

Results

Demographic characteristics of participants, their family

Table-1: Demographic, family and school characteristics of participants.

Variable	Smoker N= 181	Non-Smoker N= 762	P
Age	16.59 $\pm$ 1.13*	16.31 $\pm$ 1.13	0.01
Father Age	47.31 $\pm$ 7.2	46.52 $\pm$ 8.08	0.24
Mother Age	41.88 $\pm$ 6.02	41.01 $\pm$ 6.72	0.12
Number of Children	3.47 $\pm$ 2.59	3.48 $\pm$ 2.33	0.97
Gender			
Female	60 (13.8) †	376 (86.2)	< 0.001
Male	121 (23.9)	386 (76.1)	
School Grade			
Grade 9	35 (12.3)	249 (87.7)	< 0.001
Grade 10	63 (19.6)	259 (80.4)	
Grade 11	60 (21.7)	217 (78.3)	
Grade 12	23 (38.3)	37 (61.7)	
School Type			
Public	131 (18.8)	575 (81.4)	0.01
Private	14 (17.9)	64 (82.1)	
Public School for Talented Students	19 (36.5)	33 (63.5)	
Technical School	17 (15.9)	90 (84.1)	
Field of Study			
Sciences	26 (30.6)	59 (69.4)	< 0.001
Mathematics	16 (22.5)	55 (77.5)	
Human Sciences	57 (31.1)	126 (68.9)	
General	49 (14.3)	294 (85.7)	
Others	32 (12.5)	223 (87.5)	
Average School Grade			
< 14 Years Old	57 (28.5)	143 (71.5)	< 0.001
14-18 Years Old	73 (18.1)	331 (81.9)	
> 18 Years Old	39 (15.9)	206 (84.1)	
History of Failing	39 (21.5)	104 (13.7)	0.008

*: Mean $\pm$ standard deviation.

†: Frequency (Percent).

and education information based on gender are represented in Table-1. Overall 181 (19.2%) students from 943 participants had history of smoking, of whom 84 (9%) smoked only once and 96 (10.2%) smoked more than once monthly. The mean age of smoker was 16.59 ± 1.1 years, and the mean age of beginners was 14.35 ± 2.1 years; the youngest age was 10, and the oldest was 19 years. Considering gender, 121 (24%) boys had history of smoking; whereas 60 (13.8%) girls were smokers. We found statistically significant association between gender and smoking ($p < 0.001$), and between gender and the frequency of smoking ($p < 0.001$).

Smoking hazards was known to 124 (68.7%) students. Public broadcasting (TV and Radio), family, and newspapers were the most common source of information. It is surprising that school and educational environment (7.8%) were not the main information providers.

Smoking rate showed significant differences between

Table-2: Predisposing factor for smoking from smoker-students' perspectives.

Predisposing factor	Male N= 106	Female N= 52	Total N = 158	P
Parents divorce	3 (2.8) †	0 (0)	3 (1.9)	<0.001
Fight	13 (13.2)	3 (5.8)	17 (10.8)	
Bad friends	19 (17.9)	3 (5.8)	22 (13.9)	
Recreation and entertainment	44 (41.5)	15 (28.8)	59 (37.4)	
Rigid family	2 (1.9)	2 (3.8)	4 (2.6)	
Depression and loneliness	14 (13.2)	8 (15.4)	22 (13.9)	
Low economic status	1 (0.9)	0 (0)	1 (0.6)	
Curiosity	5 (4.7)	15 (28.8)	20 (12.7)	
To get attention	0 (0)	1 (1.9)	1 (0.6)	
Inattentive parents	4 (3.8)	5 (9.6)	9 (5.7)	

†: Frequency (Percent).

Table-3: Non-effectiveness of demographic characteristics in participants' smoking in a regression model.

Study variable	β	SE1	P	OR2	95% CI3
Age	0.13	0.11	0.23	1.15	0.92-1.43
Sex	-0.44	0.21	0.24	0.64	0.42-0.98
School Type					
Public	-	-	-	-	-
Private	-0.61	0.34	0.07	0.54	0.28-1.05
Public School for Talented Students	-0.87	0.46	0.06	0.42	0.17-1.03
Technical School	-1.17	0.49	0.02	0.31	0.12-0.8
Field of Study					
Sciences*	-	-	-	-	-
Mathematics	-1.13	0.41	0.01	0.32	0.15-0.72
Human Sciences	-0.42	0.47	0.37	0.66	0.26-1.66
General	-1.02	0.34	<0.001	0.36	0.18-0.69
Others	-0.44	0.32	0.17	0.64	0.34-1.21
History of Failing	-0.72	0.27	<0.001	0.48	0.29-0.82
Father Smoker	-1.32	0.21	<0.001	0.27	0.18-0.40
Mother Smoker	-0.72	1.17	0.53	0.48	0.05-4.76
Friend Smoker	-2.65	0.27	<0.001	0.07	0.04-0.12

1: Standard Error. 2: Odds Ratio. 3: Confidence Interval.

*: Reference group.

different schools; it had the highest prevalence in public school for talented students and the lowest in technical high schools. There was also a significant difference in smoking prevalence between different fields of study in high school; the lowest rate being in students of Mathematics and the highest rate in General Fields of study. The prevalence of smoking increased with increasing school years; it was 35 (12.3%) in students of grade 9, and 23 (38.3%) in students of grade 12. The smoking prevalence also showed significant association with students' academic grades, it was twice more common among students with GPA less than 14 (from total 20) compared to students with GPA higher than 18.

Failing in a school year was 1.5 times more common between students who smoked compare with non-smokers.

The smoking prevalence among students who had a smoker father, was 326 (34.6%) while it was 139 (14.8%) in students who had non-smoker fathers ($p<0.001$). Eighty-Eight (9.4%) students with a history of smoking had a smoker brother which was statistically significant ($p<0.001$). Eighty-two (68%) students who had a smoker friend were smoking, while smoking prevalence in students with no smoker friend, was 16 (13%) ($p<0.001$). Parent's education level and their occupation showed no significant difference between smokers and non-smokers.

Predisposing factors for smoking from students' perspective are shown in Table-2. Recreation and entertainment, peer's impact, depression and loneliness, and curiosity are the more frequent reasons for smoking between 10 assessed predisposing factors.

Relationship between students' education and demographic characteristics and smoking usage as a regression model are presented in Table-3.

Discussion

Our results showed that 19.2% students had experienced smoking. Different national studies have reported smoking prevalence rate between 9.8% to 33.8%. This wide range reported by different studies could be due to difference in study design, methods, different age groups, and used definitions. This study result is similar to the mean result of most national studies.^{1,17-24}

We found a statistically significant relationship between gender and smoking, which is similar to most national and international studies; smoking is more prevalent in male students rather than female students.^{1,17-25} In our community especially in small towns; beliefs, cultural, and traditional viewpoints cause women to smoke less than men, and similarly girls smoke less than boys, which is comparable with our findings.

Based on our findings, smoking rate in the family of smoker students was significantly higher than in family of non-smoker students. Almost 1/3 of smoker students had a father or brother who was smoking. The low smoking rate in close relatives were in mothers. Iranian and world studies have shown a strong association between adolescents smoking and smoking in the family (parents and siblings). Some Iranian studies have reported that smoking by a family member, especially one of the parents, is a risk factor for starting to smoke in youth and adulthood. Furthermore having a sibling who

smokes, as a behaviour model, increase the risk of smoking in youth. These studies have shown that the number of smokers in the family have significant effect on smoking by young adults. International studies have also shown the impact of parents smoking on youth smoking, and smoking by the parents was reported as the most effective factor for young adults smoking. The relation of sibling smoking on youth smoking also has been reported in some of studies.¹ Young adults usually try to imitate their older siblings, therefore sibling smoking may have a greater influence on youth smoking than parents smoking.^{1,17-25}

One of our finding was the relation between students smoking and smoking among their close friends; smoker students have more smoker friends, this relation has been reported by other studies as well.¹ Peer pressure and encouragement for smoking or using illegal drugs is one of the most important risk factor, and is a predisposing factor for experiencing smoking or illegal drug abuse in adolescents, therefore teaching resistance skills to adolescents especially for peer pressure has a crucial role in saying 'No' to smoking and illegal drug use by adolescents and youth.¹ Our study emphasizes and suggests that skill training programmes for resisting against smoking and drug use must begin in younger ages like junior high school or even in primary school.

Our study participants considered recreation and entertainment, peer group effect, and curiosity as the three top predisposing factors associated with youth smoking. The following factors have been reported as three top predisposing factors for smoking in different studies: friends smoking, curiosity, parents disharmony, for enjoyment, escape from school, to increase self-esteem, and for recreation and entertainment.^{1,8,19,25} The most important predisposing factors depend on research community characteristics like being a rural or urban area, culture, and socioeconomic status, but in most studies, curiosity and peer encouragement were between three top predisposing factors.

In this study public broadcasting, family, and newspapers were the most important sources of acquiring information about smoking hazards. School has been ranked in fifth place by students, between 6 sources. It seems that school can play an exceptional role in increasing students' knowledge about smoking hazards. Of course the prerequisite of playing such a role is to accept smoking as a problem by students.

Conclusion

This study showed that smoking prevalence among high

school students of an area with average socioeconomic status (Saraks County) is like the prevalence reported by most other Iranian studies, and compared to some studies it was even lower. Our results are supportive for the programmes that aim to change high risk behaviours simultaneously. Although these results must be considered by the public health managers, but since this study is limited only to Saraks students, the results can't be generalized to all the Iranian students, and more studies are required to extend the results. Since smoking is a very important social problem and its harms in adolescents are considerable, and considering the fact that smoking pattern in each community is affected by people's beliefs and cultural structure, periodical assessment of smoking epidemiology seems necessary.

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