

Prevalence of Smoking and Related Factors among High School Students in Ahvaz City, Iran

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Abstract

Introduction: Smoking which is started from adolescence is one of the serious problems of public health and one of the main causes of chronic diseases. The age at smoking onset in developed and developing countries is decreasing; therefore, the best time to perform interventional measures and implement preventive strategies is during or even before adolescence. Therefore, the present study aimed to estimate the prevalence of smoking and related factors among high school students in Ahvaz, Iran. **Methods:** This was a descriptive analytical study conducted on 900 students randomly selected from high schools of Ahvaz city, Iran, during 2016 and using two-step cluster-randomized sampling method. The relevant data were collected using customized questionnaires. To determine and analyze potential relationships between smoking and the collected variables, Chi-square, and logistic regression were used in STATA (Windows, version 14). **Results:** Forty-nine subjects (5.44%) had smoking experience, and most of them were male students showing a significant relationship between smoking and gender ($P = 0.009$). Moreover, 145 male students (32.2%) stated that the most important factor to start smoking was lack of control by parents over their relationships and 148 female students (33.0%) stated that curiosity was the most effective factor to start smoking. The first smoking experiences based on the different age groups were as follow: 33 students (3.67%) under 10 years old, 41 students (4.56%) between 10 and 14 years old and 50 students (5.56%) over 14 years old. Furthermore, the first smoking experience in both groups was in students over 14 years old. The first people who provided cigarette for students were friends including 61 people (6.78%), grandmother and grandfather including 10 people (1.11%), parents including 4 people (0.44%), and brother or sister including 2 people (0.22%). Moreover, 99 friends (11.0%), 12 parents (1.33%), and a sister or a brother (1.22%) were the first effective factor in smoking. Students' feeling after smoking included 60 students (6.67%) with a pleasant feeling and 55 students (6.11%) with an unpleasant feeling. **Conclusion:** A significant relationship was observed between age and smoking, and it can be concluded that the chance to smoke increases with age. According to the critical age of students, school authorities and parents can be effective in preventing most of the abnormal behaviors such as smoking addiction.

Key words: Ahvaz, iran, prevalence, smoking, students

INTRODUCTION

Smoking is one of the health challenges and a death risk factor in developed and developing countries.^[1,2] According to the reports by the World Health Organization, smoking in developed countries constitutes 20% of preventable deaths. On the other hand, it leads to increased incidence of different diseases such as cardiovascular, lung, and

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malignant disorders so that 60% of health expenditures in the United States is spent for the treatment of diseases related to nicotine consumption.^[3,4] Unfortunately, smoking has concentrated on teens and adolescents in its recent challenge^[5] and almost half of people who smoke, start smoking before 18. Early smoking causes numerous problems because dependence on nicotine is more severe in those who start smoking earlier compared with those who start smoking later and less possibility exists to stop smoking.^[6-8] Although in recent years, health programs in some of the developed countries have led to decreased smoking, this incidence is increasing in low ages in developing or low-income countries.^[9] These behaviors, particularly during adolescence when identity is forming, are very important. Smoking among adolescents is one of the most preventable health problems and in addition to epidemiologic problems, can lead to drug consumption.^[10,11] Etiology of smoking is one of the most fundamental activities to design preventive programs. This study has investigated the frequency and preventive factors of smoking in high school students in Ahvaz.

MATERIALS AND METHODS

This study was conducted based on the descriptive analytical method (cross-sectional) on high school students in Ahwaz in 2016. Participants were selected according to the two-step sampling method (cluster-randomized) from high schools in Ahwaz. The sample size with a confidence level of 90% was estimated as 870. Data were collected by questionnaire.

In the present study, after obtaining permission from the Ministry of Education to enter high schools, each area was divided into five subareas according to the population of students. Each subarea was considered as a cluster, and in each cluster, 170 subjects were selected randomly. In each school, first, the objectives were explained to the students by a research interface of the faculty. Students were assured that information will remain private and participation in the study was voluntary, and questionnaires were anonymous. Students completed questionnaires in a tranquil environment with the presence of authorities of the school and research interface individually without any consultation. Then, data were coded, and descriptive analysis (frequency, relative frequency, percentage, etc.) was performed, and mean and standard deviation was estimated for qualitative variables. To

investigate the relationships between variables and analyze, the relationship between smoking and some of important variables, Chi-square test, and logistic regression was used using STATA 14.

RESULTS

A total of 899 students entered the study where 450 students (50%) were male and 449 students (49.89%) were female with minimum and maximum ages of 16 and 18 and average age and standard deviation of 16.56 ± 15.02 .

In sum, 49 students (5.44%) had experienced smoking. Most of the students that had smoking were 16 years old, and regarding gender, most of them were male, so that there was a significant relationship between smoking and gender ($P = 0.009$) [Table 1].

Furthermore, 145 students (32.2%) of male students stated that the most important factor to start smoking was lack of control by parents over their relationships and 148 students (33.0%) of female students stated that curiosity was the most effective factor to start smoking [Table 2].

The first smoking experiences were as follow: 33 students (3.67%) under 10 years old, 41 students (4.56%) between 10 and 14 years old, and 50 students (5.56%) over 14 years old. Furthermore, the first smoking experience in both groups was in students over 14 years old.

The first people who provided cigarette for students were friends including 61 people (6.78%), grandmother and grandfather including 10 people (1.11%), parents including 4 people (0.44%), and brother or sister including 2 people (0.22%). Moreover, 99 friends (11.0%), 12 parents (1.33%), and a sister or a brother (1.22%) were the first effective factor in smoking. Students' feeling after smoking included 60 students (6.67%) with a pleasant feeling and 55 students (6.11%) with an unpleasant feeling. Furthermore, 37 students (4.11%), 22 students (2.44%), and 14 students (1.56%) had smoking experience of less than a year, more than 2 years, and 1–2 years, respectively. The data showed that 32 students (3.56%) smoked once a month, 23 students (2.56%) smoked daily, and 19 students (2.11%) smoked once a week. In this study, using Chi-square, the relationship between demographic characteristics and individual-environmental

Table 1: Demographic information frequency of participants

Variable	Variable levels	Smoking F (%)	No smoking F (%)	P-value χ^2
Age (years)	16	18 (36.7)	361 (44.5)	$P=0.009$ $\chi^2=21.86$
	17	10 (20.4)	281 (34.6)	
	18	16 (32.7)	145 (17.9)	
Gender	Boy	34 (69.4)	400 (49.3)	$P=0.09$ $\chi^2=10.68$
	Girl	15 (30.6)	410 (50.6)	

factors in smoker and non-smoker students was investigated. The results show that there is a significant difference between these students [Table 3].

In multivariate analysis, factors related to smoking in students, the effect of media, frequent coughs, smoking with friends or alone, those who prevent smoking, tendency to stop smoking, health recommendations to stop smoking, exposure to smoking in house, smoking by friends, increased self-confidence, awareness of other addictive drugs, making risks for the family, number of smoking, number of years of smoking, the first smoking experience, the first simulator, the first provider, the effect on education, and the effect of residence on smoking entered the logistic regression model [Table 4].

Table 2: Frequency of effective factors in students' tendency toward smoking

Variable	Gender	
	Boy F (%)	Girl F (%)
Curiosity toward smoking	86 (19.1)	148 (33.0)
Lack of awareness of smoking disadvantages	43 (9.6)	23 (5.1)
Lack of surveillance and control over relationships	145 (32.2)	120 (26.7)
Spending free times with illegal entertainments	112 (24.9)	133 (29.6)

DISCUSSION

In the present study conducted on 900 students in Ahvaz, we observed that 49 subjects (5.44%) had experienced smoking and most of them were 16 years old. In terms of gender, a significant correlation was observed between smoking and gender where male students had higher levels of smoking. In a similar study that was conducted by Ramezankhani *et al.*, unlike the results of our study, smoking incidence was 7.4%, and no significant difference was observed.^[12] Adolescents are almost curious about smoking and have a desirable image in their mind.^[13,14] In the present study, the most important factor in smoking tendency in female students was curiosity about smoking that is consistent with previous studies that mentioned smoking reasons in adolescents as purposeless pleasures, maturity feelings, the need to attract others' attention, rebellion, and psychological complexities.^[14,15] In the present study, the first smoking simulator was referred to the friends of students. Smoking incentive indicates a change in students' attitude toward two past decades, so that in the past, one of the family members would encourage smoking, but nowadays, friends function as a model. This is consistent with the results of a study by Agahi *et al.*^[16] Furthermore, other studies indicated that the effect of smoker friends on the tendency toward smoking is a global issue. Therefore, one of the most important measures of parents is to supervise the relationship of their children with their friends.^[17,18]

Table 3: Demographic characteristics and individual-environmental factors based on smoking status

Variable	Variable levels	Smoking F (%)	No smoking F (%)	P-value
The first smoking experience (years)	<10	10 (20.4)	23 (2.8)	0.0001
	10–14	11 (22.4)	28 (3.5)	
	>14	22 (44.9)	26 (3.2)	
The first cigarette provider	Parents	3 (6.1)	1 (0.1)	0.0001
	Brother - Sister	-	2 (0.2)	
	Friend	28 (57.1)	30 (3.7)	
	Grand father/mother	5 (10.2)	5 (0.6)	
The first simulator	Parents	4 (8.2)	7 (0.9)	0.0001
	Brother - Sister	1 (2.0)	10 (1.2)	
	Friend	34 (69.4)	62 (7.6)	
Feeling after smoking	Feel hate	11 (22.4)	42 (5.2)	0.0001
	Pleasant feeling	29 (59.2)	29 (3.6)	
Number of years of smoking	<1	14 (28.6)	21 (2.6)	0.001
	1–2	9 (18.4)	4 (0.5)	
	>2	13 (26.5)	8 (1.0)	
Number of smoking	Once a month	9 (18.4)	19 (2.3)	0.0001
	Once a week	13 (26.5)	6 (0.7)	
	Daily	15 (30.6)	7 (0.9)	

Table 4: Multivariate analysis of factors related to smoking

Variable	Variable levels	OR (CI)	P-value
Fleeing after smoking	Feel hate	1	-
	Pleasant feeling	0.25 (0.1–0.5)	0.001
Number of smoking	Once a month	1	-
	Once a week	0.24 (0.07–0.8)	0.02
	Daily	0.28 (0.08–0.8)	0.03
The effect of media	Yes	1	-
	No	0.1 (0.04–0.2)	0.001
Frequent coughs after smoking	Yes	1	-
	No	0.06 (0.02–0.1)	0.001
Smoking condition	Singly	1	-
	In the group	0.05 (0.02–0.1)	0.001
People who prevent smoking in the house	Yes	1	-
	No	0.11 (0.05–0.2)	0.001
Tendency to stop smoking	Yes	1	-
	No	0.17 (0.08–0.3)	0.001
Giving importance to health recommendations to stop smoking	Yes	1	-
	No	0.23 (0.1–0.4)	0.001
Exposure to smoking in the house	Yes	1	-
	No	0.15 (0.05–0.4)	0.001
Increased self-confidence after smoking	Yes	1	-
	No	0.04 (0.005–0.3)	0.02
Feeling of maturity after smoking	Yes	1	-
	No	0.02 (0.004–0.2)	0.001
Attractiveness of smoking	Yes	1	-
	No	0.3 (0.1–0.9)	0.03
Good taste of smoking	Yes	1	-
	No	0.08 (0.02–0.2)	0.0001
Relaxing effect after smoking	Yes	1	-
	No	0.11 (0.02–0.4)	0.003
Knowledge about the effect of smoking on tooth decay	Yes	1	-
	No	4.9 (1.5–15.4)	0.006
Knowledge about the effect of smoking on sleeping disorder and appetite	Yes	1	-
	No	3.2 (1.07–10.04)	0.03
Knowledge about the effect of smoking on the lungs	Yes	1	-
	No	4.5 (1.4–14.2)	0.009
Knowledge about this fact that smoking may lead to the consumption of other drugs	Yes	1	-
	No	2.6 (1.04–6.5)	0.004
Creating health risks by smokers for family members	Yes	1	-
	No	4.5 (1.7–11.9)	0.002

Furthermore, another factor that influences the tendency toward smoking and accessibility and accepting smoking is the existence of smokers in the family such as parents. Studies that were conducted in Rasht, Tehran, Babol, and Jahrom showed this relationship, too. Similarly, Siziya *et al.*

reported that adolescents whose fathers smoke have more tendency toward smoking compared with others.^[19-22] In another study that was conducted in Ethiopia, adolescents with smoker parents are likely to smoke 2 times more than others without smoker parents.^[23] A significant relationship

was observed between pleasant feeling after the first smoking experience and unpleasant feeling and most of the students reported a pleasant feeling after the first smoking. Understanding the needs in this period and the expectations of adolescents, establishment of recreational and sport centers, a vast relationship between Parents and Coaches Association, increased awareness through mass media, and creating counseling centers for adolescents under life pressures and crises are among the cases that should be taken into consideration to pass this stage of life pleasantly far from smoking and addiction in society.

CONCLUSION

The results of this study showed a significant relationship between age and smoking where smoking chance increases as age increases. Since students are spending the most critical period of their life, this factor has to be taken into consideration by parents and school authorities to prevent most of the abnormal behaviors such as smoking. Moreover, schools must adopt appropriate preventive measures on this regard. The present study has some limitations which should be considered for generalization of the findings as well as in conducting future studies. This study has been conducted on the high school students; therefore, the results cannot be generalized to other age groups. Furthermore, the collected data in this study were self-reporting which is a limitation in regard to accuracy and subjective errors. Therefore, conducting more comprehensive studies on different age groups as well as using more objective assessments on the smoking prevalence and the risk factors are necessary.

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