



# Smoking Frequency and some Related Factors among High School Students of Kashan City, Iran

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### Authors

Hammamizade O.R.<sup>1</sup> BSc,  
Mazaheri Tehrani A.\* MSc,  
Hajiketabi S.<sup>2</sup> BSc,  
Khatami S.<sup>1</sup> BSc,  
Fathi Moghadam M.<sup>1</sup> BSc,  
Rahimi H.<sup>1</sup> MSc,  
Khandaei Sh.<sup>1</sup> BSc,  
Sarsangi V.<sup>3</sup> MSc

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\*Environmental Health Engineering Department, Health Faculty, Kashan University of Medical Sciences, Kashan, Iran

<sup>1</sup>Health Research Center, Kashan University of Medical Sciences, Kashan, Iran

<sup>2</sup>Student Research Committee, Sabzevar University of Medical Sciences, Sabzevar, Iran

<sup>3</sup>Social Determinants in Health Promotion Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran

### Correspondence

Address: Public Health Faculty, Kashan University of Medical Sciences, Ravand Boulevard, Kashan, Iran. Postal Code: 8715973449

Phone: +983155540111

Fax: +983155540111

mazaheri@kaums.ac.ir

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## ABSTRACT

**Aims** The dramatic increase of smoking in adolescents has become one of the major challenges in most countries and it needs further consideration. The aim of this study was to determine the smoking prevalence and some related factors among high school students.

**Instrument & Methods** This descriptive, cross-sectional study was done in 2012-13 academic year in male and female high school students of Kashan City, Iran and 328 students were selected by multi-stage random cluster sampling method. Data were collected by a researcher-made questionnaire which had three parts; demographic data, history of smoking in the family, and ways of smoking. Data analysis was done using Chi-square and ANOVA tests.

**Findings** 19.3% (52 students) of the high school students of Kashan City, Iran, were smokers; 41 boys (20.2%) and 11 girls (8.8%). Smoking had significant relations with sex, grade and having a smoker in the family. 30.3% of the students had a cigarette smoker and 32.40% had a hookah smoker in their family. Hookah was the most prevalent tobacco product. Friends (47.8% in boys and 10.4% in girls) and then relatives (13.4% in boys and 8.2% in girls) contributed to students' smoking.

**Conclusion** Smoking hookah and cigarette have a high prevalence in sophomore and junior high school boys and having a smoker family member or friend is a main risk factor of start smoking in adolescents.

**Keywords** Prevalence; Smoking; Students; Risk Factors; Iran

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## Introduction

Smoking is the first factor of diseases and deaths [1, 2] and one of the major health problems all over the world [3]. In each cigarette, there are 4000 chemicals among which the carcinogenicity of Banzopyrin, Toluidine, Neftilamin, Acrilantitril, Aminobiophenil, Benzene, Hydrazine, Arsenic, Chromium and Cadmium has been proved [4]. Smoking is also the main cause of most cancers, e.g. lung, cervical and kidney, and other health risks, e.g. heart attacks, infarct and cardiovascular diseases [5].

It is estimated that almost 5.4million people die each year due to cigarette and tobacco consumption and their related diseases [6] and until 2030, this rate will increase to 8.3million deaths all over the world which is about 10% of deaths [4]. Among 1.1billion smokers in the world, 80% live in low or average income countries [7] and 70% in developing countries [5]. Iran is known as one of the 10 first cigarette-importing countries by 24billion cigarettes from the legal routes [8].

Smoking has a high prevalence among youths and adolescents. The start age of smoking is decreasing in various countries of the world [9]. Different studies in Iran have shown that smokers are increasing even among students [10-12]. As the start age of smoking declines, quitting it in the future becomes harder and more unlikely [13, 14]. According to the National Cancer Institute of the United States, more than 6000 adolescents experience smoking for the first time each day [15]. According to World Health Organization (WHO) in 2005, smoking rate in the 15-64 years old group of Iranians is 14.2%; 24% in men and 4.3% in women [16]. The increasing trend of smoking in adolescents is worrying, because individuals' behavior and lifestyle is significantly formed during adolescence [17]. Most of the adolescents who start smoking in the early years of adolescence continue smoking in the following years and its problems increases by passing time [18]. The increasing trend of smoking in adolescents is related to factors such as insufficient information about smoking addiction and its effect on health, peers' influence and pressure for smoking, family history of smoking, low level of parents' education, sex and personal factors such as low self-esteem [4]. An extensive study in Colombia showed that 3.8% of adolescents

smoke and the significant factors of becoming a smoker were close friends' smoking and weak academic performance [19]. Xu has highlighted the friends' role in the trend of smoking [20]. A study in 25 European countries has shown that the prevalence of smoking in European boy adolescents is about 22% [21]. Mohammadpoor Asl *et al.* have estimated the prevalence of tried smokers (who have experienced smoking but had smoked less than 100 cigarette in their life) as 18% and active smokers (who have smoked 100 cigarettes and more) as 4% in high school sophomore adolescents. The most important factor of smoking has reported having a smoker friend [22].

It seems that smoking epidemiology and its related diseases and mortality is transferring to developing countries. Therefore, considering our young population, understanding the situation of adolescents' smoking is important for performing smoking control programs especially with the attitude of smoking start prevention. Future occupational role of the adolescents justifies the importance of studying the prevalence of smoking and the causes of the tendency to smoking in this group. Recognition, prevention and treatment of any factor which is endangering the physical and mental health of this group and as a result may have negative effects on their performance is essential. So, the aim of this study was to determine the smoking prevalence and some related factors among high school students.

## Instrument & Methods

This descriptive, cross-sectional study was done in 2012-13 academic year in male and female high school students of Kashan City, Iran (13890 students), which were selected by multi-stage random cluster sampling method. At last, the students were chosen randomly from the class list. Sample's volume was estimated as 328 students according to  $(Z^2pq)/d^2$  formula ( $Z=1.96$ ;  $p=0.04$ ;  $q=0.96$ ;  $d=0.02$ ). In order to avoid decreasing the number of participants in the study, the researchers together with the school assistant had a group meeting and explained the research's purpose for the students and reaffirmed that the information they submitted would be considered as confidential. The students' cooperation in

filling the questionnaire was very good and all of them filled it. Data were collected by a researcher-made questionnaire which was designed by using past studies related to smoking and also the professors and experts opinion. The questionnaire had three parts; demographic data (sex, age, grade, field of study, number of family members, employment status and education of parents), history of cigarette or hookah smoking in the family, and ways of smoking (type of the consumed substance, e.g. cigarette, hookah or pipe, the way tobacco introduced to them, history of usage in the past month and the best way for fighting smoking from the students' point of view). Its content validity was confirmed by 10 experts and faculty members and its reliability was confirmed in a pilot study with 20 students by Cronbach's alpha method as 0.75.

Data analysis was done with SPSS 20 software using Chi-square test and ANOVA to analyze the relation between independent variables and smoking.

## Findings

203 of sample students were boys (61.9%) and 125 were girls (38.1%) and their mean age was  $16.40 \pm 1.08$  years. 103 of sample students (31.4%) were freshman, 55 (16.8%) were sophomore and 170 (51.8%) were

junior. 19.3% (52 students) of the high school students of Kashan City, Iran, were smokers; 41 boys (20.2%) and 11 girls (8.8%). Smoking had significant relations with sex, grade and having a smoker in the family.

In the month to the study time, the prevalence of smoking was 4.1% among girls and 15.2% among boys. The prevalence of smoking in sophomore and junior boys during the month to the study time was more than freshman boys ( $p < 0.05$ ). The chance of using tobacco products in the students who had a cigarette smoker in their family was about 2 times more than those who did not have a cigarette smoker in their family ( $OR = 2.25$ ). The chance of using tobacco products in the students who had a hookah smoker in their family was about 5 times more than those who did not have a hookah smoker in their family ( $OR = 4.52$ ). 30.3% of the students had a cigarette smoker and 32.40% had a hookah smoker in their family. According to Chi-square test, cigarette is also smoked in the families that use hookah (Figure 1).

The prevalence of using hookah was 70.8%, cigarette was 8%, cigarette and hookah was 8%, pipe was 4.4%, and pipe and hookah was 3.5%. 4.5% of boy smokers and 3.5% of girl smokers used cigarette, 51.3% of boys and 19.5% of girls used hookah and 4.4% of boys used pipe.

**Figure 1)** Frequency distribution of smoker students accorded to parents' education level, parents' occupation status, number of family members, having cigarette or hookah smoker in the family and type of smoking and analyzing their relation with Chi-square test (all cases except type of smoking) and ANOVA

| Parameters                                   |                            | Frequency            | p value     |
|--|----------------------------|----------------------|-------------|
| <b>Parents' education level</b>              |                            |                      |             |
| Mother                                       | Secondary education $\leq$ | 46 (16.9)            | 0.006       |
|  | > Secondary education      | 6 (2.4)              |             |
| Father                                       | Secondary education $\leq$ | 47 (17.5)            | 0.196       |
|  | > Secondary education      | 5 (1.8)              |             |
| <b>Parents' occupation status</b>            |                            |                      |             |
| Mother                                       | Employee                   | 6 (2.05)             | 0.025       |
|  | Housewife                  | 46 (17.25)           |             |
| Father                                       | Employee                   | 10 (4)               | 0.904       |
|  | Self-employed              | 42 (15.3)            |             |
| <b>Number of family members</b>              |                            | 26 (9.65)            | 0.682       |
|  |                            | >4                   |             |
| <b>Having cigarette smoker in the family</b> |                            | 25 (9.2)             | $p < 0.001$ |
|  |                            | No                   |             |
| <b>Having hookah smoker in the family</b>    |                            | 35 (13.2)            | $p < 0.001$ |
|  |                            | No                   |             |
| <b>Type of smoking</b>                       |                            | 4 (1.3)              | $p < 0.001$ |
|  |                            | Cigarette            |             |
|  |                            | 39 (14.6)            |             |
|  |                            | Hookah               |             |
|  |                            | 2 (0.8)              |             |
|  |                            | 6 (2.2)              |             |
|  |                            | Cigarette and hookah |             |
|  |                            | 1 (0.4)              |             |
|  |                            | Hookah and pipe      |             |

47.8% of boy smokers were promoted to smoke by their friends, 13.4% by their relatives, 9% by their classmates, 3% by their family members and 3% by their neighbors. 10.4% of girl smokers were promoted to smoke by their friends, 8.2% by their relatives, 3% by their classmates, 1.5% by their family members and 0.7% by their neighbors.

46.0% of smoker students knew public awareness increase, 33.7% knew smoking control programs, 16.2% knew forbidding smoking and 4.1% knew unemployment reduction and cigarette tax increase as the best way of fighting against smoking.

## Discussion

Prevalence of smoking is estimated to be 19.3% among the Kashan City, Iran, high school students. Comparing the results of this study with Nazarzadeh *et al.* in Zanzan [23] and Mohammadpoor Asl *et al.* in Tabriz [22] shows higher prevalence of smoking in Kashan high school students. In another study on Shiraz high school sophomore students, the prevalence of smoking cigarette was lower; tried smokers 16.9% and active smokers 2.5% [12].

The results of our study showed that 23.2% of boys and 12% of girls have smoked (about 2 times more in boys). This result is compatible with most of the epidemic researches [24-26]. It seems that lower percentage of the consumption of tobacco products in girls is related to unacceptability of this behavior from the women's point of view, although the gap between sexes in smoking has decreased in recent years [27]. Usually, smoking is considered as an unsocial behavior by women. In our society, women, especially young and adolescent women, barely smoke in public and if they are interested in smoking, they occasionally do it, so they smoke less than men. Therefore, being a boy is one of the risk factors of smoking. This is what has been confirmed in other studies too [28].

In accordance with the result of most researches about smoking [24, 29, 30], results of our study showed that as the age and grade goes up, smoking is increased. Prevention programs should focus on younger adolescents [30]. The prevalence of smoking among the 8<sup>th</sup>, 10<sup>th</sup> and 12<sup>th</sup> grade students of

the United States was reported as 15, 31 and 39%, respectively [24].

In our study, the 18-20 years old age range (30.3%) had the most prevalence of smoking starters. This is compatible with most studies about smoking [31-34]. Arvanitidou *et al.* has reported that one of the smoking risk factors in adolescents is age. They have shown that by increasing the age, the risk of becoming a smoker is increased in adolescents [35].

The most common tobacco product is hookah with the relative frequency of more than 70%. Taremian *et al.* have reported the usage of cigarette as 24.2% and hookah 33.9% [36].

The smoking rate among students who had a cigarette smoker (OR=2.25) and hookah smoker (OR=4.52) in their family was significantly more. There are some other studies that show the adolescents whose parents smoke, are more likely interested in smoking [24, 29, 37]. It seems that a set of genetic, educational and learning factors are involved in this processes [28, 38, 39]. According to the past studies, when the parents smoke they are exposed to smoking risk by observational learning and also by transferring the smoking acceptability attitude to children [40, 41]. According to Bendora's social cognitive learning theory, adolescents get their beliefs in smoking from role patterns, especially friends' and parents' smokers. In this point of view, it is supposed that having contact with friends and parents who smoke, makes special beliefs in the person and that belief directs him to misuse of tobacco products [42, 43].

According to researches, having a cigarette smoker family member increases the chance of smoking in adolescents [44, 45]. The relation between smoking in the family and adolescents' smoking has been proved in domestic and foreign studies [31, 45]. Family is the first society that the individual enters and it is the most important institution that has a role in sociability and transferring the beliefs to individuals [31]. According to studies, one of the predisposing factors of becoming a smoker is seeing the parents or family members smoking. Also, parents' consideration and attention to adolescents' smoking is a barrier for becoming addicted to cigarette [31]. In the other hand, it has been shown that having a smoker family member,

in addition to making a pattern role for the adolescent, makes the cigarette available to the person [46].

According to the findings of this study friends (47.8% in boys and 10.4% in girls) and then relatives (13.4% in boys and 8.2% in girls) contributed to students' smoking. There are few researches about adolescent, smoking and drug in which the significant role of friends and learning their habits is not mentioned. Previous reports support the peers' role in forming adolescents' mind in deciding to smoke [47]. Our study in line with other domestic and foreign studies [47, 48] confirms that in adolescents' smoking, friends have an important role. Adolescence is a period that the individuals gradually get out of the family's dependence and join the social groups [31]. Also the friends' group is a strong promoter for adolescents' activity in puberty. Due to this, adolescents who are interested in smoking, mostly choose the friends who smoke or are accepted by those who smoke [46].

According to our findings, despite the legal restrictions of selling tobacco products to adolescents in Iran, a high percentage of the youth smoke. This apparent contradiction shows that smoking control acts without intersectional cooperation have a little effect on reduction of smoking. Therefore, it is significant that Health and Education Ministries have cooperation and special attempt to follow WHO goals to decrease smoking, at least in students [49].

In this study, in order to prevent losing the samples, the questionnaires were collected immediately after filling which can be a limitation. Considering the adolescent's high prevalence of smoking in this study, preventing services and training life skills to adolescents and their families with focusing on correcting incorrect beliefs, in addition to stricter administration of the prohibition act of selling cigarette to adolescents, is recommended. Also considering the fact that adolescents follow each other's behaviors in this age, parents should pay more attention to their children's sociability and their friendly relations with others.

## Conclusion

Smoking hookah and cigarette have a high prevalence in sophomore and junior high

school boys and having a smoker family member or friend is a main risk factor of start smoking in adolescents.

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