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Effective factors on cigarette smoking among male high school students in Iran: A cross sectional study

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ABSTRACT

The cigarette smoking is a life style habit which always acquired during adolescence. Because the huge impact of the cigarette smoking on human health, the present study was investigate the prevalence and effective factors on cigarette smoking among male high school students in Iran. A cross – sectional study was conducted among 147 male high school students in Ilam, west of Iran in 2015. The study samples were selected by a multi-stage sampling method. Data was collected by both questionnaire and Nicotine test kit. The urine nicotine was detected according to column chromatography and identified by High- Performance Liquid Chromatography, which detected the urine nicotine levels based on consumption during the past 24 - 72 hours. SPSS software 20 was used to analyze the data of this project. P value of 0.05 was considered statistically significant. Overall, 147 students were studied. All participants were second grade of high school in 3 fields of study including; natural sciences, human sciences and mathematics. Overall, 48 students put in the cigarette smoker. The start age of cigarette smoking was highest in > 15 years. There are statistically significant relationships between students' cigarette smoking with parents' education level and parents' occupation. There is a significant relationship between student cigarette smoking and other family members' cigarette smoking. The risk of students' cigarette smoking increased in whose have father cigarette smoker. The prevalence of cigarette smoking is high in the study population, therefore the development of appropriate strategies to reduce the cigarettes smoking is recommended.

Keywords: High- Performance Liquid Chromatography, Multi-stage sampling method, Nicotine test kit

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INTRODUCTION

Tobacco use and the cigarette smoking are the most important problems of modern societies. So that they are leading preventable cause of disease, disability, and death in the United States. In fact, the cigarette smoking is the causes of one of five deaths [1]. The cigarette smoking is a life style habit which always acquired during adolescence [2]. Therefore, adolescent period is considered as an important and high risk period to start cigarette smoking [3]. In a cross- sectional study evaluated the prevalence of smoking among 1120 adolescents in 10-19 years age old. The results of this study, demonstrated that 7.1% of study samples were smokers [2]. In another study, the prevalence of cigarette smoking reported among 8.8% of Chinese adolescents [4]. Despite the negative effects of

cigarette smoking, 20 % of Iranian youth have experienced cigarette smoking [5]. There are more than 4,000 compounds in tobacco products. Nicotine as a major tobacco component can be quickly absorbed in the lungs through the cigarette smoking. Also, the nicotine absorbed through the oral mucosa from oral products [6]. However, should not forget that the side effects of smoking involve all groups. There are serious side effects of the cigarette smoking in pregnant women including; preterm delivery, stillbirth, low birth weight, sudden infant death syndrome, and ectopic pregnancy [7]. Affect on men's sperm is another side effect of the cigarette smoking, which can decrease the fertility rate and raise the risks of both birth defects and miscarriage [8]. Other main side effects of the cigarette smoking are including; inflammation, decreased immune function and rheumatoid arthritis. Previous study reported the age, education level, occupation and mother's education as effecting factors of tobacco smokers in Iranian male adolescents [9]. Another Iranian cross-sectional study reported that all theory of planned behavior components includes the knowledge, attitude, self-efficacy, and subjective are considerate as predating factors for adolescents smoking habits [10]. Adolescents are the foundation of the future of every country [11, 12] and the cigarette smoking has a huge impact on their health. Therefore, this study was investigated the prevalence and risk factors the cigarette smoking among adolescents in Ilam, west- of Iran in 2015.

MATERIALS AND METHODS

A cross – sectional study was conducted among male high school students in Ilam, western of Iran in 2015. The samples were selected by multi-stage sampling method. Considering P= 0.44 (10), d= 0.2*P, overall 147 male students were calculated as study sample size. Thursday and Friday are Iranian weekends. Due to the high probability of recreational use on the weekends, all sampling was carried out as soon as the start of week, Saturday before 10 am. Firstly, the Ilam was divided into 5 clusters and a male high school was selected from each cluster randomly. Because a reliable psychological reference (13) indicated the 16 years old as the most common age of onset of the cigarette smoking, therefore, we chose the second grade high school classes for study samples. In addition, to reduce confounding factors, all 3 fields of study including natural sciences, human sciences and mathematics were considered as study samples. The next step, a class was selected from each high school, randomly. All students were enrolled, but those who unwilling to participate in the study. Data were collected using both demographic information questionnaire and Nicotine test kit.

The demographic information questionnaire: The demographic information questionnaire was designed by the authors and assessed variables such as age, education field and the schools cluster. The parents' occupations were classified into two groups including governmental and non-governmental groups. However, the parents' education variables were classified into five groups including, illiterate, elementary, high school, diploma and academic education levels.

Nicotine test kit: In the current study, the urine nicotine was detected according to column chromatography and identified by a High- Performance Liquid Chromatography (HPLC). This kit detected the urine nicotine levels based on consumption during the past 24 -72 hours.

Research Ethical considerations: This study was undertaken with the approval of the Ethical Committee of the Ilam University of Medical Sciences, Iran. A voluntary written informed consent was obtained from all participants. All demographic information questionnaire and urine samples were marked by a code rather than student's first or family name or any other personal details. After entering the information into the SPSS software, all questionnaires were eliminated by the researcher. SPSS software 20 was used to analyze the data of this project. Mean± SD and percentages were used to describe the data. P value of 0.05 was considered statistically significant. Statistical comparisons were made using the x^2 test and unpaired t-test

Results: A total 147 male high school students were studied. All participants were second grade of high school. They were enrolled in 3 fields of study including; the natural sciences (one class), human sciences (two classes) and mathematics (two classes) (Table 1).

Table 1: Distribution of absolute and relative frequency of participants based on the field of study among Iranian high school students in 2015

Fields of study	Frequency	
	Absolute	Relative
Natural sciences	32	22
Human sciences	62	42
Mathematics	53	36

Overall, 48 students (32.65%) put in the cigarette smoker group. The start age of the cigarette smoking was more than 12 years in all consumers. Although, the start age of the cigarette smoking was highest in > 15 years. The start age of the cigarette smoking among participants in the study are presented in table 2.

Table 2: Distribution of absolute and relative frequency of participants based on the start age of the cigarette smoking among Iranian high school students in 20145

Age group	Frequency	
	Absolute	Relative
< 10	0	0
10-12	0	0
13-15	19	40
> 15	23	48
Unclear	6	12

The results showed that there is are statistically significant relationship between students' cigarette smoking with parents' education level and parents' occupation.

Table 3: Demographic characteristics and other factors related to the cigarette smoking among Iranian high school students in 2015

Characteristics	**Group****		**P- value**
	Non-smoker (N= 99)	**Smoker (N= 48)**	
Age* (years)	16.5 ± 0.28	16.3 ± 0.4	0.531
Fathers education level			
Illiterate	15 (15.2)	17 (35.4)	
Elementary	20 (20.2)	14(29.2)	0.004
High School	24 (24.3)	8 (16.6)	
Diploma	27 (27.3)	5(10.4)	
Academic	10 (10)	2 (4.2)	
Unclear	3 (3)	2(4.2)	
Mothers education level			
Illiterate	18 (18.2)	14 (29.2)	0.03
Elementary	23 (23.2)	15 (31.25)	
High School	23 (23.2)	9 (18.75)	
Diploma	25 (25.4)	6 (12.5)	
Academic	9 (9)	4 (8.3)	
Unclear	1 (1)	0(0)	
Fathers occupation			
Governmental	59(59.6)	23 (47.9)	0.001
Non-governmental	40(40.4)	25 (52.1)	
Mothers occupation			
Governmental	39(39.9)	17(35.4)	0.005
Non-governmental	60(60.1)	31 (64.6)	

**Values are given as Mean ±SD*
***N (%)*

The results show that there is a significant relationship between the student cigarette smoking and other family members' cigarette smoking (P= 0.001). So that, the risk of the students cigarette smoking increased in whose have father cigarette smoker (OR= 1.8; P= 0.001).

DISCUSSION

The present study aimed to investigate the risk factors associated with the cigarette smoking among male high schools students. The prevalence of the cigarette smoking was 32.65% among our study population. Regarding in the current study, the cigarette smokers were identified based on both the questionnaire and laboratory confirmation,

therefore, it should be noted that this prevalence is definitive and significant. However, an Iranian study in line with our results reported that 44.6% of Iranian male high school students has been used of cigarette in - past or now (10). While, several studies have been reported the lower prevalence of cigarette smoking than our results. It should be noted the change of the access to cigarette, demographic, cultural and economic differences are important factors for the different reported rates between the present study and other studies (9, 14).

In our research, about half of the smokers' participants were start the cigarette smoking at > 15 years old. Another study confirms with our result, reported the significant relationship between age and tobacco smokers, so that older students have higher frequency of tobacco smokers (9).

Our results reported the parents' education level and parents' occupation as effective factors on students' cigarette smoking. In the other words, the risk of the cigarette smoking was higher among adolescents with illiterate fathers (15.2% Vs. 35.4%, in non- smoker Vs. smoker students) and mothers (18.8% Vs. 29.2%, in non- smoker Vs. smoker students). Also in the present research, the possibility of the cigarette smoking was higher among adolescents whose parents had non-governmental occupation. Barati et al in confirm with our result, reported the relationship between mother's job, and mother's education with male adolescents tobacco smokers (9). While this result is consistent with another study (15).

We found that there is a significant relationship between the student cigarette smoking and other family members' cigarette smoking. This risk was 1.8 times in students whose have father cigarette smoker. In another study in line with our results, has been confirmed the association between increased the risk of the cigarette smoking and friends smoking (OR = 3.76) or parents smoking (OR = 4.75) (10).

CONCLUSION

The prevalence of the cigarette smoking is high in the study population. Therefore, we recommended development of appropriate strategies to reduce the cigarette smoking among adolescents and young people.

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