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Prevalence and Causes of Smoking Tendency in High School Students in Yazd, Iran

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ABSTRACT

Background: Tendency to smoke is one of the most important social problems and harms. The aim of this study was to determine the prevalence and causes of smoking in high school students in Yazd province and to study some of the factors affecting it.

Methods: This was descriptive-analytical cross-sectional study with a statistical population of 455 high school students in Yazd who were selected by cluster-random sampling. Research data were collected using a researcher-made questionnaire.

Results: In this study, 34.7% of students had a history of smoking, and the age of the first experience of smoking was 15-20. 20.7% smoked cigarettes through others, and 14% smoked their first cigarette. 13.8% believed that the reason for smoking their first cigarette was imitation of others, and 8.8% believed in becoming more mature and beautiful. 15.8% of the students were currently smoking, of whom 9.7% was for hoby and occasionally, and 12.7% was through friends. 23.7% of students had a history of alcohol consumption. The most sources of information about smoking were family, cyberspace, and friends, respectively. 55.6% of students found smoking cessation difficult, and 89.2% of students believed that smoking was harmful. 62.4% did not believe that smoking was a risk factor for coronary heart disease, and 37.6% did not believe that smoking was a risk factor for coronary heart disease.

Conclusion: Due to the relatively high frequency of smoking (about one sixth) among high school students, educational programs should be done since adolescence, and because family, cyberspace, and friends were the most important source of information about smoking, so appropriate education can be very effective.

Keywords: Smoking - Students - Prevalence - Causes of tendency.

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Introduction

Nowadays, smoking is considered a health problem throughout the civilized world. The number of deaths from smoking increased from 4.5 million to 4.6 million in 2015, and is expected to reach 3.8 million cubic meters by 2020, including one in three deaths among adults (1, 2). The destructive effects of smoking on health have been well documented by studies focusing mainly on coronary heart disease and cancer (3). Cigarette or tobacco smoke contains more than over 4,000 chemicals such as tar, carbon monoxide, hydrogen cyanide, nicotine, acetone, arsenic, phenol, naphthalene and cadmium, many of which are known to be toxic and at least 43 of them cause cancer (4). Nearly half of smokers started smoking by age 18, and 78.3% first try smoking before the age of 20 (5). The rate of death from tobacco smoking is higher than the total death from AIDS, alcohol consumption, cocaine use, heroin use, suicide, homicide, motor vehicle accidents and fires. Given that half of smoking-attributable deaths occur in adults and children, it can reduce the life expectancy of 31- to 65-year-olds by 20 to 25. By definition, smoker is a person who has smoked one or more types of tobacco products on a daily basis or non-daily basis (6, 7). 1% of all deaths in the world are due to smoking (8).

Cigarette smoking is considered as the fourth risk factor for increasing the overall burden of diseases that has affected all aspects of human health as a global epidemic (9). Various factors, including individual-family and social factors affect smoking behavior; imitation of famous people in society, friends and peers are the most important factor among social factors (10). Access and ease of getting cigarettes for public and its low social ugliness in societycauses people, especially adolescents and young people, to turn to it and continue to use and become addicted to it (11). The age of starting to use hookah and cigarettes in the country has reached 13 to 15, more than 20% of men and 4% of women over 15 years of age in the country use cigarettes daily. In this study, a smoker is defined as a person who has smoked at least one cigarette consistently for at least one year (12) and the history of smoking means smoking even one cigarette over his/her lifetime (12). Due to the harmful consequences of smoking, lawmakers have enacted countless restrictive rules for smoking in the workplace and in public places, considering that starting smoking at a younger age is associated with more irreparable risks; therefore, paying attention to the prevalence of smoking at younger ages and health planning according to research findings will greatly help reduce smoking (13); This study was conducted to determine the prevalence and causes of smoking tendency in high school students in Yazd province and to study some of the factors affecting it.

Methods

This study was a kind of descriptive-analytical cross-sectional research which was conducted to determine the high school students' attitude towards smoking in Yazd. The research statistical population included 29770 high school students in Yazd. Inclusion criteria involved male and female students who were prepared to participate in the study and high school students (secondary school) in Yazd province, selected according to the sample size. Exclusion criteria included disinterest to continue participating in the study and completing the questionnaires imperfectly.

1. The sample size was considered 455 using Cochran's formula with a 95% confidence level. The sampling method was cluster-random. The two districts of Yazd were selected with the total number of samples as 246 people and 2 other districts were also randomly selected among cities and schools (2 cities (taft, mehriz) and 2 districts of Yazd city(1,2)) in a random and cluster method. The authors designed research data using the standardized questionnaire related to Shoor et al. (2000) in the Press Line system and collected them in the students studying virtual spaces (such as WhatsApp and Shad) because the schools were closed due to the prevalence of COVID-19. The data were collected using a main questionnaire method that included 2 parts with 49 questions in the following order: The first part of the questionnaire includes 32 questions

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that cover demographic features such as (age, gender, academic year, field of study, grade point average of the past year, father's education level, mother's education level, mother's occupation, father's occupation, the statue towards student-father-mother-friends smoking, family living status, family financial situation, religious beliefs, etc.) and the second part of the questionnaire included 17 attitude questions used in order to collect data from the standard questionnaire related to Shoor et al. (2000) that explains the attitude scale towards smoking (15). Rajabi et al. validated this questionnaire in 2006 and it is possible to use it as a reliable and valid instrument to examine the attitudes concerning smokers and non-smokers towards smoking (16).

Results

This study focused on 455 students in the 15-19 age group. The highest frequency of the subjects was related to: the age groups of 18 and then 15, male gender, being in 12th academic year in the field of Technique and Vocational Course. The grade point average of the whole group was A, i.e. above 15, and most of their families were homeowners. Their father's level of education and occupation was higher than high school diploma and higher and were employee; the level of education and occupation of their mother was higher than high school diploma and higher and were housewife. In terms of economic status, they were at moderate level and practiced 69.5% of religious beliefs such as prayer and fasting and 30.5% of them did not practice religious beliefs such as prayer and fasting (Table 1).

Table 1. Frequency distribution of the subjects in terms of the desired variables

Variable		Number	%
Age	15	100	22
	16	77	16.9
	17	80	17.6
	18	102	22.4
	19	96	21.1
Gender	Female	212	46.6
	Male	243	53.4
Level of education	10th	130	28.6
	11th	148	32.5
	12th	177	38.9
Field of study	Math	98	21.5
	Experimental sciences	111	24.4
	humanities	118	25.9
	Technique and vocational course	128	28.1
Total grade point average	B	149	32.7
	A	306	67.3
Family residence status	Home-owner	351	77.1
	Tenant	104	22.9
Father's education level	Under high school diploma	113	24.8
	High school diploma	120	26.4
	High school diploma and higher degree	146	32.1
	Bachelor and higher	76	16.7
Mother's education	Under high school diploma	119	26.2
	High school diploma	116	25.5
	Diploma and higher degree	140	30.8
	Bachelor and higher	40	17.6
Father's job	Employee	130	28.6

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Variable		Number	%
	Self-employed	114	25.1
	Worker	116	25.5
	Retired	95	20.9
Mother's job	Employee	132	29.0
	Self-employed and worker	88	19.3
	Housewife	235	51.6
Economic situation	Weak	50	11
	Medium	265	58.2
	Good	140	30.8
religious beliefs	Yes	316	69.5
	No	139	30.5

As shown in Table 2, 34.7% of students had a history of smoking, and the age of their first smoking experience was 15-20 years old. 20.7% received cigarettes from others and 14% smoked the first cigarette following their own decision. 13.8% stated that the reason for smoking their first cigarette was imitation of others and 8.8% believed that they are shown to be more mature or more beautiful with cigarettes.

Table 2. Frequency distribution of subjects according to smoking history

Variable		Number	Percentage
History of smoking	Yes	158	34.7
	No	297	65.3
Age of first experience of smoking	I do not smoke	297	65.3
	10-14 age group	32	7
	15-20 age group	81	17.8
	I do not remember	45	9.9
The person from whom the first cigarette was received	I do not smoke	297	65.3
	by my own	64	14
	Trough other people	94	20.7
The reason for smoking the first cigarette	I do not smoke	297	65.3
	To find peace	16	3.5
	Imitation from other people	63	13.8
	Reaction to parents	10	2.2
	I thought I would look more mature or prettier with a cigarette	40	8.8
	I tried whether I liked it or not	29	6.4

As shown in Table 3, 15.8% of students smoked and were currently smoking, of whom 9.7% smoked casually and occasionally smoked. 8.6% were smokers for 3 years and more. 8.4% smoked more outside home. 12.5% have never been ill due to smoking and 12.7% were encouraged to smoke by their friends.

40.2% of students' fathers were smokers and 3.7% of their mothers were smokers and 19.6% of them had smoking friends. 58.9% of students had good support and 20.4% had moderate emotional support, and 23.7% of students had a history of alcohol consumption. The most common sources of information about smoking and its harms were family, cyberspace (such as Telegram, WhatsApp, and Instagram) and friends, respectively.

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Table 3. Frequency distribution of people under study by current smoking

Variable		Number	%
They smoke now	Yes	72	15.8
	No	383	84.2
Number of cigarette butts per day	I do not smoke	383	84.2
	1 cigarette butt per day	4	0.9
	2-3 cigarette butts per day	10	2.2
	4-5 cigarette butts per day	5	1.1
	More than 5 cigarette butts per day	9	1.9
	Sometimes	44	9.7
Duration of being a smoker	I do not smoke	383	84.2
	Less than 6 months	17	3.7
	6-12 months	5	1.1
	1-2 years	11	2.4
	3 year and more	39	8.6
A place where most people smoke	I do not smoke	383	84.2
	Home	13	2.9
	Party	10	2.2
	Friends' home	11	2.4
	Outside from home	38	8.4
Disease due to smoking so far	I do not smoke	383	84.2
	Yes	15	3.3
	No	57	12.5
Incentives about smoking	I do not smoke	383	84.2
	Friends	58	12.7
	Family	2	0.4
	Others	11	2.4
Smoking by those around the students	Father	183	40.2
	Mother	17	3.7
	Sister or brother	44	9.7
	Friends	89	19.6
	Teacher	44	9.7
Emotional and spiritual support of the family	Excellent	81	17.8
	Good	268	58.9
	medium	93	20.4
	Weak	6	1.3
	Very weak	7	1.5
Alcohol consumption history	Yes	108	23.7
	No	347	76.3
The most important source of information about smoking and its harms	Conferences	14	3.1
	Radio and TV	132	29
	Magazines and newspapers	24	5.3
	Educational books and pamphlets	149	32.7
	Banners, posters and pamphlets	97	21.3
	Family	258	56.7
	Friends	196	43.1
	Internet	173	38
	Healthcare staff	19	4.2
	Cyberspace (Telegram, WhatsApp, etc).	233	51.2

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As shown in Table 4, most of the subjects did not want to quit smoking. In addition to those who did not want to quit smoking, the highest frequency of subjects was more than six months in terms of the duration of the desire to quit smoking. According to subjects under study, the reason for not quitting smoking has so far been expressed as a solution to fight problems, gain more pleasure and increase concentration, respectively. According to the most sources of information about smoking and its harms, family, cyberspace (such as Telegram, WhatsApp and Instagram) and friends reported, respectively, which was consistent with the study carried out by Marzban et al. (17).

Table 4. Frequency distribution of subjects under study in terms of tendency to quit smoking

Variable		Number	%
Tendency to quit smoking ever	I do not smoke	383	84.2
	Yes	34	7.5
	No	38	8.3
Duration of tendency to quit smoking	I do not smoke	383	84.3
	Unwillingness	38	8.4
	Less than one month	6	1.3
	Less than six months	6	1.3
	More than six months	22	4.8
The reason for not quitting smoking so far	I do not smoke	383	84.2
	Problems related to quitting the habit	5	1.1
	Tendency to consume	9	2
	Increasing focus	14	3.1
	Gaining more fun	17	3.7
	Solution to fight problems	27	5.9

As shown in Table 5, the subjects reduced smoking by 5.9% at the same time as the onset of COVID-19, and 9.9% did not reduce smoking by the onset of COVID-19. 55.6% of students found it difficult to quit smoking. 89.2% of students believed that smoking was harmful. 62.4% considered smoking to be a risk factor for COVID-19 and 37.6% did not believe that smoking was a risk factor for COVID-19.

Table 5. Frequency distribution of subjects under study in terms of smoking and COVID-19

Variable		Number	%
Reducing smoking concomitantly with COVID-19	I do not smoke	383	84.2
	Yes	27	5.9
	No	45	9.9
What is it like to quit smoking?	Very difficult	77	16.9
	Difficult	253	55.6
	Easy	112	24.6
	Very easy	13	2.9
Belief in the harmfulness of smoking.	Yes	406	89.2
	No	49	10.8
You believe that smoking is a risk factor for COVID-19.	Yes	284	62.4
	No	171	37.6

Discussion

It is necessary to implement appropriate educational programs and community-based interventions and preventive measures in adolescents from an early age and at the school level in order to prevent smoking due to the high prevalence of smoking (34.7%) in students. This study has focused on 455 high school students with

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an age range of 15-19.According to the results of studies on the history of smoking in students, 34.7% of students had a history of smoking, of whom 41 were girls and 117 were boys. The highest frequency of subjects in terms of age of the first experience of smoking was 15-20. This statistic related to the history of smoking shows 34.7% of smoking in the target group, and shows that smoking is a growing trend and smoking begins in adolescence (14). Haji Hassani et al. during a study among Shahrekord University students concluded that 25% of students had a history of smoking, 12% among girls and 38% among boys (15).

Alaei et al. during a study on high school students in Karaj, concluded that 57% of students have tried at least one substance in their lifetime, including cigarettes, hookahs, alcohol and other substances (16). In a study of male students at Kerman universities, Gavari et al. found that more than half of the students (53%) had a history of smoking, 37% did not remember the age of first experience, and 25% were in the age range of 15-19 (18).

In this study, 13.8% attributed their first smoking to imitation of others, and 8.8% believed that they were shown to be more mature or prettier with cigarettes. In a study on male students at universities in Kerman, Gavari et al. concluded that more than half of students received 54% of their cigarettes, citing two factors: "imitating the behavior of others" and "trying to determine whether they liike it or not "(19).

In a study, Ping Zhu et al. stated two reasons, including "imitating others" and "trying to determine whether they like it or not " (20). Identifying the factors that cause young people to smoke has significant effect on reducing smoking (12).

In this study, of these 34.7% of people with a history of smoking, 20.7% received their first cigarette from others and 14% smoked on their own. This can be due to imitation of others, being shown to be more mature or more beautiful by smoking and other effective factors. 15.8% of students were currently smoking. Of these, 15.8% (9.7%) smoked daily and occasionally. 8.6% had been smokers for 3 years and more. 8.4% of smoking students smoked outside home. Most of the subjects (12.5%) have not been ill due to smoking. Students were most encouraged to smoke (12.7%) by students. According to the results of studies in learning environments, close friends are often more involved in smoking than acquaintances, and this is due to more interaction with their friends (20). Smoking has become one of social norms by different age and sex groups and often outside the home.

Therefore, adolescents and young people may believe that smoking has no negative effect on health and smoking is accepted by society. Therefore, at least the law forbidding the sale of people under the age of 18 should be strictly followed by the law to combat smoking in adolescents, because the sale and purchase of cigarettes is subject to national and permitted laws. In a study of male students at universities in Kerman, Gavari et al. concluded that 48% did not remember the place for smoking, 37% did not remember the age of the first experience, and 25% stated that they were between the ages of 15-19.

54% received cigarettes from others (16). Ping Zoo et al. concluded in a study that 28% of boys and 3% of girls smoked (21). Namkin et al., during a study on male high school students in Birjand, concluded that 4% of students had smoked and 21% had experienced smoking; this indicates the increasing consumption of young people day by day, even despite the COVID-19 (12) Yazdani in a study on high school students in Isfahan concluded that the prevalence of smoking is 22.5% (22).

Ayatollah et al. during a study of pre-university students in Tehran concluded that 35% had experience of smoking and 7.2% of them were smokers (23). In a study of young people in 13 countries, Warren concluded that the prevalence of smoking was between 10 and 33% (24).

Conclusion

Educational programs should be developed from adolescence due to the high number of people with a history of smoking (one sixth of the study population) and the relatively high number of smokers among high school students these days. Family, cyberspace and friends are considered the most important source of information about

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smoking, so proper training on this basis and communication channel can be very effective.

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Conflicts of interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Ethical considerations

Scientific-ethical approval for the dissertation was obtained from the ethics committee of the School of Health and Safety of Shahid Beheshti University of Medical Sciences in Tehran with the ethics code IR.SBMU.PHNS.REC.1399.103 and obtained informed and free consent from individuals to participate in the study.

Code of ethics

IR.SBMU.PHNS.REC.1399.103

Authors' contributions

The corresponding author designed and implemented the study, analyzed the data, and prepared the manuscript. All authors contributed to reviewing and approving the final version.

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Supporting organization

This study is adapted from a part of the MPH dissertation in the field of communication in health education and health promotion at Shahid Beheshti University of Medical Sciences in Tehran, which has not been financially supported by any organization.

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