

Pattern of tobacco usage among the secondary school students in Qom

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Abstract

Background: Tobacco use, including smoking, chewing or inhaling any type of tobacco product is increasing worldwide, especially in adolescents and high school students.

Objectives: To assess the pattern of tobacco use in the first and second grade high school students in Qom.

Method: A cross-sectional study was conducted among 823 first and second grade secondary education students in Qom in 2019. Global Youth Tobacco Survey (GYTS) questionnaire was used to collect data. Data were analysed using independent t-test and Chi square.

Results: Overall 43.6% of students had tobacco use experience and 22.1% were currently using tobacco. Students who had 'ever smoked' cigarettes were 42.1%. Boys were more likely than girls to have 'ever smoked' cigarettes. Current tobacco smokers were 20.2% and current smokers of other tobacco, such as water pipes, were 14.9%.

Conclusions: Overall prevalence of tobacco use in the high school students of Iran was high. The most commonly used tobacco among respondents was smoked tobacco other than cigarette, like water pipes. Age was found to be an independent predictor of tobacco use among students.

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Introduction

Tobacco use is a preventable cause of death globally¹. According to the World Health Organization (WHO), a tobacco consumer is someone who uses some type of tobacco product daily or occasionally². Tobacco smoking is an important health-related behavioural factor in current society³. Smoking is a major risk factor for cancer, chronic lung disease and cardiovascular disease⁴. In addition, many non-smokers suffer from unwanted exposure to tobacco smoke⁵. There are about 250 million smokers in the world and an equal number of people who use chewing tobacco, most of whom are also using other carcinogens⁶. Tobacco smoking causes at least 7 million deaths worldwide each year, 6 million of which are directly related to tobacco, and about 890,000 people die from second-hand smoking⁷. Smoking is responsible for 90% lung cancers, 40% other cancers, 75% respiratory diseases, 50% cardiovascular diseases, 30% deaths between 30-50 years of age and 12% total deaths⁸. The lifestyle is predominantly established during adolescence and 70% of deaths occur as a result of behaviours that were modifiable in adolescence⁹. One in five smokers in the world are teenagers 13 to 15 years old, and 100,000 teenagers a day start smoking¹⁰.

The prevalence of smoking in men is globally 48% versus 10% in women and three-quarters of deaths from smoking occur in men⁶. The worldwide survey of tobacco use in adolescents showed that tobacco use in the age group of 13-15, was 5.1% in boys and 4.8% in girls¹¹. Many people start smoking from their adolescent years¹². Currently, there are 4.7 million secondary school students in the world who smoke¹³. Although tobacco use has declined sharply over the past 40 years, one in 20 teens are still smoking¹⁴. Tobacco-free programmes, taxes and tobacco prices, and effective prevention programmes can control tobacco use¹⁵. In particular, adolescents are affected by other factors such as smoker peers, parental smoking, access to tobacco, exposure to tobacco use and weak self-esteem or self-confidence¹⁶. Various studies have shown different rates of tobacco use among students in Iran^{17,18}. Information on tobacco use among students is insufficient in Qom. This study was developed to help fill this data gap.

Objectives

To investigate the pattern of tobacco use in the first and second grade high school students in Qom.

Method

A descriptive-analytical cross-sectional study was conducted among secondary grade high school students in Qom in December 2019. The study population comprised all male and female secondary grade high school students. Data were collected under the supervision of a trained data collector after coordination and agreement with the teachers. The teachers left the classroom and students were told to voluntarily fill in the questionnaires. To maintain confidentiality, the questionnaires were self-administered and completed anonymously. Participants were informed about the voluntary nature of the study orally. The questionnaire took about 15-20 minutes to complete. Finally, 823 eighth, ninth, tenth, eleventh and twelfth graders participated in the survey. They were aged 13-18 years at the time of the survey.

The sample size was calculated using single population proportion formula. According to the results of Karimi M, *et al*⁵ study, considering the smoking rate as 46% among students, α -error 0.05, and 95% confidence interval, the minimum sample size was calculated to be 596 students. After considering the design effect and with 10% non-response rate, finally 823 eligible students were selected. Multistage sampling method was used to select the eligible subjects. In the first stage, four schools were selected randomly from each of the four educational districts, including one girls' and one boys' first secondary school, and one girls' and one boys' second secondary school. Subsequently, one class of each grade in each school was selected by simple random sampling and included in the final study. Finally, 40 classes of eighth, ninth, tenth, eleventh and twelfth grades in 4 educational districts were selected. In each class, all consenting students were included in the research and finally 823 students were studied.

In this study, the Persian version of the Global Youth Tobacco Survey (GYTS) questionnaire was used to determine the prevalence and status of tobacco use among students. This questionnaire is self-administered and collects the prevalence of tobacco use among young people, feelings toward stopping smoking, role of the media and advertising on young people's smoking, access to cigarettes, exposure to other people's smoking and knowledge of messages that are against using tobacco. All the questions were multiple choices and were translated into the

Persian language. This questionnaire was validated by Karimi M, *et al*⁵ in Iran with some minor modifications to improve its validity and make it appropriate for local use. Both the data collectors and supervisors were trained for three days on the objectives and methodology of the research, and the data collection approach. Moreover, survey procedures were designed to protect the student's privacy by allowing for anonymous and voluntary participation.

Ethical issues: All subjects were informed about the study objectives and signed the informed consent form for participating in the study. The Ethical Committee of Qom University of Medical Sciences approved the study protocol by cod IR.MUQ.REC.1398.112 at 05/11/2019.

Statistical analysis: The collected data were analysed using SPSS version 20 (SPSS Inc., Chicago, IL, USA). Specific tobacco use was calculated and categorized as *current use*, *frequent use* and *ever used*. Using descriptive methods, the data was summarized and prevalence of tobacco use was determined. Independent t-test and Chi square were the statistical tests used. $p < 0.05$ was considered significant.

Results

The mean age of students was 15.2 years, 405 (49.2%) students being male and 418 (50.8%) students being female. Response rate was 98%. The patterns of tobacco use among students aged 13–18 years in Qom in 2019 is shown in Table 1.

Overall 43.6% of all students had tobacco use experience and 22.1% had current tobacco use. Students who had 'ever smoked' cigarettes were 42.1%. Boys were more likely than girls to have 'ever smoked' cigarettes. Current tobacco smokers were 20.2% and current smokers of other tobacco such as water pipes were 14.9%. Prevalence of frequent cigarette smoking was 4.3%, while 28.8% of students had experience of cigarette smoking. Current and 'ever use' of smokeless tobacco was 6.0% and 8.7% respectively. The results for cigarettes smoked per day among current cigarette smokers showed that the majority of smokers (30%) used 2-5 cigarette per day and 8% smoked more than 20 cigarettes per day (Figure 1).

Table 1: Detailed tobacco use status among students 13–18 years of age, by gender

	n (%) (95% CI)	Boys n (%)	Girls n (%)
Smoked tobacco			
Current tobacco smokers (Smoked tobacco any time during the past 30 days)	162 (20.2) (0.19-0.01)	109 (27.7)	53 (13.0)
Current cigarette smokers (Smoked cigarettes any time during the past 30 days)	96 (11.8) (0.11-0.13)	71 (17.9)	25 (06.0)
Current smokers of other tobacco (Smoked tobacco other than cigarettes any time during the past 30 days)	121 (14.9) (0.14-0.16)	79 (19.7)	42 (10.2)
Frequent cigarette smokers (Smoked cigarettes on 20 or more days of the past 30 days)	35 (04.3) (0.41-0.45)	32 (08.1)	03 (0.7)
Ever tobacco smokers (Ever smoked any tobacco, even one or two puffs)	344 (42.1) (0.40-0.44)	187 (46.6)	157 (37.7)
Ever cigarette smokers (Ever smoked cigarettes, even one or two puffs)	237 (28.8) (0.27-0.30)	127 (31.4)	110 (26.3)
Ever smokers of other tobacco (Ever smoked tobacco other than cigarettes, even one or two puffs)	283 (34.6) (0.33-0.36)	164 (40.8)	119 (28.6)
Smokeless tobacco			
Current smokeless tobacco users (Used smokeless tobacco any time during the past 30 days)	49 (06.0) (0.58-0.62)	33 (08.2)	16 (03.9)
Ever smokeless tobacco users (Ever used smokeless tobacco)	71 (08.7) (0.86-0.88)	45(11.2)	26 (06.3)
Tobacco use			
Current tobacco users (Smoked tobacco and/or used smokeless tobacco any time during the past 30 days)	177 (22.1) (0.21-0.23)	121 (30.7)	56 (13.8)
Ever tobacco users (Ever smoked tobacco and/or used smokeless tobacco)	355 (43.6) (0.42-0.45)	197 (49.3)	158 (38.1)

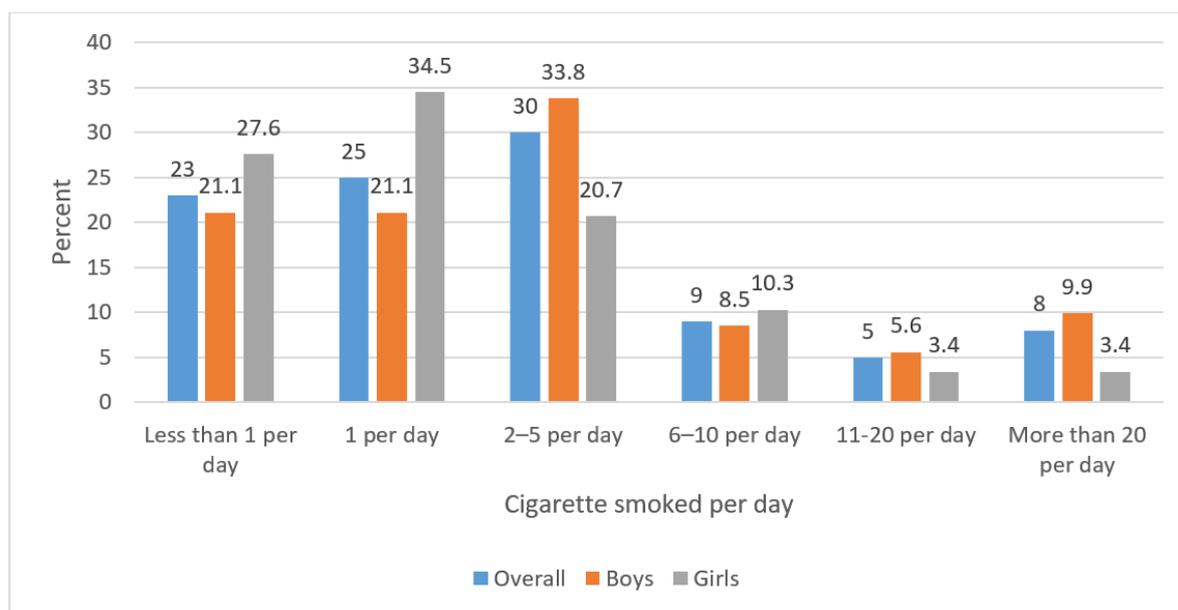


Figure 1: Cigarettes smoked per day among current cigarette smokers

There was a significant association between smoke tobacco use and age but there was no significant

relationship between smokeless tobacco use and age (Table 2).

Table 2: Relationship between age and tobacco use status

Tobacco use status	Age Mean (SD)		p-value
	Tobacco users	Non- tobacco users	
Current tobacco smokers (Smoked tobacco any time during the past 30 days)	15.71(1.20)	15.04(1.35)	<0.001
Current cigarette smokers (Smoked cigarettes any time during the past 30 days)	16.07(1.00)	15.01(1.35)	<0.001
Current smokers of other tobacco (Smoked tobacco other than cigarettes any time during the past 30 days)	15.77(1.25)	15.08(1.34)	<0.001
Frequent cigarette smokers (Smoked cigarettes on 20 or more days of the past 30 days)	16.55(0.75)	15.14(1.34)	<0.001
Ever tobacco smokers (Ever smoked any tobacco, even one or two puffs)	15.56(1.27)	14.92(1.34)	<0.001
Ever cigarette smokers (Ever smoked cigarettes, even one or two puffs)	15.70(1.25)	15.00(1.34)	<0.001
Ever smokers of other tobacco (Ever smoked tobacco other than cigarettes, even one or two puffs)	15.63(1.27)	14.97(1.34)	<0.001
Current smokeless tobacco users (Used smokeless tobacco any time during the past 30 days)	15.16(1.38)	15.18(1.35)	>0.05
Ever smokeless tobacco users (Ever smoked tobacco and/or used smokeless tobacco)	15.18(1.29)	15.18(1.29)	>0.05

p-value based on independent *t*-test; *p*<0.05 significant

Discussion

The overall prevalence of tobacco use in the current study was estimated to be 43.6% and the majority (34.6%) was ‘ever smokers’ of other tobacco. Moreover, our results showed that the prevalence of current tobacco smoking was 20.2% and higher in boys (27.7%) than in girls (13.0%). These estimations in the current study were higher than estimations in other studies. Several studies have assessed the prevalence of tobacco use among students and it has ranged from 14% to 25%, but a less standard survey instrument has been used^{17,18,20}. In Madani A, *et al*⁸ study in Bandarabbaas, Iran, the overall prevalence of tobacco use was 23.2%. The prevalence of current tobacco use was 20.2% in our study and this was more than 9 fold higher than the 2.6% in Kelishadi R, *et al*²¹ study. Differences in tobacco use in various studies are due to using different assessment tools for estimation of tobacco use. Kelishadi R, *et al*²¹ study, used a researcher made questionnaire whereas the current study applied the GYTS. Moreover, the religious and cultural variations in different populations could be factors for different estimations.

Kelishadi R, *et al*²¹ study showed that prevalence of current smoking in boys and girls was 3.5% and 1.7%, while in our study the estimates were 27% and 13%, respectively. This difference might be due to study area difference in the availability and price of tobacco. The overall prevalence of current cigarette smoking in our study was 11.8% which was higher than Madani A, *al*⁸ study (13.7 for boys and 3.4% for girls). The higher prevalence smoking in our population could be as a results of more accessibility of tobacco products in Qom due to higher hubble-

bubble and teahouses in Qom in comparison to other cities of Iran.

In this study, prevalence of ‘ever smoked’ cigarettes was 42.1% which was higher than the 5.1% in the GYTS study in Bangladesh²². This difference may be as a result of availability of cigarette than other tobacco products in Iran. Prevalence of students who had smoked tobacco currently was 20.2% and 14.9% of them used other modes of smoking tobacco such as water pipes. With regard to trends in use of water pipe in the recent two decades in Iran, this result is not unexpected²³.

While 28.8% of students had experience of cigarette, 4.3% of them were frequent cigarette smokers. The study conducted with Centres for Disease Control and Prevention (CDC), showed, the prevalence of current frequent cigarette use, among adolescences increased from 12.7% in 1991 to, to 7.3% in 2009²⁴. In comparison with prevalence of frequent cigarette use in the general population, this result is low, but with regard to the importance of adolescence age, it is very considerable to monitor the trends. ‘Smokeless tobacco’ use, in comparison with other types of tobacco use had less prevalence, probably because it is not very common in Iran traditionally.

In this study, tobacco use significantly associated with age, which is consistent with the study done in Isfahan²¹. A study done among children and adolescents showed that the older age was associated with lifetime tobacco use²⁵. This might be to underestimate the problem and effects of friends or social norms that may arise from socioeconomic status. The prevalence of smoking in adolescence

causes this vulnerable age group to face numerous public health problems in the future. Boys are more likely than girls to use tobacco but advertising by the tobacco industry is making cigarettes common among girls and in the future we may have more problem with girls.

Today, tobacco use is one of the most prevalent unhealthy behaviours. Prevalence of tobacco use between different age and gender groups is different. Because of the importance of adolescence in shaping adulthood behaviours, this period of life is important for prevention of tobacco use¹⁹. This study is a means of providing baseline data for tobacco control intervention among students. The GYTS is a standardized and adaptable tools for assessing the study goals and it is relatively simple and inexpensive to apply.

Conclusions

The overall prevalence of tobacco use in the current study among high school students of Iran was high. The most commonly used tobacco among the respondents was 'smoked tobacco' other than cigarette such as water pipes. Age was found to be an independent predictor of tobacco use among students.

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