

## Article Original

# Prevalence of Lifetime Smoking and Its Determinant Factors in High School Adolescents in Shiraz

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### Abstract

**Introduction:** Smoking is regarded as one of the major causes of death caused by chronic diseases which begins during adolescence. Considering the fact that the age of smoking onset in both developed and developing countries is decreasing, the current study aimed to determine the prevalence of lifetime smoking and its determinant factors in high schools of Shiraz.

**Materials and Methods:** In this cross-sectional study, 750 students (569 males and 181 females) participated who were selected via multi-stage cluster randomized sampling. The study data were collected using a checklist designed under the supervision of a team of specialists, that was responded by self-reports of the students. The collected data was statistically analyzed applying SPSS software (ver. 20), via  $\chi^2$  and logistic regression tests.

**Results:** 85% of students mentioned they had not had smoking experience, and 15% reported experience of smoking. The prevalence of smoking among the boys was 15/3% and it was reported 12/2% within the girls. Most smoker students cited smoker friends and close relatives as the most important factor in encouraging them to smoke. In the present study, the relationship between smoking and the following parameters was examined: age, gender, educational status, field of study, and parents' educational level; however, the sole significant relationship was observed between smoking, educational status ( $P=0.025$ ), and field of study ( $P=0.032$ ).

**Conclusion:** As the findings of the present study revealed, more attention to adolescents and related planning are needed to deal with the problem of cigarette smoking among this stratum of society.

**Keywords:** Adolescents; High School Students; Shiraz; Smoking

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## Introduction

Smoking as well as taking illegal drugs is considered as one of the main unhealthy behaviors which may endanger social health. This behavior is particularly important within adolescents and youths<sup>[1]</sup>. Taking narcotics in adolescence and youth may result in terrible incidents like suicide and homicide<sup>[2]</sup>. Moreover, their consumption in adulthood might culminate chronic diseases, e.g. cardiovascular illnesses and cancer, normally increasing the rate of mortality<sup>[3]</sup>.

Eight million deaths will be estimated a year due to cigarette smoking in 2030, 80% of which will happen in the developing countries<sup>[4]</sup>. In addition, smoking increases the probability of non-smokers' contracting various diseases<sup>[5]</sup>. Anyhow, the rate of cigarette smoking in both developed and developing countries is rising and, as the result, its starting age is declining<sup>[6, 7]</sup>.

Normally, smoking cigarettes begins in adolescence and youth inasmuch as 90% of smoking adults started it in those periods of life, especially at 18 years of age<sup>[8, 9]</sup>. The earlier one starts cigarette smoking, the more dependent, one will be on smoking later in life<sup>[10]</sup>. Based on findings of different studies, increases have been observed in the prevalence of smoking among Iranian adolescents, especially high-schooler's<sup>[11, 12]</sup>. The age of smoking onset has also decreased in Iran<sup>[13]</sup>. Some studies have indicated that smoking

prevalence of 18.5% in adolescents over 12 years old in some parts of the country 7.5% of whom were cigarette-dependent<sup>[14]</sup>. Regarding the importance of adolescence and youth in the inception of smoking, the current study aimed to determine the prevalence of lifetime smoking within the high schools of Shiraz, Iran, in order to detect its main determinant factors to assist in the process of programming suitable preventive policies.

## Materials and Methods

The present study was a cross-sectional, descriptive study, in which the multi-stage cluster randomized sampling was applied. The needed sample size calculated 733 samples, with formula:

$$n = \frac{z^2 p(1-p)}{d^2} \text{ With: } p=0.12 \text{ and } d=0.2P \text{ and } \alpha$$

$\alpha=0.05$ . We increased this number to 750 people. Shiraz has 6 municipal regions out of which the study random sample consisted of one female high school and one male high school from each region. Then, one class out of any field was randomly selected, regardless of taking the educational level into consideration. In fact, the study covers 750 students (569 male students, and 181 female students). In order to gather the study data a checklist designed under the supervision of a team of specialists, that was responded by self-reports of the students. This checklist includes demographic information and

such issues as cigarette smoking status, attempt to quit smoking, factors encouraging smoking, psychological reasons behind smoking, field of study, and educational level of parents. The students were assured of the information confidentiality before the checklist was distributed. When the questionnaires were completed and gathered, the data was keyed into SPSS (ver. 20) in order to be statistically analyzed. To conduct the data-analysis, descriptive statistics methods (frequency and percentage), as well as analytic statistics, ( $\chi^2$  and logistic regression tests) were utilized with the significance level of 0.05.

## Results

The present study was administered to 750 students consisting of 569 male students (75.9%) and 181 female students (24.1%). The age bracket of this study was 15 to 19 years of age, most of whom are 17 (Table 1).

Eighty-five percent of students mentioned they did not have smoking experience, and about 15% reported experience of smoking, most of whom (31 students: 4.1%) would smoke at certain times (Table 2).

Among cigarette-addicted students, 45.8 % cited their friends as the main incentive for their smoking (Table 3). The average age of cigarette

smokers is  $16.27 \pm 0.57$ ; in this paper, ageing does no influence the addiction to cigarettes OR: 1.1 CI (0.84-1, 31).

The study results demonstrated that the rate of smoking cigarettes in female and male high schools were 12.2% and 15.3%, respectively. Statistically speaking, no significant difference was detected between males and females ( $p=0.29$ ), whereas a statistically significant relationship was observed between cigarette smoking and educational status ( $p=0.01$ ). Indeed, 4.6% had low educational status, 31.2% had mediocre educational status, 41.3% had good educational status, and 22.9% had excellent educational status, also there has been a statistically meaningful relation between field of study and smoking ( $p=0.002$ ,  $\chi^2=14.38$ ): cigarette smoking rate is 34.9% in industrial arts, 32.1% in humanities, 22.9% in mathematic sciences, and 10.1% in experimental sciences.

Most students' parents had completed high school, but no relationship was observed between educational level of parents and cigarette smoking (Table 4).

In addition, 58 smokers (45.7%) have tried to quit smoking, out of which 48 people were men and 10 people (17%) were women; this difference is not statistically significant ( $PV=0.23$ ).

**Table1:** Age distribution within high school students in Shiraz

Age	frequency	percent
15	74	9.9
16	256	34.1
17	281	37.5
18	131	17.5
19	8	1.1

**Table 2:** Frequency of cigarette smoking within high school students in Shiraz

Status of cigarette smoking	frequency	percent
I do not smoke	641	85.5
Less than 5 cigarettes a day	30	4
Between 5 and 10 cigarettes a day	13	1.7
More than 10 cigarettes a day	7	1
During examinations period or some certain times	31	4.1
Irregular smoking rate	28	3.7

**Table 3:** Incentive factors for smoking among cigarette-addicted students

Incentive factors for smoking	frequency	percent
Friends	50	45.8
father, uncle, etc.	14	12.8
Stress	19	17.4
Depression	14	12.8
psychological factor	12	11

**Table 4:** The relationship between educational level of parents and cigarette smoking within High school Students in Shiraz

Parents	Educational Level Smoking Status	Illiterate	Middle School	High School	Bachelor's and Higher	P value
Father	Non-smoker	53 (8.3%)	158 (24.6%)	294 (45.9%)	136 (21.2%)	0.77
	Smoker	11 (10.1%)	27 (24.8%)	45 (41.3%)	26 (23.9%)	
Mother	Non-smoker	79 (12.3%)	199 (31%)	274 (42.7%)	89 (13.9%)	0.98
	Smoker	12 (11%)	34 (31.2%)	48 (44%)	15 (13.8%)	

## Discussion

The results of the present study revealed a high rate of cigarette smoking in adolescents, that is to say almost 2 out of 10 students were reported to be tobacco users. The research done by World Health Organization (WHO) in 2014 on 32 countries from 5 regions indicated that prevalence of smoking was demonstrated to be different within adolescents. For instance, the prevalence of smoking in Africa was 1.8% in Rwanda to 21.5%, in Seychelles. In the Eastern Mediterranean and in Yemen, the prevalence of smoking in adolescents was reported 3.9%, and in Europe countries in Latvia, 32.9% of adolescents were smokers. Moreover, in U.S.A the rate was 8% and ultimately, in Western Oceania, 1.3% and in Philippines, 17.5% adolescents were smokers<sup>[1]</sup>. The studies carried out in Yazd and Khalkhal reported 7% smoking rate within adolescents in Yazd, and 30% smoking rate within adolescents in Khalkhal<sup>[14, 15]</sup>. Regarding the relationship between gender and smoking, no statistically significant association was detected between sex and

smoking in the current study, which is in line with the findings of similar studies carried out in Spain.<sup>[2]</sup> contrarily, there exist some other studies showing different smoking patterns within boys and girls<sup>[4, 6]</sup>. The results of the present study revealed that the relationship between cigarette smoking and age was not significant which confirmed the results of the study conducted by Smet in Indonesia<sup>[16]</sup>. Nazarzade proposed that the probability of being addicted to cigarettes increases by 1.20 when one grows 1 year older<sup>[9]</sup> The differences observed between countries and even within a country can be due to lack of a standard definition for smoking as well as the differences in ethnicity, race, culture and so on<sup>[17,12]</sup>. In the current study, most of the smoker students had a good educational status, while Mohammad Khani et al. proposed that students with low educational status had a tendency to smoke 3.3 times more than other students<sup>[10]</sup>.

According to the findings of the present study, smoking students mentioned their smoking friends as the main motive for smoking. Other studies also achieved similar results, and thus, it can be concluded that smoking friends have a remarkable impact on addicting students to smoking [13, 18-19]. Moreover, any close relative, who smokes cigarettes in a family, can be mentioned as another stimulus; a copious number of researches vindicated that cigarette smokers are likely to make their children addicted to cigarette smoking, as well [20]. Osler indicated that the smoking possibility of children who had smoking mothers was 1.95 times more than others [21]. It is obvious that the role of parents and childhoods friends is effected in smoking in youths so it is highly needed to instruct parents to dissuade the youths from smoking. Regarding the relationship between parents' educational level and students' smoking, the present study drew similar conclusions to those of Brenner's study in Germany [22]. However, the research carried out in Birjand found a direct association between parents' educational level and students' smoking, so as the higher the parents' educational level, the more probable the students were to smoke [5]. In the current study, such psychological factors as stress, depression,

## References

1. Agaku IT, Ayo-Yusuf OA, Vardavas CI, et al. Predictors and patterns of cigarette and smokeless tobacco use among adolescents in 32 countries, 2007–2011. *Journal of Adolescent Health*. 2014;54(1):47-53.
2. García-Rodríguez O, Suárez-Vázquez R, Secades-Villa R, et al. Smoking risk factors and gender differences among Spanish high school students. *Journal of drug education*. 2010;40(2):143-56.

showing off also influenced smoking. In a similar vein, Lim (2014) showed that smoking students reported higher rate of stress and depression [23]. McKelvey cited showing off as one of the main determinants of encouraging people to smoke [24]. The findings of the current study showed that 2 out of 5 students tried to quit smoking, that no difference has been made between males and females in this regard. Ramezan khani asserted that addicted males made more attempts than addicted girls to stop smoking [3].

## Conclusion

As the findings of the present study it is apparent that ,smoking among adolescent special student is a serious matter , and considering the fact that the lower age for starting smoking ,increase the risk of addiction in the future . so this issue should be regard and plan for prevention and reduce of smoking in this group .

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3. Ramezankhani A, Sarbandizaboli F, Zarghi A, et al. Pattern of cigarette smoking in adolescent students in Tehran. *Pajoohandeh Journal*. 2010;15(3):115-22.[Persian]
4. Nosa V, Gentles D, Glover M, et al. Prevalence and risk factors for tobacco smoking among pre-adolescent Pacific children in New Zealand. *J Prim HealthCare*. 2014;6(3):181-8.
5. Namakin K, Sharifzadeh G, Miri M. Prevalence of cigarette smoking and evaluation of attitude and knowledge in its high school boys in Birjand, 2005. *Journal of Birjand University of Medical Sciences*. 2008;15(1):.[Persian]
6. Al-MakadmaAS, Moynihan M, Dobson S, et al. Tobacco use among adolescents in Riyadh Saudi Arabia. *Int J Adolesc Med Health*. 2014 ; 27(3): 357–360.
7. Smet B, Maes L, De Clercq L, et al. Determinants of smoking behaviour among adolescents in Semarang, Indonesia. *Tobacco Control*. 1999;8(2):186-91.
8. Control CfD, Prevention. Tobacco use among high school students--United States, 1997. *MMWR Morbidity and mortality weekly report*. 1998;47(12):229.
9. Nazarzadeh M, Bidel Z, Ayubi E, et al. A Survey of Smoking Prevalence and Related Risk Factors among Zanjan Students in 2011-2012. *ZUMS Journal*. 2013;21(84):111-124. [Persian]
10. Mohammadkhani S. Prevalence of cigarette smoking, alcohol drinking and illegal drugs use among Iranian adolescents .*Journal of Kerman University of Medical Sciences*. 2012;19(1):32-48. [Persian]
11. Best D, Rawaf S, Rowley J, et al. Ethnic and gender differences in drinking and smoking among London adolescents. *Ethnicity and Health*. 2001;6(1):51-7.
12. Swart D, Reddy P, Ruiters R, et al. Cigarette use among male and female grade 8–10 students of different ethnicity in South African schools. *Tobacco Control*. 2003;12(1):1-5.
13. Thakur D, Gupta A, Thakur A, et al. Prevalence of cigarette smoking and its predictors among school going adolescents of North India. *South Asian journal of cancer*. 2014;3(4):193.
14. Pirdehghan A, Vakili M, Arab M, et al. Smoking frequency and modeling the underlying predicting factors of tobacco smoking among high school students in Yazd city, 2012. *Journal of Shahrekord University of Medical Sciences*. 2014;16(5):56-65. [Persian]
15. Hamidzadeh Arbaby Y. Prevalence of Smokers Among High school Students in Khalkhal city, Iran. *Journal of Research in Health Sciences*. 2011;1(1):49-55. [Persian]
16. Smet B, Maes L, De Clercq L, et al. Determinants of smoking behaviour among adolescents in Semarang, Indonesia. *Tobacco control*. 1999;8(2):186-91.
17. Best D, Rawaf S, Rowley J, et al. Ethnic and gender differences in drinking and smoking among London adolescents. *Ethnicity & health*. 2001;6(1):51-7.
18. Kabir M, Goh K-L. Determinants of tobacco use among students aged 13–15 years in Nepal and Sri Lanka: results from the Global Youth Tobacco Survey, 2007. *Health Education Journal*. 2014;73(1):51-61.
19. Gliksman MD, Dwyer T, Wlodarczyk J, et al. Cigarette smoking in Australian schoolchildren. *The Medical journal of Australia*. 1989 Jan 16;150(2):81-4.

20. Rudatsikira E, Abdo A, Muula AS. Prevalence and determinants of adolescent tobacco smoking in Addis Ababa, Ethiopia. *BMC public health*. 2007;7(1):176.
21. Osler M, Clausen J, Ibsen K, et al. Smoking as social heritage. Children whose mothers are smokers are more likely to become smokers as adults. *Ugeskrift for laeger*. 1996;158(17):2384-7.
22. Brenner H, Scharrer SB. Parental smoking and sociodemographic factors related to smoking among German medical students. *European journal of epidemiology*. 1996;12(2):171-6.
23. Lim KH, Chong Z, Khoo YY, et al. Parental smoking status, stress, anxiety, and depression are associated with susceptibility to smoking among non-smoking school adolescents in Malaysia. *Asia-Pacific journal of public health / Asia-Pacific Academic Consortium for Public Health*. 2014;26(5 Suppl):81S-90S.
24. McKelvey K, Attonito J, Madhivanan P, et al. Determinants of cigarette smoking initiation in Jordanian schoolchildren: Longitudinal analysis. *Nicotine & Tobacco Research*. 2014:ntu165.