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Trend of smoking among students of Tehran University of Medical Sciences: results from four consecutive surveys from 2006 to 2009

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Abstract

Background: Smoking within students community of the medical sciences can negatively impact the attitudes of the society in future. The objectives of this study were to assess the prevalence and trends of smoking among students of Tehran University of Medical Sciences.

Method: This study was conducted in four consecutive years from 2006 to 2009. The study sample was taken from the first- to fourth-year, undergraduate and graduate (doctorate) students of Tehran University of Medical Sciences. Census was applied for sampling. Structured questionnaires were distributed to students of each class. The study was anonymous and self-administered.

Results: From 2006 to 2009, a total of 1568 to 1761 students participated in the study each year. Over the study period, i.e. 2006-2009, the prevalence of cigarette smoking was decreased (the overall prevalence was 12.5% in 2006, 12.9% in 2007, 10.8% in 2008, and 10.5% in 2009). The corresponding values for the one month prevalence were 8.2%, 7.8%, 6.1%, and 5.8%, while those for the prevalence of daily smoking were 3.4%, 4.0%, 2.9%, and 1.8%, respectively. The decreasing trend was particularly more significant for female students.

Conclusion: The findings suggest that the prevalence of smoking among students of Tehran University of Medical Sciences was in the lower end of the spectrum, in comparison to other universities in Iran and other countries. Additionally, similar to the pattern observed in the developed world, this trend was decreasing, particularly among girls. Implementing preventive measures for accelerating the decreasing trend, as well as continuous monitoring is recommended.

Keywords: Tobacco, Prevalence, Epidemiology, Medical Students, Iran.

Introduction

Cigarette smoking is an important factor influencing the health of the smoker as well as that of the individuals around him/her. This effect, however, mostly takes place later in life, especially in old ages, such that it has become the third leading risk factor, after increased cholesterol and blood sugar, in the global burden of disease for individuals aged above 25 years (1). In addition,

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cigarette smoking is one of the major causes of death; reports have indicated mortality rates of 14.6 per 1000 for men and 6.7 per 1000 for women due to cigarette smoking in the American continent (2). In Iran, smoking has been identified as one of the ten leading risk factors in the national study for burden of diseases (3).

More attention should be paid to cigarette smoking, as a fatal habit with severe physical, mental, and financial consequences, in youth, and particularly in students. This population group is highly susceptible to smoking, due mainly to different types of stressors such as burden of educational and uncertainty of future work, on one hand, and the pressure from friends combined with ease of access, on the other hand. Although the prevalence of cigarette smoking has been reported to be lower among the students of the medical sciences compared to non-medical majors, these rates were still high; taking into consideration the fact that they will be in charge of delivering health services to the society, their smoking can negatively impact the attitudes towards this habit (4, 5).

During the last decade, decreasing trends of cigarette smoking have been observed among students, including those of medical sciences, in some countries such as US and Republic of Ireland (6, 7), while other studies in Slovakia (8), Japan (9), and Brazil (10), have reported an increasing trends.

Controversial findings have been reported on the prevalence and trends of cigarette smoking among Iranian youth. For example, a study conducted on the trend of cigarette smoking among individuals aged 15-24 years between 1991 and 1999 revealed and an increasing trend (11); however, another study indicated a decreasing trend of cigarette smoking among high-school students in the years after 2001 compared to previous years (12). In addition, several studies have reported a significantly high prevalence of cigarette smoking among students of different universities (13-15). However, no evidence exists on the trend of cigarette smoking among Iranian university students. The most common indicators of cigarette smoking used in epidemiologic studies are lifetime prevalence of cigarette smoking (even one puff), lifetime prevalence of smoking at least one cigarette, last year or last month prevalence of cigarette smoking, and prevalence of daily smoking, each of which are of particular importance. However, studies conducted in Iran have not presented any specific definition of the indicators used for their objectives, which highly limits the comparability of data as well as their use in systematic reviews to analyze the trends and to obtain a pooled prevalence.

In the developed countries, the trends for cigarette smoking as well as those for alcohol and substance use have been evaluated through repeated surveys in certain time intervals using a specific methodology (16, 17). This allows for collecting useful and reliable data with high comparability, which can subsequently be used for planning and policy-making.

The present study was the first repeated survey of cigarette smoking as well as alcohol and substance use in Iran. In this paper, we present the prevalence and trend of smoking among students of Tehran University of Medical Science (TUMS) over the period from 2006 to 2009.

Methods

The present work was conducted in four consecutive years, from 2006 to 2009. The study population included all of the first- to fourth-year students at TUMS and census was applied for sampling. A researcher-made, structured questionnaire was used to evaluate the status of cigarette smoking among individuals based on the following indicators: prevalence of smoking in different time periods, number of cigarettes smoked per day, and the age when first smoked. Demographic data were also collected for each case. The questionnaire used in the present study was prepared based on WHO Core Questionnaires and WHO-ASSIST (World Health Organization- Alcohol, Smoking and Substance In-

Table 1. Demographic characteristics of the sample population during the study period

Demographic variables	2006	2007	2008	2009
	N (%)	N (%)	N (%)	N (%)
Gender				
Male	599 (34.0)	629 (36.2)	591 (33.8)	518 (33.2)
female	1162 (66.0)	1107 (63.8)	1159 (66.2)	1043 (66.8)
Age				
Mean (±SD)	20.4 (± 2.6)	20.2 (± 2.1)	20.2 (± 1.9)	20.1 (± 1.9)
Min	15	16	17	15
Max	43	41	42	40
Mode	20	20	20	21
Marital status				
Single	1636 (93.2)	1633 (94.1)	1640 (93.7)	1446 (93.5)
Married	120 (6.8)	103 (5.9)	110 (6.3)	101 (6.5)
Place of residence				
Home (with family)	862 (49.1)	772 (44.7)	811 (46.5)	706 (45.1)
Home (alone or with other single roommates)/ in dormtory	892 (50.9)	956 (55.3)	933 (53.2)	858 (54.9)
Field of study				
Medicine	837 (47.6)	738 (43.5)	633 (36.3)	408 (26.0)
Pharmacy	257 (14.6)	303 (17.9)	300 (17.2)	288 (18.4)
Dentistry	191 (10.9)	199 (11.7)	206 (11.8)	211 (13.5)
Nursing and midwifery	172 (9.8)	183 (10.8)	224 (12.9)	213 (13.6)
Health and hospital management	111 (6.3)	100 (5.9)	86 (4.9)	81 (5.2)
Others*	192 (10.9)	174 (10.3)	294 (16.9)	367 (23.4)
Year of study of the students				
First year	590 (33.5)	536 (30.9)	536 (30.6)	534 (34.1)
Second year	476 (27.0)	519 (29.9)	471 (26.9)	373 (23.8)
Third year	299 (17.0)	403 (23.2)	497 (28.4)	408 (23.0)
Fourth year	397 (22.5)	278 (16.0)	246 (14.1)	253 (16.1)

*Includes bachelor degree in radiology, radiotherapy, speech therapy, physiotherapy, operating room technician, medical information, audiometry and nuclear medicine

volvement Screening Test) taking into account the situation of smoking in Iran. Content of the questionnaire was validated by group of researchers and validity face was assessed by pre-testing the questionnaire in a class of Master of Public Health (MPH) students.

The questionnaires were distributed in each class after necessary explanations by a psychiatrist. The questionnaires were anonymous and self-administered. Response rate was also calculated based on the number of students present in each class and the number of questionnaires filled out and returned. All the field works were carried out in autumn each year. First-year students were studied in the first week of entering the university (first week of October), while second- to fourth-year students evaluated in the second month of the semester (i.e. in November).

Statistical Analysis: For statistical analysis, the collected data were first transferred to SPSS software, and then analyzed using descriptive statistics. Trend of smoking for the all indices was tested by linear-by-linear association and p-value of less than 0.05 was considered as significant.

Results

The number of individuals who filled out the questionnaires was 1761 in 2006, 1741 in 2007, 1755 in 2008, and 1568 in 2009. The corresponding values for the response rate in each year were 96.8%, 96.1%, 90.7%, and 90.6%, respectively. Table 1 presents the demographic characteristics of the study population during the study period. As given in the table, in each year, female students accounted for two-third of the total number of participants, which is

Table 2. Cigarette smoking among students of Tehran Medical University during the study period

Cigarette use	2006	2007	2008	2009
	N=1761	N=1741	N=1755	N=1568
Lifetime prevalence of smoking cigarette (even one puff)	25.7%	25.3%	19.6%	19.6%
Lifetime prevalence of smoking at least one complete cigarette	16.9%	17.6%	14.3%	13.3%
Twelve months prevalence of smoking at least one complete cigarette	12.5%	13.2%	10.8%	10.1%
Last month prevalence of cigarette	8.2%	7.8%	6.1%	5.8%
Last week prevalence of cigarette	4.8%	5.2%	3.8%	3.2%
Prevalence of daily cigarette use	3.4%	4.0%	2.9%	1.8%
Age of first cigarette use (at least one complete cigarette)				
Mean (±SD)	17.3 (±3.4)	16.9 (±3.5)	16.4 (±3.7)	16.2 (±3.9)
Median	18	18	17	17
Mode	18	18	19	20
Number of cigarette used per day*				
Mean (±SD)	9.2 (±7.2)	10.9 (±9.4)	12.4 (±7.2)	9.4 (±7.8)
Median	7	7	10	6
Mode	5	5	20	5

*Among daily smokers

consistent with the gender ratio at all universities of medical sciences in Iran. Sex ratio (p=0.357), proportion of different age groups (p=0.509) and marital status (p=0.748) did not change significantly over the study period. However, the proportion of students lived with their family (p=0.001) and the students of medicine (p<0.001) consistently decreased over time.

Different indicators of cigarette smoking for the sample population, overall as well as by gender, are presented in Table 2 and Figures 1 and 2. The maximum lifetime prevalence of cigarette smoking (even one puff) in the whole sample population was observed in 2006. This value was decreased over time (p<0.001). As shown in Figures 1 and 2, the lifetime prevalence of cigarette smoking (even one puff) for female students had a more distinct decreasing trend (p<0.001), while for male students this trend was decreasing till 2008 but increased afterwards (p<0.044).

The lifetime prevalence of smoking at least one complete cigarette in the whole sample population indicated a decreasing trend over time (p<0.001). For female students, this prevalence indicated a consistently decreasing trend (p<0.001), while for male students the overall trend was decreasing, although the change was insignificant (p=0.103). The median age of first cigarette use (at least one complete cigarette) was 17 or 18, depending on the year of the study.

Twelve-month prevalence of smoking at least one complete cigarette in the whole sample population had a decreasing trend (p=0.002). For female students, this prevalence was decreasing (p<0.001). Also for male students, the trend was almost constant, except for a slight decrease observed in 2008 (p=0.408).

Last month prevalence of cigarette smoking in the whole sample population had a decreasing trend (p=0.002). The same trend was also observed for female students (p<0.001). For male students, however, the change was insignificant (p=0.255). Last week prevalence of cigarette smoking in the whole sample population had a slight increase in 2007, while constantly decreasing afterwards (p=0.008). The same trend was observed in the last week prevalence of cigarette smoking for female students (p=0.012), but the change was insignificant in male students (p=0.084).

The prevalence of daily/almost daily cigarette smoking in both female and male students had a slight increase from 2006 to 2007, while constantly decreasing afterwards (p=0.032 and p<0.033, respectively). The median number of cigarette used per day ranged 6-10 in different years of the study.

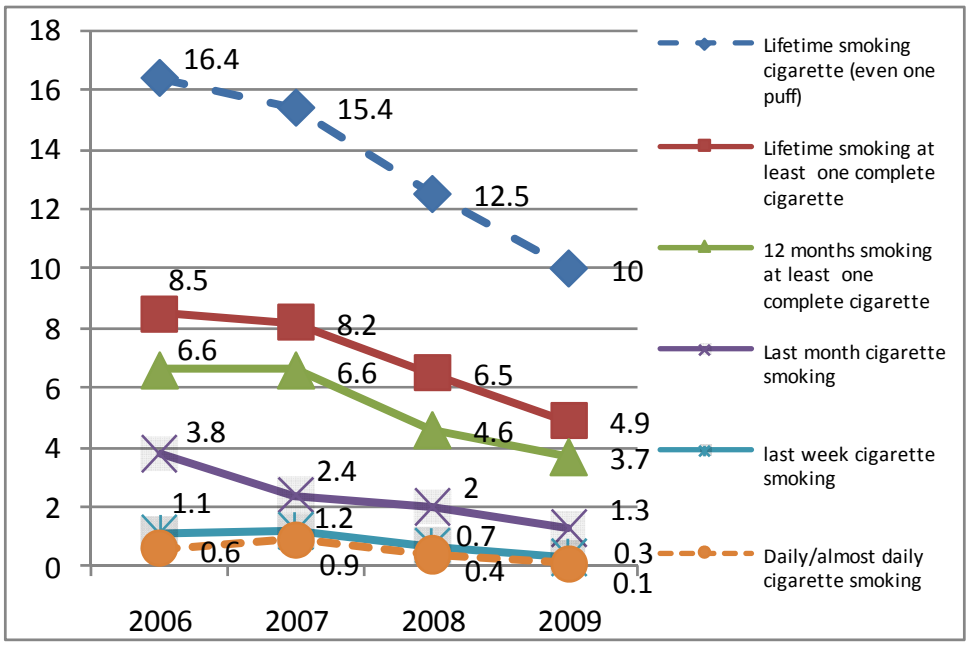

Fig.1. Prevalence of cigarette smoking among female students.

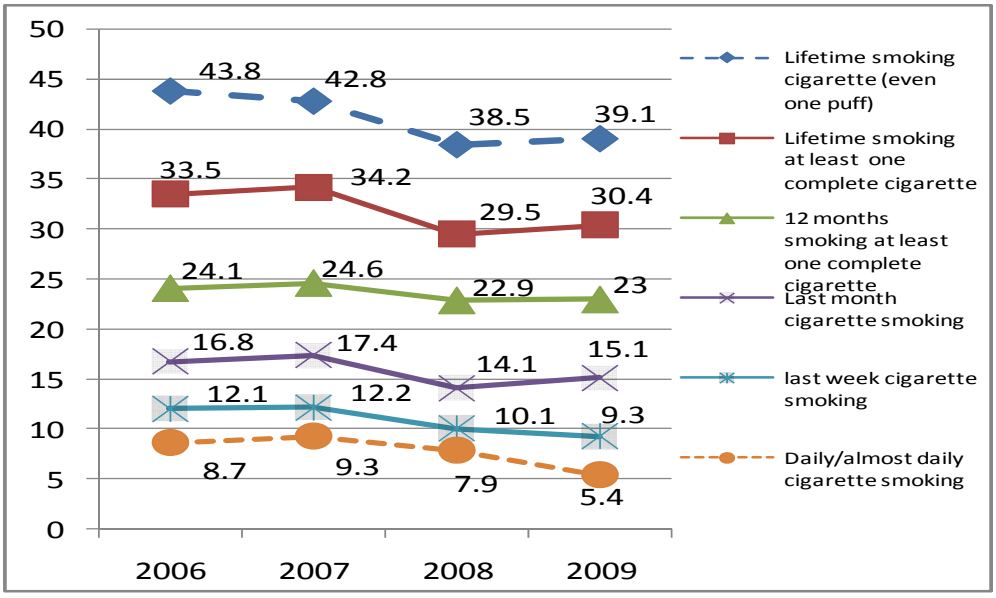

Fig.2. Prevalence of cigarette smoking among male students.

The prevalence of cigarette smoking among male students was significantly higher than that among female students for all of the indicators evaluated ($p<0.001$). The male/female ratio of the prevalence of cigarette smoking also ranged between 2.7 (for the lifetime prevalence of smoking even one puff of cigarette) to 54 (for the prevalence of daily cigarette smoking) in different years of the study period.

Table 3 presents the last month prevalence of cigarette smoking correlated with different demographic characteristics of the sample population. Overall, the prevalence of cigarette smoking indicated a significant decreasing trend for female students ($p<0.001$). In addition, the difference in the last month prevalence of cigarette smoking between male and female students gradually grew in size from 2006 (a male/female ratio of 4.4) to 2009 (a male/female ratio of 11.6).

Table 3. Last month prevalence of cigarette smoking and the correlated factors over the study period

	2006	2007	2008	2009	p value*
	% (CI)	% (CI)	% (CI)	% (CI)	
Total sample	8.2 (7.0-9.6)	7.8 (6.6-9.2)	6.1 (5.0-7.4)	5.8 (4.7-7.1)	0.02
Gender					
Male	16.8 (13.9-20.1)	17.4 (14.5-20.7)	14.1 (11.4-17.2)	15.1 (12.2-18.5)	0.255
Female	3.8 (2.8-5.1)	2.4 (1.6-3.5)	2.0 (1.3-3.0)	1.3 (0.7-2.1)	<0.001
Age					
≤ 18	2.4 (1.0-5.0)	1.7 (0.5-4.2)	0.9 (0.1-3.1)	2.1 (0.7-4.9)	0.670
19-20	6.5 (4.9-8.6)	5.7 (4.2-7.6)	4.8 (3.4-6.5)	4.2 (2.8-6.0)	0.037
21-22	10.4 (7.8-13.4)	11.3 (8.6-14.4)	8.5 (6.2-11.2)	8.0 (5.8-10.8)	0.097
≥ 23	18.9 (13.3-25.7)	20.0 (12.7-29.2)	15.0 (8.6-23.5)	16.3 (9.2-25.8)	0.440
Marital status					
Single	8.4 (7.1-9.9)	7.6 (6.3-9.0)	6.0 (4.9-7.3)	5.6 (4.4-6.9)	<0.001
Married	5.0 (1.9-10.6)	11.0 (5.6-19.8)	7.4 (3.3-14.1)	10.0 (4.9-17.6)	0.255
Place of residence					
Home (with family)	6.9 (5.3-8.8)	6.2 (4.5-8.1)	5.6 (4.1-7.5)	4.7 (3.3-6.5)	0.911
Home (alone or with other single roommates)/ dormitory	9.6 (7.7-11.7)	9.0 (7.3-11.1)	6.5 (5.0-8.3)	6.8 (5.2-8.7)	<0.001
Study grade					
First year	3.6 (2.2-5.4)	4.2 (2.7-6.3)	3.4 (2.0-5.4)	3.0 (1.7-4.9)	0.526
Second year	8.0 (5.7-10.9)	6.5 (4.5-9.0)	6.1 (4.1-8.7)	6.7 (4.4-9.8)	0.420
Third year	12.0 (8.6-16.3)	8.4 (5.9-11.6)	7.7 (5.5-10.4)	7.4 (5.0-10.4)	0.037
Fourth year	12.3 (9.3-16.0)	16.5 (12.3-21.4)	8.2 (5.1-12.3)	8.0 (5.0-12.1)	0.022
Field of study					
Doctorate degree	9.2 (7.7-10.9)	8.2 (6.7-9.8)	7.0 (5.6-8.7)	6.2 (4.7-8.0)	0.007
Bachelor degree	5.5 (3.6-8.0)	6.5 (4.4-9.2)	4.5 (2.9-6.5)	5.3 (3.7-7.3)	0.577

*p value for trend through Linear-by-Linear association

A significant decreasing trend over the study period was found among students aged 19-20 years (p=0.037), single (p=0.001), those lived alone or in dormitory (p<0.001) and students of doctorate degree (p=0.007).

Results indicated that the last month prevalence of cigarette smoking was lower among first-year students in all of the study years. In 2006, for example, the prevalence among fourth-year students was about 3.5 times higher than that among first-year students. However, comparing the prevalence in the first-year cohort of 2006 (3.6%) with results of the same cohort in 2007 (6.5%), 2008 (7.7%), and 2009 (8%) revealed that the prevalence increased during each year, although the difference was insignificant.

Discussion

The present study was the first repeated survey on the prevalence of cigarette smoking among Iranian university students. Evaluating the trend of cigarette smoking revealed that the prevalence for female students significantly decreased from 2007 to 2009, which was associated with a slight decrease for male students. This decrease was also observed for individuals in different age groups, those with different majors, and those with different place of residence. In addition, the results for the cohort of first-year students indicated that although the prevalence of cigarette smoking increased with increasing years of study, the rate of this increase declined as the years of study increased.

Studies conducted in other countries have also reported a decreased prevalence of

cigarette smoking among university students. For instance, results from the MTF (Monitoring the Future) project, which is annually conducted on a sample of American high-school and university students, indicated that the prevalence of current use of cigarettes has started to constantly decline since 1999 and has reached 24% in 2005, which also continued to decrease and fell below 16% in 2010 (7). In another study conducted in republic of Ireland, the prevalence of current cigarette use decreased from 15.3% in 1990 to 9.2% in 2002 (6). Results from the ESPAD (European School Survey Project on Alcohol and Other Drugs) project also indicated a 4% decrease in the last month prevalence of cigarette smoking among high-school students (aged 15-16 years) of 35 European countries over 1995-2007 (16). However, in another study conducted in 13 European countries between 1990 and 2000, the prevalence of current cigarette use indicated an increasing trend in most of the studies countries (18).

Lopez et al. presented a model for the epidemiologic trend of cigarette smoking based on the level of development of the target country (19). According to this model, the epidemiology of cigarette smoking can be categorized into four stages. In stage one, the prevalence of smoking is low among both males and females, but it rapidly increases for males. In stage two, the prevalence significantly increases for males and reaches a maximum of 50-80%, while that of females increases significantly with a time lag. In the third stage, the prevalence of smoking starts to decrease for males, while it remains constant for females. In this stage, social activities are formed against smoking, turning it into a socially undesirable habit. In the final stage, the prevalence of smoking consistently decreases for both genders. In this stage, smoking is banned in work and public environments. In the MONICA (A multinational study to monitor the trends and determinants in cardiovascular disease) project, which was conducted by WHO in 21 countries (36 sample populations aged 25-64 years) as repeated surveys, the trend of cigarette smoking was evaluated over 1980s and 1990s. Results of this project indicated the validity of the descriptive model presented by Lopez et al (1994). Results also indicated that the epidemiology of cigarette smoking in Eastern European countries and China was in the second stage. For Southern European countries, such as France, Italy, and Spain, and some countries in Central Europe, such Czeck Republic, the epidemiology of cigarette smoking lies within the third stage. However, some highly developed countries, including Australia, US, New Zeland, and England, were in the fourth stage, indicating a consistent decrease in cigarette smoking for both genders (20). Results from the present study suggest that the epidemiology of cigarette smoking among students of TUMS also lies within the fourth stage.

One of the likely reasons for the observed decrease in the prevalence of cigarette smoking in 2009 was the presidential election held in that year. Months before the election, social as well as political activities performed by university students may have distracted their focus from other individual and group activities. In addition to presenting alternatives for cigarette smoking, such social events can significantly intensify the sense of belonging to the society, which in turn increases the self-efficacy among the members of the society. In addition, they can strengthen moral and social values, such as taking responsibility, rather than individual values, such as having fun, which can provide necessary grounds for starting the use of cigarettes and other substances (21).

According to the results from the present study, over 2006-2009, 2-3 out of every ten students had experienced at least one puff of cigarette, and 1-2 students had smoked at least one complete cigarette. In addition, 10-13% of the participants reported smoking of at least one cigarette during the last year. Daily cigarette smoking during the last month was also reported in 2-4% of the

participants. These results suggest that cigarette smoking was frequent among students; however, continuous use of cigarette was rare, particularly among female students.

There is a great body of evidence in the literature on the prevalence of cigarette smoking among university students all around the globe. However, the difference between the smoking indicators used by previous studies and those applied by the present study limits the comparability of the findings. According to WHO, in addition to the current daily use of at least one cigarette, occasional use of cigarette is also included in the definition of smoking. This definition has been applied for smoking by a number of studies. Overall, studies have indicated a higher prevalence of cigarette smoking among students of non-medical sciences. For example, Chaterjee et al reported that the last week prevalence of cigarette smoking in Kolkata (5), India, was 14.9% and 40.7% among students of medical and non-medical sciences, respectively. Another study conducted in Greece indicated corresponding values of 35.3% and 50.2% for the prevalence of current cigarette smoking (daily or occasional) (4). This difference has also been observed in studies conducted in Iran, (22, 23) though the difference was not significant in the study of Heydari et al (23).

Results from previous studies have indicated that the prevalence of current cigarette smoking among students of medical sciences was 14%, 14.4%, 21.5%, 25%, and 35.3% in Poland (24), France (24), Germany (25), Vietnam (26), and Greece (4), respectively. In addition, results from a review study revealed that the prevalence of current cigarette smoking among students of medical sciences is in the range of 3.5% (in US) to 58% (in Japan) (27). The most appropriate indicator used by the present work which enables comparison of the collected data with those of the previous work is the last month prevalence of cigarette smoking. This comparison revealed that the prevalence of cigarette smoking among Iranian students of medical sciences lies within the lower end of the worldwide prevalence spectrum.

Previous studies conducted in Iran reported that the prevalence of current use of cigarette among students of medicine in Tehran and Semnan was 35% and 14.4%, respectively (13, 24). In addition, it was found that the lifetime prevalence of cigarette smoking was 43.8% in Semnan. Another study also revealed that the prevalence of daily use of cigarettes was 7% among students of dentistry from seven universities across Iran (28). Comparison of the collected data with those of the previous studies conducted in Iran reveals that the prevalence of cigarette smoking was considerably lower among students of TUMS, compared to other universities of medical sciences in Iran.

The prevalence of daily use of cigarettes in our study population (i.e. 1.8%) was lower than that in the whole Iranian population in the same age groups. For example, a national survey conducted in Iran in 2007 indicated that the prevalence of daily cigarette use was 5.8% and 11.3% among individuals aged 15-24 and 25-34 years, respectively (29). However, one of the reasons of such low prevalence in TUMS was the high female to male ratio in studied population.

Although the prevalence of cigarette smoking was expected to increase with an increase in age, comparison of the results from the present study with those from a review study of the prevalence of cigarette smoking among junior-high (a lifetime prevalence of 14.2%)(30) and high school students (a lifetime prevalence of 21%) (12) revealed that the rate among students of TUMS was quite comparable with that of Iranian high school students. This low prevalence of cigarette smoking among students of TUMS can be attributed to their distinct educational status.

Regarding the demographic characteristics, the prevalence of cigarette smoking was significantly higher among male students than that among female students; for

example, the lifetime and the last year prevalence of cigarette smoking among male students was 3-6 times as high as that of female students; in addition, the last month prevalence of daily cigarette use among male students was 10-50 times higher than that of female students. As the time period of the prevalence decreases (i.e. from lifetime to daily use of cigarette), the difference in the prevalence of cigarette smoking between male and female students increases, implying a more serious habit of smoking among the former group. In other words, the lifetime prevalence of cigarette use among female students was almost equal to the prevalence of daily cigarette use among male students. This was observed in the previously conducted studies in Iran as well as those conducted in other countries (4, 5, 28). For example, the overall prevalence of daily cigarette use was 7% among students of dentistry, while the gender-specific rates were 3% and 12% for female and male students, respectively (28).

In epidemiologic studies on cigarette smoking, the lifetime prevalence was the most commonly used indicator. However, it is noteworthy that some persons may have experienced smoking in childhood just out of curiosity or for mimicking their parents' behavior. Nonetheless, this did not influence the effect of nicotine on the body, and most of the individuals did not turn into smokers later in life. In the present work, we used two different indicators of lifetime smoking, i.e. the lifetime prevalence of cigarette smoking (even one puff), and the lifetime prevalence of smoking at least one complete cigarette. Results indicated that for female students, the value of the former indicator was two times as high as that of the latter one, while for male students the ratio was 1.3.

As expected, results from the present study revealed that the prevalence of cigarette smoking increased significantly with an increase in age. Results also indicated that the last month prevalence of cigarette smoking among fourth-year students was significantly higher than that among first-year students, which is consistent with the findings of the previous studies (4, 31). This suggests that the university environment can affect the smoking habit, due mainly to the lack of appropriate leisure-time activities, being far away from the family (in most cases), and the presence of stressors, including burden of education.

Results from the present study also indicated that the last month prevalence of cigarette smoking was higher among students living alone or in dormitory compared to those living with their family, which was in agreement with the findings of the previous works conducted in Iran (13). This is most likely due to the fact that during high school and when preparing for the university entrance exam, students spend most of their time attending classes and studying under the supervision of their family. After being accepted to the university, however, some students have to move to the capital city, far away from their family, to pursue their studies. In this situation, the students can freely join different groups with new beliefs and behaviors. This combined with the burden of education can make them susceptible to the smoking and other substances.

The present work, like other studies commonly performed to evaluate the prevalence of cigarette smoking, relied on self reports. A probable consequence is that although the questionnaires were anonymous and untraceable, some of the participants may not have reported their smoking. Additionally, some students were absent and some other (between 4 and 10 percent) did not fill out the questionnaires. The prevalence of cigarette smoking was likely to be higher among the other groups, compared to the participants who completely filled out the questionnaires. However, this limitation is present in almost all of the epidemiologic studies on the prevalence of cigarette smoking carried out in Iran and other countries. Therefore, this does not pose any limitations to the comparability of the collected data with those obtained by previous

studies.

Finally, it is suggested that the repeated surveys on the prevalence of cigarette smoking among students of TUMS be conducted every other year by a preset research group to allow for monitoring probable changes in the trends. In addition, application of census as the sampling method provides ease of conduct, increases participants' trust, and significantly decreases the costs of conducting the study on a large sample of student population.

Conclusion

The findings suggest that the prevalence of smoking among students of TUMS was in the lower end of the spectrum, in comparison to other universities in Iran and other countries. Additionally, similar to the pattern observed in the developed world, this trend was decreasing, particularly among girls. Implementing preventive measures for accelerating the decreasing trend, as well as continuous monitoring is recommended.

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