Prevalence of smoking among high-school students of Tehran in 2003

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معدل انتشار التدخين بين طلاب المدارس الثانوية في طهران، 2003

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الخلاصة: تكشف هذه الدراسة معدل انتشار التدخين وما يصاحبه من عوامل بين طلاب المدارس الثانوية في طهران عاصمة جمهورية إيران الإسلامية عام 2003. وقد شملت الدراسة 1095 طالباً تتراوح أعمارهم بين 14 و18 عاماً، وكان 29٪ منهم (31٪ من الذكور و26٪ من الإناث) يدخنون من حين لآخر، و5٪ منهم (6٪ من الذكور و2٪ من الإناث) يدخنون يومياً. ومن بين الذين يدخنون من حين لآخر كان لدى 21٪ منهم أفراد من الأسرة يدخنون أيضاً، أما الطلاب الذين لم يدخنوا قط فليس في أسرهم أفراد يدخنون. ومن بين 316 من الطلاب الذين يدخنون من حين لآخر كان 12٪ يعيشون مع أحد الأبوين بالمقارنة مع 5٪ من غير المدخنين. وقد أظهر التحليل التحوُّفي أن عوامل الاختطار التي يُعْتَدُّ بها إحصائياً للتدخين اليومي هي: وجود أخ أو أخت من المدخنين (معدل الأرجحية = 8.58)، ووجود أكثر من واحد من أفراد الأسرة من المدخنين (معدل الأرجحية = 6.33).

ABSTRACT This study in 2003 determined the prevalence of smoking and its associated factors among high-school students in Tehran, Islamic Republic of Iran. Out of 1095 students aged 14–18 years, 29% (31% boys, 26% girls) were occasional and 5% (6% boys and 2% girls) daily smokers. Among occasional smokers, 21% had family members who also smoked, whereas for students who had never tried smoking, no family members smoked. Of 316 occasional smokers, 12% lived with a single parent compared with only 5% of never smokers. Regression analysis showed that significant risk factors for daily smoking were: having a brother or sister who smokes (OR = 8.58) and having more than 1 family member who smokes (OR = 6.33).

Prévalence du tabagisme chez les élèves du deuxième cycle de l>enseignement secondaire à Téhéran en 2003

RÉSUMÉ Cette étude, menée en 2003, a déterminé la prévalence du tabagisme et des facteurs associés à celui-ci chez les élèves du deuxième cycle de l'enseignement secondaire à Téhéran (République islamique d'Iran). Sur 1095 élèves âgés de 14 à 18 ans, 29 % (31 % de garçons, 26 % de filles) étaient des fumeurs occasionnels et 5 % (6 % de garçons, 2 % de filles) des fumeurs réguliers. L'entourage familial de 21 % des fumeurs occasionnels comptait au moins un membre fumeur, tandis qu'on ne recensait aucun fumeur dans celui des élèves n'ayant jamais fumé. Sur les 316 fumeurs occasionnels, 12 % vivaient dans une famille monoparentale contre 5 % pour les élèves n'ayant jamais fumé. Selon l'analyse de régression, les facteurs de risque significatifs du tabagisme régulier sont la présence d'un frère ou d'une sœur fumeurs (OR : 8,58) et la présence de plus d'un fumeur parmi les membres de la famille (OR : 6,33).

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Introduction

Cigarette smoking is the foremost cause of preventable death worldwide [*1*]. Smoking is responsible for 30% of deaths of people aged between 30–50 years of age and 12% of total deaths [*2*]. At present, cigarette smoking takes the lives of about 5 million people per year. With this continuing trend, this figure will reach 10 million in the next 20 years, with 7 million deaths occurring in developing countries [*3*].

If regular cigarette smoking is started at a very young age, e.g. in early teens, there is a 50% chance of early death as a result of cigarette-related mortality [*4*]. Smokers who cease smoking at a younger age are safe from all smoking-related complications. It is notable that, the younger the age at which smoking is initiated, the greater is the chance of becoming a heavy smoker, dying of cigarette-related diseases and suffering from stroke or lung cancer at a younger age [*5*]. As compared to non-smoker children, those that smoke even a few cigarettes per week suffer more coughs, common colds and ear infections. The lungs of a 16-year-old teenager who smokes 20 cigarettes/day is identical to a 28-year-old nonsmoker adult [*6*]. It has been noted that young individuals become addicted to cigarettes after only few cigarettes (for example less than 5 cigarettes) [*4*].

It has been demonstrated in different studies that young people consider smoking as a way of fighting and overcoming their problems and increasing their self-assurance and self-confidence [*7,8*]. In many industrialized countries, efforts are being made to educate children before the age at which they start smoking. Most elementary schoolchildren, between the ages of 5 to 11 years, are strongly opposed to smoking. However, by the ages of 12 and 13 years, pressure from peers and older classmates becomes increasingly difficult to resist. If friends or older children smoke at school, younger children tend to join them [*8*] and if the parents smoke, their children are also more likely to become smokers.

In the Islamic Republic of Iran, young people form a high proportion of the population and are therefore an important target for tobacco control and prevention programmes [*9*]. The aim of this study was to evaluate factors affecting the tendency towards cigarette smoking in young adults in Tehran city, Islamic Republic of Iran. High-school students were selected for this research because more than 60% of smokers start smoking by the age of 15 years according to the national health survey of the Iranian Ministry of Health in 1991 [*10*].

Methods

This was a cross-sectional descriptive study carried out over a 12-week period from mid-October 2003 to mid-February 2004. The total number of high-school students in Tehran is about 150 000. After obtaining consent approval for the questionnaire by the research centre at the Ministry of Education and, 5 districts (nos. 1, 2, 4, 14 and 19) were randomly chosen from the 19 district offices of the Ministry of Education using *Epi-info*, version 6 software. Using random numbers, 10 high schools were selected in each district and each school, 1 classroom was selected. The number of students per class varied from 80 to 110. Out of 1119 students selected, 1095 questionnaires were available for analysis (98% response rate).

After an explanation by 2 physicians who were part of the research team (1 male for boys and 1 female for girls), the students self-completed a questionnaire anonymously in a calm environment, without the presence of the school authorities.

The questionnaire was prepared according to the World Health Organization (WHO) Global Youth Tobacco Survey (GYTS) questionnaire [*11*], which has been previously validated. Data were collected about: demographic information, history of daily or occasional cigarette smoking, reasons for smoking and which members of the family were smokers.

Data were entered into *SPSS*, version 11.5 software for analysis. In a logistic regression analysis smoking in family members and living with parents were included in the model. Crude and relative frequencies were calculated. To analyse the correlation between the variables, the chi-squared test (with significance at $P < 0.05$) was used.

Results

There were 1095 high-school students, including 712 boys (65%) and 381 girls (35%) (data on sex was missing for 2). The age range was 14–18 years and the mean age was 16.7 years.

A total of 316 (29%) students were occasional smokers (95% CI: 26%–32%); 219 boys (31%) (95% CI: 27.4%–34.3%) and 97 girls (26%) (95% CI: 21.1–30.1) (not significant). There were 49 students (5%) who used cigarettes every day (95% CI: 3%–6%), 43 boys (6%) (95% CI: 4.6–8.1) and 6 girls (2%) (95% CI: 0.6%–3.4%) ($P < 0.001$).

The smoking status of the family members was studied (Table 1). Among the 316 occasional smokers, 12% had more than 1 other family members who also smoked, whereas in the students who had never smoked only 4% had 1 or more family member who smoked ($P < 0.0001$). Of the 49 students who smoked every day, 14% had a brother or a sister who smoked regularly compared with only 3% of those who did not smoke every day ($P < 0.0001$) (Table 1).

Of the occasional smokers, 279 (88%) lived with both their parents, compared with 743 (95%) of never-smokers. Thus, significantly more occasional smokers lived with a single parent (due to the death of a parent or separation) compared with never-smokers (12% versus 5%) ($P < 0.0001$). Of the students who smoked daily, only 2 (4%) lived with both of their parents while 4 (8%) lived with a single parent (not significant).

Table 1 **Distribution of high-school students based on the pattern of smoking in families, Shaheed Beheshti Medical University, 2003**

Smoking in family members	Occasional smoking among students				Daily smoking among students			
	Yes		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%
None	165	52	534	69	18	37	684	65
Father	83	26	178	22	13	26	248	24
Mother	10	4	13	2	1	2	23	2
Brother/sister	19	6	19	3	7	15	31	3
More than 1 smoker	39	12	35	4	10	20	60	6
Total	316	100	779	100	49	100	1046	100

By using logistic regression analysis and excluding interventional factors, the most important predictive factors for occasional cigarette smoking in this group of adolescents were: presence of more than 1 family member who smokes (OR = 3.66; 95% CI: 3.0–6.8); a brother or sister who smokes (OR = 2.96; 95% CI: 2.0–7.7); living with single parent (OR = 2.5; 95% CI: 2.1–4.4). The most important predictive factors for daily smoking were: having a brother or sister who smokes (OR = 8.58; 95% CI: 6.1–10.0) and having more than 1 family member who smokes (OR = 6.33; 95% CI: 4.2–8.5).

Discussion

In this research, 29% of high-school students reported smoking cigarettes occasionally. In the GYTS study conducted in 1999 among the youth of 13 countries, occasional smoking was reported by between 10%–33% of young people [*12*]. Also it was demonstrated in this study that the prevalence of occasional smoking among the teenagers of industrialized countries was greater than other countries [*12*]. Another study of male high-school students of Isfahan during 1988–89 showed that 22.5% were smokers and their first smoking experience was between the ages of 10–13 years [*13*]. However, in the Iranian national health survey performed from 1991–99, the prevalence of cigarette smoking had declined from 14.3% to 12.5% [*10*]

In our research the prevalence of daily cigarette smoking among this group of 14–18-year-olds was greater in boys than girls (6% versus 2%), although among the students that smoked occasionally, the proportions were more similar (31% versus 26%). This finding shows that the risk of trying cigarette smoking is similar in boys and girls, but boys in this age group are more likely to become dependent on smoking. Higher rates of smoking among adult males compared with females has been seen in studies in Egypt (20% versus 5%) [*11*] and in other Mediterranean countries in Europe, North Africa and the Middle East (60% versus 20%) [*14*]. In another study of the high-school students in Tehran, the prevalence of occasional smoking in boys and girls were 35% and 27% respectively [*15*].

There was a significant statistical relationship between cigarette smoking and the lifestyle of the students i.e. living with both parents or a single parent. We can hypothesize that living in a supportive and friendly family environment is a significant factor in preventing smoking in youth. We also observed that more students who had tried smoking had family members who also smoked compared with those that never smoked. This suggests that imitation plays an important role in the initiation of smoking in teenagers [*16*].

These findings were confirmed in the regression analysis, as the significant predictive factors for smoking were presence of more than 1 smoker among the family members, having a brother or sister that smokes and living with a single parent. Therefore, it can be concluded that family environment is an important factor influencing the smoking behaviour of adolescents.

In summary, the overall reported prevalence of occasional cigarette smoking among 14–18-year-olds in Tehran (29%) is not especially high compared with figures reported from other countries. However, due to the large number of occasional smokers who will become addicted to cigarettes in the future and because of the limited health education and prevention programmes addressing smoking in the Islamic Republic

of Iran, this figure is concerning. Targeted preventive and educational interventions, for example through the mass media, are needed.

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