

# First cigarette smoking experience among secondary-school students in Aden, Republic of Yemen

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تجربة تدخين السيجارة الأولى بين طلاب المدارس الثانوية في عدن، بجمهورية اليمن  
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**خلاصة:** كانت أهداف هذه الدراسة، أولاً، تقدير مدى انتشار عادة التدخين بين طلاب المدارس الثانوية. ومن ثم تحديد وتحليل عوامل الاختطار الديموغرافية والاجتماعية والثقافية المصاحبة لتجربة تدخين السيجارة الأولى. فتم اختيار عينة عشوائية مكونة من ألف طالب لهذا الغرض. وأظهرت النتائج أن 19.6% من أفراد العينة كانوا يدخنون، حيث كانت نسبة الإناث 15.5% ونسبة الذكور 21.9%. واتضح أن أفراد الأسرة أو الأصدقاء أو كليهما كان لهم أثر فعال في تدخين السيجارة الأولى. وبناءً عليه، لا ينبغي لاستراتيجيات الوقاية أن تشمل الطلاب وحدهم، بل كذلك محيطهم المنزلي والمدرسي والاجتماعي.

**ABSTRACT** The objectives of this study were first to estimate the prevalence of cigarette smoking among secondary-school students and then to identify and analyse the demographic, social and cultural risk factors associated with the first cigarette smoking experience. A sample comprising 1000 students was selected randomly. Results showed that 19.6% of the total sample smoked; 15.5% among females and 21.9% among males. Family and/or friends appeared to influence the first cigarette experience and thus prevention strategies should involve not only the students themselves but the home, school and social environments also.

## L'expérience de la première cigarette chez les élèves du secondaire à Aden (République du Yémen)

**RESUME** Les objectifs de cette étude étaient en premier lieu d'estimer la prévalence de l'usage de la cigarette parmi les élèves du secondaire et ensuite d'identifier et d'analyser les facteurs de risque démographiques, sociaux et culturels qui sont associés à l'expérience de la première cigarette. Un échantillon composé de 1000 élèves du secondaire a été sélectionné au hasard. Les résultats ont montré que 19,6% des personnes comprises dans l'échantillon total fumaient, le pourcentage étant de 15,5% chez les filles et de 21,9% chez les garçons. La famille et/ou les amis semblaient influencer sur l'expérience de la première cigarette, et les stratégies de prévention devraient donc concerner non seulement les élèves du secondaire mais aussi le milieu familial, scolaire et social.

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## Introduction

The world consumption of cigarettes is estimated at around six hundred billion cigarettes per year. That total number of cigarettes is enough to send 3 million smokers to the grave annually; this includes both passive and active smokers. Smoking is becoming one of the important mortality risk factors, not only in industrialized countries but also in developing countries. Great efforts have been made to reduce the number of smokers in industrialized countries; for example the percentage of the population that smokes in England has been reduced to 9% and in United States to 25%. However, the number of smokers has been increasing in developing countries. The percentage of the population who are smokers is about 22% in the Asiatic countries and 42% in the African communities [1].

Although the hazards of smoking are well known, the number of smokers among school students is still high. There are many factors influencing these students to start smoking; for example, socioeconomic status, parents, friends and siblings who smoke, and social environment [2]. Research in industrialized countries has repeatedly stressed the importance of preventing tobacco use among young people. In developing countries, however, smoking among children and adolescents has not received as much attention [3]. Nonetheless, it is well known that smoking among adolescents is a developmental phenomenon with several factors exerting an influence on cigarette use at different times [4]. Cigarette smoking is considered to be the single most preventable contributor to chronic diseases, but there is still controversy about the initiation and maintenance of smoking among adolescents [5].

Currently, there are more than 70 countries in the world which have official anti-smoking programmes and activities, including campaigns to protect individuals from tobacco smokers and promote a healthy environment. Work environments and other public places should be tobacco-smoke free in order to reduce the adverse effect on the people's health [6]. In response to international anti-smoking campaigns, the National Authority in the Republic of Yemen passed a resolution on community protection from smoking, which indicated in its general view the absolute prohibition of smoking in public places, including public transportation. However, it still has not been strictly implemented.

In the Republic of Yemen, the problem of smoking has not yet been investigated comprehensively, although some preliminary studies have been performed in some regions covering limited population groups. During 1991, a school-based study was carried out in Sirra District (Aden Governorate), which found that 7.1% of the total number of students of the secondary schools were smokers [7]. Another study on chewing khat and its associated habits showed that cigarette smoking was very common among khat-chewers. The study was carried out in 1992 among medical students of different grades in the Faculty of Medicine, Aden University and the results showed that 42% of khat-chewers were also smokers. Of these, 9.3% only smoked when they were chewing khat leaves [8].

Tobacco is cultivated in the country in limited areas; in Hadhramout (southern part) and in Tohamma (northern part). However, this tobacco is not used for the local manufacturing of cigarettes by the two cigarette companies; they only use imported tobacco. The local tobacco is usual-

ly used in different forms of consumption; for example, chewing it with the green leaves of *pan* (locally called *tumbol*), in the shisha pipe where the inhaling tube is commonly shared by a group of smokers and as snuff, although this last use is not widespread.

Our study aimed to investigate the smoking habits of secondary-school students, with particular reference to the first experience of cigarette smoking in order to provide some useful recommendations to reduce this habit among our youth. Our objectives were to:

- estimate the prevalence of cigarette smoking among secondary-school students according to sex;
- describe the first experience of cigarette smoking among ever-smoker secondary-school students (ever-smoker refers to those who smoke regularly and those who have only tried smoking);
- identify some demographic, psychosocial and familial factors associated with smoking among secondary-school students.

## Subjects and methods

This descriptive study was performed in April 1997 in Aden Governorate, Republic of Yemen. The study population was secondary-school students attending classes during the study period. A sample of 1000 students was randomly chosen applying a two-stage stratified cluster sampling, where each school was considered as a cluster. Stratification was by sex, school level and district in order to assure a representative sample according to the data available in the Office for Education in Aden.

At the first stage, and based on the number of students according to the register in the Office for Education in Aden, the proportion of the students by sex in the three directorates of Aden (Al-Meena, Seera, Al-Shab) was determined. The total sample size was fixed at 1000 students from the beginning and this total figure was distributed proportionally by sex, school level and directorate. To select the students, a second stage was used; that is the selection of schools. Two schools in each directorate were selected by simple random sampling and the sample size for that district was proportionally divided between the total number of students in each school. The students were given a questionnaire and a 100% response rate was obtained using systematic sampling inside the school, i.e. if one student refused to participate, another was chosen.

The study was carried out with the full cooperation of the different levels of authority in the Local Office for Education and the school managers and written permission was sought from the Office.

An anonymous, closed, self-administered questionnaire was used for the data collection, which was completed by all those included in the sample. During data collection, teachers were requested to be out of the classroom thus giving more assurance of confidentiality.

Data were analysed using *Microstat* system. Chi-squared and hypothesis tests for difference of percentages were applied with a significance level of 5%, and 95% confidence intervals were calculated.

## Results and discussion

The sample studied comprised 64.5% males and 35.5% females. Among all students studied the smoking prevalence was

19.6%; 21.9% among males and 15.5% among females (Table 1). The difference was statistically significant ( $P < 0.05$ ). The 95% confidence intervals of the estimated smoking prevalence for secondary-school students in Aden Governorate are: all students 17.1–22.1; males 20.3–23.5; females 13.6–17.4.

Jarallah and colleagues from Saudi Arabia reported a lower smoking prevalence rate among male junior secondary-school students (13.2%) [9]. Higher rates have been reported in the United States and New Zealand (52% and 65% respectively) [10,11]. These differences could be explained by the different social and cultural conditions prevailing in different communities.

The most common age for starting smoking was between 15 years and 19 years among all ever-smokers, followed by 10–14 years and under 10 years (Table 2). The pattern was similar for both sexes, although among females the proportion of those who started smoking between 10 years and 14 years was significantly higher than in males. It was found that 56.4% of female ever-smokers started at 14 years or less while 58.2% of male ever-smokers started at 15 years or more; thus females

seem to start smoking at significantly younger ages than males ( $\chi^2 = 6.299$ ,  $P < 0.05$ ).

Generally the prevalence of ever-smoking increased with the age. Similar results have been reported from China where smoking prevalence increased with age among boys and from Italy where smoking began among 11–13-year-old children and increased exponentially with age [12,13].

Considering all ever-smokers, the main sources of the first cigarette were relative/neighbour (25%), school friend (18.9%) and friend outside school (18.9%) (Table 3). Close relatives, i.e. father, mother or sibling, accounted for 20.9% if taken together. Teachers represented 2.6%. Similar findings have been reported from Indonesia and China [2,3]. By sex, the situation is completely different (Table 3). Among females, close relatives (father, mother, sibling) as the source of the first cigarette constituted a significantly higher proportion than males. Among males, school friends and friends outside school as the sources of the first cigarette constituted a significantly higher proportion.

The first cigarette for those who started smoking before 10 years of age was predominantly given by a relative/neighbour,

Table 1 Prevalence of smoking among secondary-school students by sex, Aden Governorate, Republic of Yemen, 1997

Smoking	Males		Females		Total	
	No.	%	No.	%	No.	%
Smokers	141	21.9	55	15.5	196	19.6
Never smoked	504	78.1	300	84.5	804	80.4
Total <sup>a</sup>	645	64.5	355	35.5	1000	100.0

<sup>a</sup>Percentage calculated from the total of the row. The rest of the percentages calculated from the total of the column.

Table 2 First cigarette smoking experience among ever-smoker secondary-school students by age group and sex, Aden Governorate, Republic of Yemen, 1997

Age group (years)	Males		Females		Total	
	No.	%	No.	%	No.	%
< 10	22	15.6	9	16.4	31	15.8
10–14	32	22.7	22	40.0	54	27.5
15–19	82	58.2	23	41.8	105	53.6
Not specified	5	3.5	1	1.8	6	3.1
Total	141	100.0	55	100.0	196	100.0

**Table 3 Source of the first cigarette of ever-smoker secondary-school students by sex, Aden Governorate, Republic of Yemen, 1997**

Source	Males		Females		Test of statistical significance (Z) <sup>a</sup>	Total	
	No.	%	No.	%		No.	%
Father	6	4.3	16	29.1	-4.949*	22	11.2
Mother	-	-	7	12.7	-	7	3.6
Sibling	2	1.4	10	18.2	-4.398*	12	6.1
Relative/neighbour	35	24.8	14	25.4	-0.092	49	25.0
School friend	37	26.2	-	-	-	37	18.9
Friend outside school	32	22.7	2	3.6	3.166*	34	17.3
Teacher	5	3.6	-	-	-	5	2.6
Others	16	11.3	3	5.5	-	19	9.7
Not specified	8	5.7	3	5.5	-	11	5.6
Total	141	100.0	55	100.0	-	196	100.0

<sup>a</sup>Hypothesis testing of differences of percentages, two proportions from independent group

\*Statistically significant

**Table 4 Source of the first cigarette of ever-smoker secondary-school students by age group, Aden Governorate, Republic of Yemen, 1997**

Source	Age group (years)							
	< 10		10-14		15-19		Not specified	
	No.	%	No.	%	No.	%	No.	%
Father	10	32.3	7	12.9	5	4.8	-	-
Mother	-	-	3	5.5	4	3.8	-	-
Sibling	4	12.9	5	9.2	3	2.8	-	-
Relative/neighbour	17	54.8	15	27.7	11	10.5	6	100.0
School friend	-	-	11	20.4	26	24.8	-	-
Friend outside school	-	-	7	12.9	27	25.7	-	-
Teacher	-	-	-	-	5	4.8	-	-
Others	-	-	3	5.5	16	15.2	-	-
Not specified	-	-	3	5.5	8	7.6	-	-
Total	31	100.0	54	100.0	105	100.0	6	100.0

followed by close relatives (mainly the father) (Table 4). For those starting smoking between 10 years and 14 years the main sources were relative/neighbour, school

friend and close relative (father, mother, sibling). For those who started smoking between 15 years and 19 years the main

Table 5 Place of smoking the first cigarette of ever-smoker secondary-school students by sex, Aden Governorate, Republic of Yemen, 1997

Place	Males		Females		Test of statistical significance (Z)	Total	
	No.	%	No.	%		No.	%
Home	19	13.5	43	78.2	-8.752*	62	31.6
School	1	0.7	1	1.8	-0.694	2	1.0
On the way to/from school	35	24.8	1	1.8	3.737*	36	18.4
House of friend/relative	18	12.8	4	7.3	1.095	22	11.2
Not specified	68	48.2	6	10.9	-	74	37.8
Total	141	100.0	55	100.0	-	196	100.0

\*Statistically significant

sources were friends outside school, school friends and others.

It is interesting to note that among those who started smoking at 14 years or younger the first cigarette was predominantly obtained at home, because the main sources were either close relative or relative/neighbour. Those who started smoking at 15 years or more acquired the habit outside the home, mainly at school or on the streets, i.e. school friends and friends outside school were the main sources. Teachers represented a very small proportion and were only mentioned as a source of the first cigarette by students between 15 years and 19 years. Similar findings were observed by Reimers and colleagues [4]. This indicates that strategies for smoking prevention should not be restricted to individual students but must also cover the student's home and school environment.

The first cigarette was usually smoked at home, followed by on the way to/from school and then at the house of a friend or relative (Table 5). By sex the situation was different. A significantly higher proportion of females reported the home as the place where they started smoking, while a signif-

icantly higher proportion of males mentioned starting smoking on the way to/from school (Table 5).

Those who tried the first cigarette at under 10 years old did so in their homes followed by in the house of a friend or relative. Home and the way to/from school were the most common places for the first smoking experience in the age groups 10-14 years and 15-19 years (Table 6).

The reason for starting smoking was usually to see what it was like, i.e. curiosity, followed by to imitate others and then because of encouragement by others (Table 7). The idea that smoking makes people elegant was not a common reason given for starting smoking. By sex the pattern was similar (Table 7). However, the proportion of females who said they started smoking to see what it was like was significantly higher than the proportion of males who gave it that reason.

In all age groups the main reason expressed for starting cigarette smoking was to see what it was like (Table 8). The second reason for the age groups < 10 years and 10-14 years was to imitate the behaviour of others, while among the age group

**Table 6 Place of smoking the first cigarette of ever-smoker secondary-school students by age group, Aden Governorate, Republic of Yemen, 1997**

Place	Age group (years)							
	< 10		10-14		15-19		Not specified	
	No.	%	No.	%	No.	%	No.	%
Home	15	48.4	22	40.7	23	21.9	2	33.3
School	1	3.2	-	-	1	0.9	-	-
On the way to/from school	2	6.5	13	24.1	19	18.1	2	33.3
House of friend/relative	9	29.0	3	5.6	9	8.6	1	16.7
Not specified	4	12.9	16	29.6	53	50.5	1	16.7
Total	31	100.0	54	100.0	105	100.0	6	100.0

**Table 7 Main reasons for starting smoking of ever-smoker secondary-school students by sex, Aden Governorate, Republic of Yemen, 1997**

Main reason	Males		Females		Test of statistical significance (Z)	Total	
	No.	%	No.	%		No.	%
To see what it was like	75	53.2	46	83.6	-3.940*	121	61.7
To imitate behaviour of others	18	12.8	5	9.1	0.717	23	11.7
Encouraged by another	17	12.1	-	-	-	17	8.7
Smoking makes people elegant	12	8.5	3	5.5	0.723	15	7.7
Other	6	4.2	-	-	-	6	3.1
Not specified	13	9.2	1	1.8	-	14	7.1
Total	141	100.0	55	100.0	-	196	100.0

\*Statistically significant

15-19 years it was because of encouragement by others. The third reason given by those under 10 years was that they considered that smoking made people look elegant. This was also the third reason for those aged 10-14 years. Among students who started smoking when they were 15-19 years old the third reason given was to imitate the behaviour of others.

The greatest percentage (36.3%) of ever-smoker secondary-school students had their first cigarette with friends/school friends, while 28.6% had their first cigarette alone (Table 9). Similar findings were reported by Conrad and colleagues, indicating that peer influences are strong predictors of smoking initiation [14]. However, there were statistically significant differences between males and

Table 8 Main reasons for starting smoking of ever-smoker secondary-school students by age group, Aden Governorate, Republic of Yemen, 1997

Main reason	Age group (years)							
	< 10		10-14		15-19		Not specified	
	No.	%	No.	%	No.	%	No.	%
To see what it was like	14	45.2	34	63.0	71	67.7	2	33.3
To imitate behaviour of others	5	16.1	9	16.7	9	8.6	-	-
Encouraged by another	1	3.2	4	7.4	10	9.5	2	33.3
Smoking makes people elegant	2	6.5	4	7.4	8	7.6	1	16.7
Other	-	-	3	5.5	3	2.8	-	-
Not specified	9	29.0	-	-	4	3.8	1	16.7
Total	31	100.0	54	100.0	105	100.0	6	100.0

Table 9 Person with whom the first cigarette was smoked of ever-smoker secondary-school students by sex, Aden Governorate, Republic of Yemen, 1997

Person with whom the first cigarette was smoked	Males		Females		Test of statistical significance (Z) <sup>a</sup>	Total	
	No.	%	No.	%		No.	%
Friend/school friend	64	45.4	7	12.8	4.275*	71	36.3
Alone	35	24.8	21	38.2	-1.860	56	28.6
Relative/neighbour	22	15.6	3	5.4	1.914	25	12.7
Family member	4	2.8	21	38.2	-6.665*	25	12.7
Other	16	11.4	-	-	-	16	8.2
Not specified	-	-	3	5.4	-	3	1.5
Total	141	100.0	55	100.0	-	196	100.0

<sup>a</sup>Hypothesis testing of difference of percentages, two proportions from independent groups

\*Statistically significant

females (Table 9). A significantly higher proportion of females were shown to have smoked the first cigarette with a family member, while a significantly higher proportion of males had their first cigarette with a friend/school friend. The other practices had no statistically significant differences by sex.

For students who started smoking at under 10 years of age the highest proportion said that they had their first cigarette alone, followed by in the company of a relative/neighbour and then a family member (Table 10). Among the age group 10-14 years, the first smoking experience took



Table 10 Person with whom the first cigarette was smoked of ever-smoker secondary-school students by age group, Aden Governorate, Republic of Yemen, 1997

Person with whom the first cigarette was smoked	Age group (years)							
	< 10		10-14		15-19		Not specified	
	No.	%	No.	%	No.	%	No.	%
Friend/school friend	3	9.7	18	33.3	50	47.7	2	33.3
Alone	14	45.2	17	31.5	24	22.8	-	-
Relative/neighbour	9	29.0	4	7.4	10	9.5	2	33.3
Family member	5	16.1	11	20.4	8	7.6	-	-
Other	-	-	4	7.4	11	10.5	1	16.7
Not specified	-	-	-	-	2	1.9	1	16.7
Total	31	100.0	54	100.0	105	100.0	6	100.0

place with friend/school friend (33.3%), alone (31.5%) and with a family member (20.4%).

## Conclusions

- The smoking prevalence among secondary-school students in Aden Governorate was higher among males than females.
- A significantly higher proportion of girls than boys started smoking at age 14 years or less.
- The main sources for the first cigarette were significantly different between boys and girls. For boys the sources were friends outside school and school friends, while for girls they were the close relatives, i.e. father, mother or sibling.
- The most common place for smoking the first cigarette for those aged 14 years or under was the home, while for males aged 15-19 years it was outside the home. The place of smoking the first cigarette was significantly different between girls and boys; girls predominantly smoked their first cigarette at home, while boys had this experience on the way to/from school.
- The main reason for starting smoking was to see what it was like but a significantly higher proportion of girls than boys gave this as the reason. Among those aged 14 years or under the second reason expressed was to imitate the behaviour of others, while among the age group 15-19 years it was because of encouragement by others.
- The first cigarette was smoked in different company depending on the sex and the difference was significant. Girls reported the company of a family member and boys mentioned a friend/school friend. In those aged under 10 years, the first cigarette was generally smoked alone; among those aged 10 years or more it was smoked predominantly in the company a friend/school friend.
- Smoking prevention strategies should involve home, school and social environments as well as the students themselves.

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