

## Ethnic Differences in Cigarette Smoking among Adolescents: A Comparison of Jews and Arabs in Jerusalem

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### Abstract

**Background:** Prevention of cigarette smoking is an important issue in public health policy. Since most adult smokers began smoking in childhood, understanding behavioral factors associated with smoking initiation would contribute to smoking initiation programs. Health-related behavior may vary between different ethnic groups.

**Objectives:** To determine the prevalence of smoking among Jewish and Arab adolescents in Jerusalem, and whether there are differences in smoking initiation between the two ethnic groups.

**Methods:** We carried out a cross-sectional survey of all students in the 6th to 11th grades (age range 11–17 years) of a Jewish school and an Arab school in the Jerusalem area, using an anonymous self-completion questionnaire. A total of 791 questionnaires was analyzed, 479 from the Jewish students and 312 from the Arab students.

**Results:** The lowest prevalence of smoking was found among Arab female students and the highest among Jewish female students (9% vs. 41%,  $P < 0.001$ ). The prevalence of smoking among Jewish and Arab males was similar. More Arab female students smoked than their mothers. Peer pressure seemed to be a more important factor among Jewish students.

**Conclusions:** This study demonstrated the presence of ethnic differences in smoking prevalence and the reasons for smoking among adolescents in Israel. These results suggest the need for specific smoking prevention policies for different ethnic groups.

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Cigarette smoking is the single most common preventable cause of mortality and morbidity in the western world. It has been estimated to cause two million deaths annually in the developed countries [1]. Reducing the number of smokers is a major goal of public health policy; however, despite the many efforts by health authorities, most attempts to quit smoking are unsuccessful. Even the addition of nicotine replacement has not markedly improved the efficacy of smoking cessation programs [2]. It is therefore preferable to place the emphasis on preventing people from starting to smoke. Given that the majority of adult

smokers started smoking before the age of 18 years [3,4], we studied the smoking behavior of youth under this age.

Since Israel is a multi-ethnic society, health-related behavior, such as cigarette smoking, may vary among people of different ethnic backgrounds. Several articles from the United States that compared white, Afro-American, Hispanic and Asian adolescents observed differences in cigarette smoking habits among these ethnic groups [5–9]. However, an extensive search of the literature revealed only one study outside the USA that compared the smoking habits of schoolchildren from different ethnic backgrounds; this study described the differences in smoking behavior between Asian and white schoolchildren in Glasgow [10]. The present study sought to determine whether there were differences in cigarette smoking habits between Jewish and Arab school students in Jerusalem, and if so, would indicate the need for specific smoking prevention programs for the different ethnic groups in Israel.

### Methods

A cross-sectional study was carried out using an anonymous self-completion questionnaire that was administered to the students in their classroom under the supervision of a researcher. The study group comprised all the students in the 6th to 11th grades (age range 11–17 years) of a Jewish school and an Arab school in the Jerusalem area who were present in the classroom at the time of the survey. The Jewish school, comprising secular students, is a comprehensive school located in a low socioeconomic neighborhood, but due to enrichment programs is regarded as a good school and attracts many students from higher socioeconomic neighborhoods. We therefore assumed that the school represents the population of high school students in Jerusalem. The Arab school was situated in Abu Gosh, a small town outside Jerusalem.

The questionnaire used in this study was described previously [11]. Briefly, it consisted of questions on the students' age, gender, smoking status, smoking status of their parents, and knowledge of the adverse health effects of smoking. Students who had smoked at least once in their lives were asked how they had obtained the first cigarette, their view on children who smoke, and their reasons for smoking. Students who had never smoked were asked about potential reasons to

start smoking. The questionnaire was written in Hebrew for the Jewish school and in Arabic for the Arab school.

The smoking status of the students was defined according to definitions used in previous studies [6,11,12]: “never smokers” are students who had never smoked in their lives, “experimental smokers” are students who had smoked at least once in their lives but had not smoked during the 2 weeks before the study, and “current smokers” are students who had smoked at least one cigarette during the 2 weeks before the study.

### Statistical analysis

The analyses were carried out using the SPSS package. Data are presented as mean (standard deviation). Differences between the Jewish and Arab students were tested by means of the Mann-Whitney U test (non-normally distributed variables) or the chi square test (proportions). Bonferroni-Holm corrected *P* values were used for multiple comparisons. Two tailed *P* values of less than 0.05 were considered to indicate statistical significance.

### Results

All dispatched questionnaires were returned (*n* = 847). Twenty-four of the questionnaires from the Jewish school and 32 from the Arab school were inadequately completed and were subsequently excluded from the analyses. Of the remaining 791 questionnaires suitable for analysis, 479 were from Jewish students (47% males) and 312 from Arab students (46% males). The age of the Jewish students, 14.0 (1.7) years, was similar to that of the Arab students, 14.1 (1.8) years.

Overall, the smoking status of the Jewish and the Arab students was similar: 65% of the Jewish students had never smoked vs. 66% of the Arab students, 19% of the Jewish students reported experimental smoking vs. 22% of the Arab students, and 16% of the Jewish students were current smokers vs. 12% of the Arab students. However, as shown in Table 1, when the results were differentiated according to gender and age groups, significant differences were found. In the 9th to 11th grades the proportion of current smokers among female Arab students was significantly less than among female Jewish students and Arab male students. The highest prevalence of current smoking was seen among the Jewish female students in the 9th to 11th grades.

Among the Arab students, only 3% had a mother who smoked, while 50% had a father who smoked (*P* < 0.001). In contrast, there was no difference in smoking status between mothers and fathers among the Jewish parents: 35% of the students had a smoking father and 35% a smoking mother.

Knowledge regarding the health consequences of smoking was tested in all the students. The Jewish students made fewer mistakes than the Arab students in marking true or false to a list of eight statements about potentially harmful effects of smoking ( $1.6 \pm 1.1$  vs.  $2.2 \pm 1.3$ , *P* < 0.01). There was no difference between males and females.

Differences were found in the way the students obtained their

**Table 1.** Smoking status of the students by grades (%)

	Jewish		Arab	
	Male	Female	Male	Female
<b>Grades: 6–8 (age 11–14 yr)</b>	(n = 132)	(n = 139)	(n = 88)	(n = 102)
Never	79%	85%	72%	89%
Experimental	19%	12%	19%	8%
Current	2%	3%	9%	3%
<b>Grades 9–11 (age 14–17 yr)</b>	(n = 95)	(n = 113)	(n = 56)	(n = 66)
Never	47%	41%	26%	56%
Experimental	29%	18%	38%	35%
Current * · **	27%	41%	36%	9%

\* *P* < 0.001 for the difference between Jewish and Arab females.

\*\* *P* < 0.01 for the difference between Arab males and females.

**Table 2.** How the students obtained their first cigarette (%)

	Jewish		Arab	
	Male (n = 82)	Female (n = 86)	Male (n = 66)	Female (n = 40)
From a parent	15%	9%	5%	26%
From a sibling	5%	4%	35%	5%
From a friend*	38%	52%	32%	13%
From someone else	15%	11%	8%	8%
Bought it themselves	15%	15%	7%	5%
Took it without permission* · **	13%	9%	45%	44%

\* *P* < 0.001 for the difference between Jewish and Arab females.

\*\* *P* < 0.001 for the difference between Jewish and Arab males.

**Table 3.** Answers to the question “What is the reason for smoking?” by experimental and current smokers (% of students who answered positively to the alternative, more than one alternative allowed)

	Jewish		Arab	
	Male (n = 82)	Female (n = 86)	Male (n = 66)	Female (n = 40)
To be more accepted				
by the group* · **	78%	67%	36%	33%
To try something new***	68%	80%	53%	50%
To look more mature	76%	58%	55%	53%
To look stronger****	53%	39%	31%	41%
Because it is forbidden	57%	50%	37%	53%

\* *P* < 0.001 for the difference between Jewish and Arab males.

\*\* *P* < 0.001 for the difference between Jewish and Arab females.

\*\*\* *P* < 0.01 for the difference between Jewish and Arab females.

\*\*\*\* *P* < 0.05 for the difference between Jewish and Arab males.

first cigarette [Table 2]. The most common source among the Jewish students was a friend, particularly among females, whereas Arab students reported having taken it without permission.

Students who had never smoked in their lives were asked to attribute certain personality characteristics to children who smoke. The Jewish and Arab students gave similar answers for the characteristics shy, nice, wise, mature, nervous, and stupid. The only difference was found for the trait courageous: 46% of

**Table 4.** Answers to the question “If you were ever to start smoking, what would be the reason for it?” by children who had never smoked (% of students who answered positively to the alternative, more than one alternative allowed)

	Jewish		Arab	
	Male (n = 145)	Female (n = 166)	Male (n = 78)	Female (n = 128)
To be more accepted by the group*	22%	9%	13%	8%
To try something new*	39%	38%	21%	30%
To look more mature**	20%	9%	23%	22%
To look stronger	20%	4%	10%	10%
Because it is forbidden***	9%	7%	19%	33%

\*  $P < 0.05$  for the difference between Jewish and Arab males.

\*\*  $P < 0.05$  for the difference between Jewish and Arab females.

\*\*\*  $P < 0.001$  for the difference between Jewish and Arab females.

the Arab female students who had never smoked perceived children who smoke as courageous, compared to 10% of the Jewish females students ( $P < 0.01$ ).

A comparison of the reasons for cigarette smoking among students who had never smoked in their lives [Table 3] indicates differences among the four groups. The reason “to be more accepted by the group” was stated significantly more often by the Jewish students, both males and females. Jewish females gave the reason “to try something new” more often than Arab females, while Jewish males stated the reasons “to be more mature” and “to look stronger” more often than did Arab male students.

Analysis of the students who never smoked regarding the reasons why they would begin smoking appears in Table 4. Overall, these students answered positively to the alternatives less frequently than did the smoking group. Among these students the most common reason for ever starting to smoke was “to try something new.” Jewish males reported the reason “to be more accepted by the group” more often than Arab male students. “To look more mature” and “because it is forbidden” as reasons to start smoking were expressed more often by Arab females than Jewish females.

## Discussion

The results of this study show ethnic differences in the prevalence of cigarette smoking among adolescents in Jerusalem. The difference in prevalence was most pronounced between the Arab and Jewish female students, with cigarette smoking being less common among the former group. The prevalence of smoking among Jewish students and Arab male students was similar to the prevalence reported among school students from other western countries [4,13]. Furthermore, the prevalence of smoking among male Arab students was comparable to that among male secondary school students in Riyadh, Saudi Arabia [14], and the prevalence of smoking among the Jewish students was similar to the findings of a previous study in high school students in Jerusalem [15]. A recent study [16] among

adolescents demonstrated that the validity of self-reported smoking was basically similar across different ethnic groups. We therefore believe that, despite not having used a biochemical marker, the differences we found in the prevalence of smoking were real.

We also found ethnic differences in the prevalence of smoking by the parents. Among the Arab parents the number of smoking mothers was far lower than the number of smoking fathers. A study from the USA on adult Arabs who lived in an urban area found an equal prevalence of current smoking by males and females [17], whereas a study from an urban area in Saudi Arabia noted a higher prevalence of smoking among males [18]. Since America has a more western society than Saudi Arabia, we hypothesize that western society weakens the traditional restriction against smoking by Arab females. Israeli society has been increasingly westernized. Thus, the higher prevalence of smoking among Arab female students compared to their mothers in our study might be explained by a less strict observance of traditional values, e.g., females do not smoke. The finding that more than a quarter of the Arab females obtained the first cigarette from a parent supports the assumption that Arab parents are becoming more lenient towards female smoking. We expect that if the traditional restriction against female smoking is not reinforced the proportion of Arab male and female smokers in Israel will eventually become similar. We suggest further study on the cultural and religious forces against smoking by adolescents as it seems to be an effective preventive measure.

The lower prevalence of smoking by female Arab students could not be attributed to better health knowledge on smoking. This is in agreement with a previously reported finding that increasing the knowledge among school students regarding the effects of smoking on health did not reduce the rate of smoking [19].

Ethnic differences in reasons for smoking were also observed. “To be more accepted by the group” was a more common reason to smoke among Jewish smokers and a more common potential reason for starting to smoke among Jewish males, as compared to the Arabs. The greater importance of peer pressure among Jewish students was also signified by many students having obtained their first cigarette from a friend. In contrast, a significant proportion of Arab students regarded smoking as a way to distinguish themselves from the crowd, as evidenced by their reasons “because it is forbidden” and “to look more mature.” This is also suggested by the finding that half the Arab female smokers view other smoking children as courageous. Ethnic differences on the importance of peer pressure were also reported from the USA: having friends who smoked appeared to be the best predictor of smoking among white adolescents, while peer influence was not a major predictor of smoking among Afro-American, Asian or Hispanic adolescents [6,7]. Curiosity was another factor with a differential ethnic influence, in that it seemed to play a more important role among Jews than among Arabs.

In conclusion, our study demonstrated the presence of ethnic

differences in smoking prevalence and reasons for smoking among school students in Israel. Arab female students smoked significantly less, although the traditional restrictions against female smoking in Arab society seemed to be weakening. Peer pressure was a more important factor for smoking among Jewish students than among Arab students. We hope that the results of this study will increase the awareness on the influence of ethnicity on the smoking habits of adolescents and will serve as an impetus to develop tailored smoking prevention policies for the different ethnic groups in Israel.

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