M. Trends in Tobacco Use Among Arab/Arab-American Adolescents: Preliminary Findings

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Objective

The purposes of this study were to: 1) estimate the prevalence of different forms of tobacco use including narghile use (water pipe) in two suburban high school populations (9th–12th grades) in an ethnically diverse, but predominantly Arabic, adolescent population in southeast Michigan; 2) examine the relationships of cultural and behavioral variables to reported adolescent tobacco use behavior; and 3) compare the ethnically diverse Michigan data to national data.

Background

Tobacco use has long been identified as the single most important source of preventable illness and death in adults and in the young.[1–3] Most teenagers begin tobacco experimentation before 14 years of age and almost one half will die from smoking-related health problems.[3] Research has shown that if persons do not become regular smokers as adolescents, they likely never will.[3,4] The adolescent years thus constitute an ideal age at which to target tobacco use prevention programs. However, wide variation in tobacco use initiation rates have been reported for youths of different racial/ethnic identities.[4] Most relevant for the current investigation are the results of the National Youth Risk Behavior Survey (YRBS) for 2001,[5] with rates of current smoking ranging from a low of 21% and 20% for Asian and African-American youth, to a high of 48% for American Indian/Alaskan Native youth.

The 2001 national school-based Youth Risk Behavior Survey (YRBS) is one component of the Youth Risk Behavior Surveillance System (YRBSS), an epidemiologic, biannual surveillance system that was first established by the Centers for Disease Control and Prevention (CDC) in 1990 to monitor the high risk behaviors of youth that most influence health and well-being. The YRBS uses a three-stage cluster sample design to produce a nationally representative sample of public and private school students, grades 9–12. Schools with substantial numbers of African-American and Hispanic students were sampled at higher rates than all other schools enabling separate data analyses by race and ethnicity. Students completed the self-administered questionnaire in their classrooms during a regular class period.

One hundred and fifty (150) of the 199 sampled schools participated in the survey. A total of 13,601 usable student questionnaires were received for an overall response ratio of 63%. A weighting factor was applied to each student's record to adjust for non-response and for the varying probabilities of selection, including those resulting from the over sampling of African-American and Hispanic students. Scores were scaled so that the number of students was equal to the total sample size and the weighted proportions of students in each grade matched national population proportions.

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The YRBS, however, does not explicitly identify other ethnic groups, such as Arab-American youth, as a separate category. This cultural group is of considerable interest because of the high rate of smoking behavior (40% to 76%) found in Arab adults that put these youth at increased risk for early initiation.[6–10]

Studies of adolescents in the Middle East have produced cigarette smoking rates ranging from 33% to 58%.[11–12] Smoking rates for adolescents in the Arab world vary. Siddiqui, Ogbeidi, and Al Khalifar reported a 34.4% current smoking rate for Saudi boys over the age of 12 years attending a primary care clinic.[13] The most common reason for starting smoking was having friends that smoked. A survey of Jordanian[14] students (grades 7–9) revealed a 22.9% current smoking rate for male students and 15.2% for female students. The use among boys in the United Arab Emirates (N=1457) ages 15 to 19 was 30.3%.[15] For 6th to 11th grade Jews and Arabs in Jerusalem, researchers[16] noted the lowest tobacco use in Arab girls (9%) and the highest for Jewish girls (41%); it was 38% for both Arab and Jewish teen boys. Maziak[17] examined tobacco use in 10th, 11th, and 12th graders (N=1587) in 16 randomly selected schools in Syria. Smoking was 15.9% for boys and 6.6% for girls. The strongest predictors for tobacco use were peers and parents smoking (Odds Ratio=4.4).

Teen smoking among Arab youth in the United States has received less attention. A 1998 Michigan study reported the smoking rate for Arab-American youth was 34.3%.[18] In a recent pilot study[19] in the Michigan public schools, 119 ninth and tenth grade students reported a tobacco use rate of 25%.

METHODS

On two randomly selected days in October of 2002, all students in two high schools in southeast Michigan (N=2454) were asked to participate in a tobacco use survey (each school participated on a different day). Prior to this day, survey forms were distributed to all homeroom teachers with the instructions to administer the survey during the first hour. Project staff assisted where needed in survey administration. Teachers read the instructions and distributed the self-administered questionnaires. Students declining to participate during the data collection sat quietly at their desks; many did homework. The overall participation rate was 98%. Informed consent was obtained from parents at the beginning of the school year via a letter sent to all parents that requested that the school be notified if they did not want their children to participate.

The Tobacco Use Questionnaire (TUQ) consists of the following: seven questions from the YRBS regarding cigarette smoking, seven corresponding questions on use of the narghile, seven questions about other types of tobacco use, and several social demographic questions. The TUQ has established reliability and validity and is available in English and Arabic.[19]

RESULTS

Sixty-four percent of the students surveyed (N=1567) were Arab-American. The others were Caucasian (23%), Hispanic (7%), African-American (4%), and other (2%). The average age was 15.65 years (SD=1.18). All grades (9th through 12th) were approximately equally represented, and sex was nearly evenly divided (52% male). The overall prevalence of cigarette smoking as determined by three survey questions was 33%, 23%, and 16% for the questions 'ever tried cigarettes,' 'smoked any cigarettes in past 30 days,' and 'regular smoking in past 30 days,' respectively. Each of these measures of prevalence was significantly related to grade (9th through 12th) and ethnicity (Arab vs non-Arab). As expected, prevalence increased with grade level, with 12% of 9th graders and 29% of 12th graders reporting smoking one or more cigarettes over the past 30 days. Contrary to expectations, the reported prevalence of smoking in Arab youth was about half of that of non-Arab youth. For the outcome, 'smoked in the past 30 days,' 16% of Arab students reported smoking, compared to 37% of non-Arab students.

These results are very similar to those reported in the 2001 YRBS when examined separately for the different racial/ethnic groups. For the outcome 'smoked in the past 30 days,' the YRBS reported rates of cigarette use for African-American and Asian youth were 20% and 21%, respectively, and the rates for Caucasian and American Indian/Alaskan Natives were 39% and 48%, respectively. Over all racial/ethnic groups in Michigan for the outcome current smoking/'smoked in the past 30 days,' the rate reported by the YRBS was 29.9%.

A common form of tobacco use in the Arabic culture is the narghile (water pipe). The prevalence of narghile use across all students was 36%, 15%, and 8% for the outcomes "ever used" (experimentation), "used in past 30 days" (social use), and "regular use" (addictive use), respectively. Grade, race and gender were significantly related to narghile use. With regard to grade, students reported more experimental use of the narghile at higher grades (30% in 9th grade vs 43% in 12th grade), more social use of narghile in higher grades (9% in 9th grade vs 21% in 12th grade), and more addictive use of narghile in the higher grades (6% in 9th grade vs 11% in 12th grade). All of these findings were significant at the .01 level. With regard to ethnicity (Arabic vs non-Arabic), Arabic youth reported significantly more experimentation (45% vs 19%), more social use (19% vs 8%), and more addictive use (10% vs 3%, P=.05). With

regard to gender, males were reported higher experimental use (33% for males vs 20% for females), higher social use (13% for males vs 8% for females), and higher addictive use (9% for males vs 3% for females).

The extent to which cultural customs surrounding narghile use predicted cigarette smoking behavior was investigated by means of odds ratios, analysis of covariance, and logistic regression. Students were more likely to be regular smokers if they were older (OR=1.6), males (1.7). They are less likely to be regular smokers if they were Arab Americans (OR=7.7). Students were more likely to be regular smokers if they ever experimented with use of the narghile (OR=4.44). Moreover, they were more likely to be regular smokers if they had smoked the narghile in the last 30 days (OR=1.9) or had used narghile regularly (OR=2.6). In addition, the variable, "age of first using the narghile," was predictive of regular cigarette smoking.

DISCUSSION

The conclusions we present are tentative because additional data have yet to be analyzed. Regardless, the results are highly suggestive. Contrary to expectations, the rates of cigarette smoking observed in Arab youth were not higher than those reported for non-Arab youth, in fact, the rates were significantly lower (16% for Arab youth and 34% for non-Arab youth). The 16% rate for Arab youth is similar to the rate reported for boys in Syrian schools,[17] namely, 15.9%, but lower than rates reported in a number of other studies of youth in Arab countries (see literature review). On the other hand, the 34% prevalence we found for non-Arab youth is very similar to the overall prevalence rate in Michigan youth as reported for the YRBS (which was 29.9% for current smoking).

One explanation for the lower rates for Arab youth is a differential reporting bias. Arab youth could feel more vulnerable to self-reporting stigmatized behavior. Detailed examination of the data has found no support for this hypothesis. No evidence showed responses on any of the survey questions were less reliable for Arab youth; and the relationships between smoking behavior and other socio-demographic variables were similar for Arab and non-Arab youth. In addition, qualitative data based on informal interviews with students who participated in the study also suggested no warrant for under-reporting.

Another explanation for the lower prevalence among Arab youth is differences in cultural norms regarding the acceptable age of initiation. Conference attendees reported that in Arab countries, it is considered not polite for Arab children of any age to smoke in front of their parents. The extent to which cultural norms may delay early initiation, at least in the earlier grades, needs further investigation.

In contrast to cigarette use, narghile use was higher in Arab youth for each of the outcome categories, experimentation, social use, and addictive use. In addition, boys were 2.5 times more likely to engage in addictive narghile use, regardless of race/ethnicity. The high rate of narghile use in both Arab and non-Arab youth (ie, 68% and 62%, respectively, for social use) was surprising and raises concerns about the possibility that use of the narghile could be a gateway to regular cigarette use. Significant associations between narghile use and cigarette use were observed, but the direction of the effect is not assessable. More thought needs to be given to the question of what kinds of data are needed to better understand the nature and causal direction of the association between narghile and cigarette use.

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