

## G. TOBACCO USE PATTERNS AMONG HIGH SCHOOL STUDENTS: DO ARAB AMERICAN YOUTH DIFFER?

**Objective:** To determine tobacco use rates (cigarette, water pipe smoking [WPS] or narghile) in Arab American compared to non-Arab youth.

**Design/Setting:** A convenience sample of 2,782 14- to 18-year-old high school students from a midwest community completed a 21-item tobacco use history survey.

**Results:** Seventy-one percent of the participants were ArA. Grades 9 through 12 were equally represented. Results included 'ever tried cigarettes [narghile]' (20%, 39%); 'smoked cigarettes [narghile] in the past 30 days' (7%, 22%); and 'regular smoking [narghile]' (3%, 15%) for ArA and non-Arab youths, respectively. Each was significantly related to grade and ethnicity. WPS for ArA and non-Arab youths was (38%, 21%); (17%, 11%); and (7%, 5%) for 'ever used,' 'used in the past 30 days,' and 'regular use,' respectively. Grade, ethnicity, and sex were significantly related to WPS.

**Conclusions:** Cigarette smoking rates for non-Arab youth were lower than current national youth smoking rates but significantly higher than ArA youth. Rates for ArA youth were much lower than current national reported data. Rates of WPS for US youth, regardless of race or ethnicity, are not known. Findings from this study indicate that both ArA and non-Arab youth are experimenting and using WPS regularly. These results underscore the importance of assessing novel forms of tobacco use, particularly WPS, a growing phenomenon among US youth. (*Ethn Dis.* 2007;17[Suppl 3]:S3-22-S3-24)

**Key Words:** Smoking, Arab American Youth

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### INTRODUCTION

The significant progress our nation made in reducing youth cigarette smoking since the mid-1990s has stalled, according to the 2004 National Youth Tobacco Survey results.<sup>1</sup> Overall, youth cigarette-smoking rates, based on the CDC 2005 reported data, were 23% for all 9<sup>th</sup> through 12<sup>th</sup> grade students and 8.1% for 6<sup>th</sup> through 8<sup>th</sup> grade middle school students. While there are well-recognized differences in youth cigarette-smoking rates for the four major racial/ethnic groups, the smoking rates for Arab Americans is generally not singled out. Arab Americans, one of the fastest growing immigrant groups in the United States, number nearly 4 million with approximately 490,000 living in Michigan. Adults from the Middle East have some of the highest reported cigarette smoking rates in the world<sup>2</sup>; ranging from 60% in Tunisia to 40% in Iraq<sup>3</sup> which may translate into higher smoking rates among youth of Middle Eastern descent. In addition, the cultural patterns of tobacco use brought in from the eastern Mediterranean region and Middle East (particularly water pipe smoking [WPS] or narghile)<sup>4</sup> are increasingly being modeled by youth regardless of race/ethnicity<sup>5</sup> in the United States, Brazil and European countries<sup>3</sup> and are of particular interest. Research studies describing WPS among United States youth are essential given the novelty of this rapidly growing form of tobacco use among young people.

Recent studies, mainly conducted in the Middle East, have identified that WPS results in a number of potential negative health consequences, such as the risk of transmission of communica-

ble diseases (eg, tuberculosis, hepatitis)<sup>6</sup> and a variety of life-threatening conditions (eg, coronary heart disease, pulmonary disease and pregnancy related complications) similar to those caused by cigarette smoking.<sup>7</sup> The research conducted by Rice and colleagues is the only known reported research on WPS among adolescents, both Arab American and non-Arab, in the United States.<sup>2</sup> The purpose of this study was to examine tobacco use, (ie, cigarette smoking and WPS in a convenience sample of adolescents (14 to 18 years of age) attending high school with a large immigrant Arab population in a Midwestern community. Data were collected in 2004 and 2005.

### METHODS

#### Design

This community-based, cross-sectional survey examined current tobacco use, defined as "smoked one or more cigarette(s) and/or narghile within the past 30 days," experimentation with tobacco, defined as "ever smoking a cigarette and/or narghile, even a few puffs," and regular tobacco use, defined as "smoked a cigarette and/or narghile once or more per day for the last 30 days" in 14- to 18-year-old adolescents.

#### Participants

Participants were 2,782 youths, 14 to 18 years of age, attending one of two local community high schools that agreed to participate. Ninety percent ( $n = 2504$ ) provided usable data. For this analysis, excluded were 632 students who had previously participated

in a smoking prevention/cessation program. The total sample was 1872. Inclusion criteria were 1) between 14 and 18 years old, 2) able to read and write in English or Arabic and 3) willingness to participate.

Information letters describing the study were mailed to parents by the school administration. Parents, who did not wish their child to participate, were instructed to contact the school; less than 0.1% of parents refused participation. All participants who had parental consent were given a Human Investigative Committee (HIC) approved information sheet describing the study prior to completing the study questionnaire.

### Tobacco Use History Questionnaire (TUHQ)

The Tobacco Use History Questionnaire (TUHQ) is a 21-item survey used to collect information on smoking history. The first five questions ask about demographic information such as date of birth, age, grade in school and ethnicity. The next seven items were adopted from the Youth Risk Behavior Survey.<sup>8</sup> Seven parallel questions ask about WPS. Four items ask about attempts to quit smoking, one question asks about desire to quit, two questions ask about other forms of tobacco use and five questions ask about plans to stop smoking based on stages of change.<sup>9</sup>

#### Data Analysis Procedures

Descriptive statistics were used to present the sample. Prior to analysis, data were weighted so that all ages were equally represented. Significance for all analyses was set at  $P \leq .05$ .

## RESULTS

Cigarette smoking rates were significantly higher for non-Arab American youth for experimenting, current, and regular use ( $P < .01$ ). Thirty-nine per-

cent of non-Arab youth reported having experimented with smoking cigarettes ("even a few puffs") compared to 20.1% of Arab American (ArA) youth. Current cigarette smoking ("smoked a cigarette in the past 30 days") was 21.9% for non-Arab and 6.8% for ArA youth. Regular cigarette smoking ("smoking once or more per day for the last 30 days") was 15% compared to 3.2% for non-Arab and ArA youth respectively. Non-Arab and ArA youth reported WPS for all three outcomes: 'experimentation', 'current' and 'regular use'. WPS rates were significantly higher among ArA youth for experimenting and current use ( $p = < .01$ ) but not for regular use. Thirty-eight percent of ArA youth reported experimenting with narghile, compared to 21.3% of non-Arab. Current WPS ("smoked narghile (water pipe) in the past 30 days") was 16.7% for ArA youth compared to 11.3% for non-Arab youth. Regular WPS ("smoking narghile (WPS) once or more per day for the last 30 days") was 6.9% and 5.1% for ArA and non-Arab youth respectively.

## DISCUSSION

There are no known studies of WPS rates for non-Arab US youth. Nor are there any known studies for WPS rates in the United States for Arab American youth. Therefore, we are unable to make comparisons. However, studies conducted in the Middle East report WPS rates to range from 20% to 30% for adults and adolescents<sup>4,5,10</sup> with rates as high as 40.9% for Iranian boys.<sup>11</sup> Our findings for Arab American youth (ie, 38% for experimentation, 16.7% for current use and 6.9% for regular use) are fairly consistent with the WPS patterns of Middle Eastern college-aged students (ie, 62.6% for boys/29.8% for girls experimentation, 25.5% for boys/4.9% for girls current use and 7% daily use by boys).<sup>5</sup> One reason for the higher pattern of use for this

younger Arab American population may be the modeling of Middle Eastern cultural tobacco use practices as one way to maintain Middle Eastern ethnic identity.<sup>12</sup> Another explanation may be the long-held unsubstantiated belief that WPS is safe<sup>5</sup> and therefore reporting its use is not seen as being unacceptable.

Even more surprising were the high rates of WPS for all three outcomes, experimentation (21.2%), current use (11.3%) and regular use (5.1%) reported by non-Arab 14- to 18 year-old high school students participating in this study. The rates of WPS for non-Arab youth may be due to numerous factors, including the rapid proliferation of water pipes in "hookah" bars and cafes throughout the United States.<sup>13</sup> In this large immigrant Middle Eastern community, the modeling of a behavior by adolescents is viewed as novel and perceived by youth as 'awesome' or 'sweet,' youth experimenting with adult-like behaviors (eg, smoking), and perhaps being misinformed that WPS is a safe alternative to cigarette smoking.<sup>13</sup>

In summary, there is growing national and international recognition about the increased rates of WPS<sup>3</sup> but, there is limited research about the patterns of WPS among this age group in the United States. Evidence suggests that WPS is a rapidly growing phenomenon among the young, regardless of ethnicity and geographic location within the United States. This is the first known study to present data on WPS by US youth, in particular those who are not of Arabic ancestry. These study findings identify the need for further research in order to determine the prevalence and patterns of WPS among all racial and ethnic youth as well as college-aged young adults, its health consequences and its relationship to cigarette smoking and other forms of tobacco use. In addition, effective broad and culturally based interventions, designed to mitigate WPS and its growing use by youth in the United States, need

to be developed and tested before we begin to see an increase in the negative health consequences associated with this growing phenomenon among youth and young adults.

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