

TITLE:

Comparison of Tobacco Use and Health Problems in Chaldeans, Arab Americans and non-Middle Eastern White Adults.

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RUNNING HEAD: Tobacco use and health among Chaldeans and Arab Americans

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ABSTRACT

This study examined the personal characteristics, tobacco use (cigarette and water pipe smoking), and health states of 1919 adults attending a community-based Arab American and Chaldean Center. Key findings include relatively high rates of cigarette smoking among non-Middle Eastern adults and very low use of the traditional water pipe by those with either a Chaldean or Arab heritage. Health problems were highest among smokers in all three groups. Being male, older, unmarried, and not Middle Eastern predicted cigarette smoking; being Arab or Chaldean and having less formal education predicted water pipe use. Chaldean Americans were least likely to smoke both cigarettes and the water pipe. The percentage (73.3%) of ever-smoking among the Chaldean men was higher than that found in any other subgroup in this analysis. These findings are of interest given the paucity of information on the patterns of tobacco use and relative health status among those of Middle Eastern descent.

(138Words)

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INTRODUCTION

Migration to the United States (U.S.) from the Middle East began very slowly at the end of 19th century; those that did come, came without families and returned. (1). With the regional wars, strife, and political unrest that followed World War II, more and more came to the United States (U.S.) to stay and brought their families, kin, and cultures with them. Immigration from the Middle East has increased dramatically over the past sixty years (2) . Southeast Michigan has become home to the largest concentration of Chaldeans (2) and Arab Americans outside the Middle East (3). Historically, the Chaldeans originated in southern Iraq, are Christian, and speak a modern version of Aramaic as their common language (4). Arabs in America number almost five million (5). They descended from a Semitic people that inhabited most of the Middle East and northern Africa and speak Arabic. They share a very long and complex history and the majority is Muslim (6). As Chaldeans and Arabs have migrated around the world, they have carried with them their traditions of tobacco use.

Tobacco Use

Tobacco use (primarily cigarette smoking) is the number one preventable cause of morbidity and mortality in the U.S. (7)-USDHHS, 2005) and the second cause of death in the world, particularly in developing countries like those of the Middle East (8). On average, 45% of the men and 5% of the women in the Middle East smoke cigarettes. Countries with highest use include Iraq (40%), Yemen (45%), Lebanon (58%) and Tunisia (60%) (9) [World Health Organization (WHO), 2004]. Current cigarette smoking in the U.S. is 20.9% for adults (23.4% for men and 18.5% for women) (10). Tobacco use in any form harms nearly every organ of the body; causing more than 40 diseases and

reducing the health of smokers in general. Every year an estimated 438,000 Americans die as a result of smoking and/or exposure to secondhand smoke, and for each person who dies from a smoking-related disease, twenty more are living with a smoking-attributable illness. Smokers die on average 13 to 14 years earlier than non-smokers (12) The estimated costs of smoking-related medical expenses and loss of productivity exceed \$167 billion annually (13)

As there are no national or regional tobacco use data for Chaldeans or Arabs in America, it is not known what contribution they make to the above costs. However, studies in an Arab American community in the Midwest provide some direction. Rice and Kulwicki (14) found 40.6% of the men and 38.2% of the women in their community-based, randomly selected sample of Arab American adults to be cigarette smokers; 97% had been born in the Middle East. A survey in the same community a year later revealed similar findings (15). In a Midwest health clinic study, 52% of the Arab American patients smoked; approximately 60% had lived in the U.S. ten years or less [Kulwicki and Dervartanian (16). Jamil and colleagues (17) reported a 28% smoking rate in a community-based convenience sample of more than 6000 Arab American adults. No specific studies of tobacco use by Chaldeans in America were found and none of the above studies reported water pipe smoking

Water pipe (narghile) smoking

Water pipe smoking (WPS) or narghile smoking (also known as hookah, shiesha, and arghileh) is a historical and cultural form of tobacco use by many in the Middle East and North Africa (18) Many of the same health problems associated with cigarette smoking have been found for water pipe use (20,21). Although there are no Middle Eastern regional data on water pipe smoking, a national survey in Kuwait revealed 57% of the men and 69% of the women there use it (22). Tamim and colleagues (23) found 21% of Lebanese college students smoked narghile on a regular basis; 12% smoked

cigarettes as well. In a Syrian university study, 62.6% and 29.8% water pipe use, respectively, for young men and women students was documented (24). Data are needed on its use in America as it is a growing form of tobacco use among non-Middle Easterners as well (25,26).

The specific research objective of this study was to compare and contrast personal characteristics, tobacco use (i.e., cigarettes and narghile), and health states in two Middle Eastern groups (Chaldean, Arab American) with non-Middle Eastern adults. All of the non-Middle Eastern adults were White.

Methods

Participants

A health assessment survey was completed by adults, 18 years and older, attending an Arab American and Chaldean community center in a large mid-western city. This sample size represents 5% of the center's clientele each year. Of the 3,543 individuals who completed the survey, only those self-identified as Chaldean, Arab American, or non-Middle Eastern White were included in this analysis. The final sample size was 1919 (30% Chaldeans, 60% Arabs, 10% non-Middle Eastern Whites). The study was conducted between August 26, 2005 and October 25, 2005. Approval was obtained from the University Institutional Review Board for the giving of Information Sheets to participants. Completing the survey constituted informed consent.

Measures

Socio-demographic Characteristics

Participants were asked to provide information about their ethnicity, age, gender, marital status, primary language spoken, education, employment, annual income, and country of birth.

Tobacco Use Characteristics

Participants responded to questions adopted from the National Health Interview Survey (27) asking about *current*, *former*, and *never* tobacco use. *Current* use was defined as cigarette and/or narghile smoking in the previous 30 days. *Former* use was smoking at any time, but not in the past 30 days. *Never* smoking was no tobacco use, not even one or two puffs.

Diagnosed Health Problems

Participants indicated whether or not they had been medically diagnosed with one or more of the following health problems: high blood pressure, high cholesterol, heart disease, diabetes, asthma, or depression. All of these conditions have been linked to tobacco use (SG 04 Report)

Procedures

Adults, 18 years were approached in an Arab and Chaldean center by trained data collectors and asked to participate: less than 1% refused. The most common reasons for not participating were lack of time and/or lack of interest. Participants were given a detailed description of the study and a written Information Sheet that had been approved by the University Institutional Review Board. Also participants were given the option to complete the questionnaire by themselves or with help on site or mailing it in; all elected to finish it at the center. A code number was then assigned to each survey form. This enabled retrieval of the survey for quality assurance purposes

Data Analyses

Descriptive statistics were used to present the sample and includes means and standard deviations, and (as appropriate) percentages for the nominal and ordinal variables. Chi-square tests and analyses of variance were computed to examine group differences and logistic regression analyses used to examine the predictors of tobacco use. Because of the exploratory nature of the research questions, level of significance was adjusted for

the number of tests related to the same research question. The Bonferroni formula, $.05/(\# \text{ of tests})$, was used for this purpose. This adjustment maintains the probability of Type 1 error (alpha) to less than .05.

Results

In this study all of the Chaldeans and Arab Americans were born outside the U.S. and 74% of the non-Middle Eastern White group was born in the U.S. The average age was 39.45, Standard Deviation (SD) was 14.26; 61.5% were female; 71.9% were married; and 44.1% had not completed high school. Of those born outside the U.S., all of the Chaldeans and 36.8% of the Arab were from Iraq; 43% of the Arabs were from Lebanon. Table 1 shows how the personal characteristics of the respondents differed by ethnic group. Groups differed significantly ($p < .006$) on all of the variables except years in U.S. however, years in the U.S. was only applicable to 26% of non-Middle Eastern White respondents. On the whole White respondents were younger and more likely to be female; Chaldean respondents were more likely than Arab respondents to speak both English and Arabic. Education, employment, and income levels were all significantly higher in the non-Middle Eastern White group. These variables that are significantly related to ethnicity are potential confounders and need to be considered carefully when analyzing differences in health by ethnic identity.

Tobacco use for the whole sample was 22.1% for current cigarette smoking, 3% for narghile smoking, and 3.2% for cigarette plus narghile smoking. In addition, 14.8% identified as former smokers and 56.9% as never smokers. As shown in Table 2, this pattern of tobacco use differed by ethnic group, $\chi^2(8, N = 1919) = 45.33, p < .01$.

Analysis of the cell residuals greater than 2.0 revealed that non-Middle Eastern adults were most likely to be current cigarette smokers and least likely to be never smokers; Chaldean respondents were less likely to smoke both cigarettes and the narghile,

Four categories of smoking history; current cigarette use, current narghile use, cigarette plus narghile use and former smoker, were combined to represent the category ever-use tobacco. The percent of ever-use tobacco for each of the ethnic groups is shown in the top row of Table 1. The highest rate was observed in the non-Middle Eastern White group at 58.8%. Each of the personal characteristics shown in Table 1 was examined in relation to ever-use tobacco. Chi-square tests of association found all of the eight personal characteristics except income were significantly related to smoking status ($p < .006$). The strongest predictors were gender (contingency coefficient, $CC = .35$), work status ($cc = .23$), and age ($CC = .17$) suggesting that older men with employment had the highest rate for ever-use tobacco.

In order to examine the moderating role of ethnicity in these relations, logistic regression analyses were performed on the smoking percentage rates. The ethnic-group x personal-characteristic interaction was evaluated in each regression. Significant interaction effects were noted for age and gender ($p < .006$). Age trends were strongest in the two Middle Eastern groups, the ever-use tobacco percentage rate among younger vs. older adults ranged from 28.2 to 64.2 in the Chaldean group, but only from 56.1 to 60.0 in the non-Middle Eastern adults, see Table 1. Chaldean men reported more tobacco use than men in the other groups. The percentage (73.3%) of ever-smoking among the Chaldean men was higher than that found in any other subgroup in this analysis and higher than the overall percentage in the ethnic group with the highest percentage rate of tobacco use, the non-Middle Eastern Whites.

Overall, 45% of the sample had diagnosed health problems; 22% had at least one, 11% had two, 7% had three, 3% had four, and 2% had five or more. Mean perceived health for the sample was 3.29 ($SD=1.10$) on a 5-point scale ranging from 'not at all well' to 'excellent health'. Table 3 shows the reported health problems by the

three study groups. Adjusted and raw or unadjusted figures are shown. The seven variables related to ethnicity were used as covariates. Without covariate adjustment, those with a Middle Eastern background had significantly higher levels of high blood pressure ($X^2 = 19.45$, $p = .001$), hypercholesterolemia ($X^2 = 26.92$, $p = .001$) and heart disease ($X^2 = 18.35$, $p = .001$) than did the non-Middle Eastern Whites. No differences were found for diabetes by ethnic identity. The highest depression problems and asthma were reported by the non-Middle Eastern Whites ($X^2 = 31.08$, $p = .001$) ($X^2 = 16.31$, $p = .001$). After adjusting for between group differences, a different picture emerged; Middle Eastern background was no longer associated with high blood pressure, hypercholesterolemia, or heart disease. However, non-Middle Eastern Whites still had significantly higher levels ($p < .006$) of depression and asthma.

Table 4 presents the prevalence of chronic illnesses by smoking status (current, former or never). For each health condition, with the exception of asthma, current or former use was significantly higher than never smoked. Logistic regressions were used to determine which of the demographic and cultural characteristics in Table 1 predicted cigarette and/or narghile smoking. A forward stepwise procedure was used to identify significant sets of predictors for each outcome models. Variables were entered according to improvement in chi-square reduction. Using this approach four significant predictors were identified for being a current smoker. These were being (a) male, (b) non-married, (c) non-Middle Eastern White, and (d) older. Two factors (being Arab and having less education) were predictive of current narghile smoking.

Discussion

The objective of this study was to assess and compare personal characteristics, tobacco use (cigarette and/or narghile), and diagnosed health states in three adult ethnic groups completing health assessment surveys in a Chaldean and Arab community

center. It was not surprising that the majority of those surveyed were Chaldean (30%) and Arab American (60%) versus non-Middle Eastern White (10%) as the most that live in the neighborhood are Middle Eastern. The finding that a higher percentage of the Chaldean and Arab participants compared to the non-Middle Easterners were married, had less education and lower incomes along with more unemployment is consistent with other studies of immigrant groups in America. Based on 1993 and 2003 National Health Interview Surveys, researchers found immigrants as a rule had a higher marriage rate, a lower likelihood of marital dissolution, and were more likely to reside in urban and inner-city metropolitan areas than native-born Americans. In addition, immigrants tended to have lower socioeconomic achievement than natives, as measured by their lower educational attainment, family income, occupational status, and employment rates (12, 13).

It was expected that those from the Middle East, consistent with World Health Organization reports (8), would report higher cigarette smoking rates than they did. A reason for the lower cigarette smoking among Chaldeans and Arab Americans could be the higher cost of cigarettes in the U.S. (29). Until immigrants are economically established in their new homeland, many cannot afford the luxury of cigarette smoking.

It was not surprising that narghile use was higher among the Arab Americans as this form of smoking has been recorded as a cultural activity in the Middle East for well over 500 years (18) and supports the observation of Kandela (7) that many Arabs take personal habits with them as they migrate around the world. Actually, it was expected that there would be more water pipe smokers among those from the Middle East than was reported based on recent Middle East data (8). It could be that some smokers had already switched to the convenience of cigarette smoking or were unwilling to acknowledge this traditional behavior in their adopted country where it is not as common.

Contrary to these findings are those for Arab American adolescents (14-18 years). In a high school sample *ever* water pipe smoking was higher than cigarette smoking, ranging from 28% in the 9th grade to 50% in the 12th grade. Although there was a very small percentage (1%) of water pipe smoking reported in this study by non-Middle Eastern adults, there was 5% current use of narghile by non-Arabs in the 9th grade and 16% in the 12th grade of the adolescent study (28). Narghile use was a very strong predictor of current cigarette smoking (28). It may be that narghile smoking is a gateway to higher rates of cigarette use in the long run and it is possible that water pipe smoking may become a substitute for cigarettes because it costs less. The use of any type of tobacco raises questions about health status (10)

Forty-five percent (45%) of the study participants reported diagnosed health problems. This is a very high rate for such a young population (the average age was less than 40) but does explain, in part, why they were seeking community services. Middle Eastern participants reported more heart disease, high blood pressure, and high cholesterol levels than did the non-Middle Eastern Whites. They were also significantly older. See Table 1. These findings are not consistent with those of Singh and Hiatt (12) who looked at immigrant health and found that, compared with their US-born counterparts, immigrants were more likely to report lower rates of hypertension, elevated cholesterol, poor health status, asthma, heart disease, and diabetes prevalence and as a rule tended to be much younger. [I think this should take into account the adjusted results that showed only higher rates of depression and asthma for the non Middle Easterners. They also found that immigrants were 50% less likely to report smoking cigarettes than US-born individuals of similar socioeconomic and demographic background. [We also found that the highest rates were in the non-ME group.] [I don't see any reason to make this conjecture?] As noted earlier, significantly more of those from the Middle East had been in this country three years or less and, like many other

US immigrants, faced important challenges in their socioeconomic attainment, labor force participation, and health care utilization patterns, as they grappled with relatively higher poverty and unemployment. Also, many may have lacked health insurance and experiences with preventive health care.

It was not surprising that the non-Middle Eastern Whites had more asthma problems as they reported significantly higher cigarette smoking rates and had been living longer in an industrial environment. Among Arab Americans, Johnson and colleagues (30) noted that asthma prevalence was higher among immigrants who had been in the U.S. longer (Mean = 7.2 years) compared to those who came less than one year ago.

The significant relationships found between all of the health problems and current or former smoking (Table 5) is consistent with the Surgeon General's report about tobacco use and smoking-related diseases (10) What is interesting is the number of participants who reported diagnosed health problems and were now *former* smokers. It is not known how long or how strong a habit they had, how long ago they had stopped, or whether they stopped smoking on the advice of their health care professional once they were diagnosed with a problem. Answers to all of these questions about pattern of use and trajectory need to be address in a future study. The predictors for cigarette smoking (i.e., being male, single, non-Middle Eastern White, and older) are consistent with descriptors of adults (9) and minority group smokers in the U.S. (11) and those for narghile smoking are similar to findings in the Middle East (8,31).

Limitations

Several study limitations are identified. A major one is the use of convenience sampling. It is not clear that this sample, although it is a fairly large one, is representative of the populations from which it was drawn. Another concern was the uneven participation of the ethnic groups; the largest number was Arab Americans. A more even distribution of ethnicity could have provided more accurate estimates of both cigarette and narghile

smoking by each of the populations. Another concern was the data collection process, itself. Even though a large number (n=921) of the participants reported Arabic as their first language, all elected to complete the English version of the study measure. There may have been difficulties in interpretation. Another problem is the limited information on tobacco use patterns and trajectories. It is not known how many years folks smoked or the strength of their habit across those years.; such information plus data on cessation and relapse (if any) could have all contributed to a better understanding of tobacco use by these ethnic groups.

Conclusions

The purpose of this study was to compare and contrast personal and cultural characteristics, tobacco use, and health states in Chaldean, Arab American, and non-Middle Eastern White adults receiving services in a community center. In this study of 1919 adults, 30% self identified as Chaldean, 60% as Arab American, and 10% as non-Middle Eastern Whites. The average age was 39.45, (SD= 14.26); 61.5% were female; 71.9% were married; 44.1% had not completed high school and 55.4% were unemployed. Almost 86% had lived in the U.S. four years or more. Of those born outside the U.S., all of the Chaldeans were from Iraq and the largest portion of Arab Americans (43%) was from Lebanon. Tobacco use for the sample was 28.3% for current smoking, 14.8% for former use, and 56.9% for never smoking; highest cigarette smoking was by the non-Middle Eastern Whites and highest narghile use was by the Chaldeans and Arab Americans. Overall, 45% of the sample had diagnosed health problems; 22% had at least one, 11% had two, 7% had three, 3% had four, and 2% had five or more. The majority of the health problems were among the smokers. Logistic regressions determined that being male, older, unmarried and not Middle Eastern predicted cigarette smoking and being Middle Eastern and having less formal education predicted current

narghile use. More research is needed for these unique immigrant populations prior to the testing of a culturally sensitive intervention.