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## RESEARCH COMMUNICATION

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# Tobacco Knowledge and Beliefs in Chinese American Men

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### Abstract

**Background:** Chinese American men have relatively high smoking rates. However, there are limited data about the tobacco-related knowledge, attitudes, and beliefs of this racial/ethnic group. **Methods:** We conducted a community-based telephone survey in Seattle, Washington during 2004. Households were identified by applying a previously validated list of Chinese last names to an electronic version of the Seattle telephone book. Interviews were completed in Cantonese, Mandarin, or English. Survey items addressed tobacco knowledge, cultural beliefs, and practices. **Results:** The study sample included 168 Chinese American men. Current, former, and never smoking rates were 22%, 42%, and 36%, respectively. Current smokers were less likely to be proficient in English than never smokers, and were less likely to have a regular doctor than former smokers. They also had lower levels of knowledge about the health effects of tobacco, and were more likely to have traditional Chinese cultural beliefs about tobacco use than non-smokers. **Conclusion:** Tobacco use continues to be a public health problem among Chinese American men. Smoking cessation programs should target men with limited English proficiency and those without a regular source of health care. Educational materials should specifically address the negative health effects of smoking. They should also both acknowledge and address Chinese cultural beliefs about tobacco use.

**Key Words:** Tobacco use - Chinese Americans

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### Introduction

Worldwide, tobacco was blamed for four million deaths in 1999 and is projected to be responsible for ten million deaths per year by the 2030's (Jha et al, 2002). In the United States (U.S.), cigarette smoking is the leading cause of preventable death. Specifically, tobacco use is responsible for approximately 440,000 premature deaths and 157 billion dollars each year (Centers for Disease Control, 2002). This excess mortality is due largely to tobacco's association with cancer and cardiovascular disease (Averbach et al, 2002).

Asians residing in the U.S. have been among the fastest growing populations increasing to over ten million in 2000 (U.S. Department of Commerce, 2004). Despite this rapid population growth, Asian Americans remain poorly understood in their health care needs (Chen, 1993; Chen, 1994; Chen and Hawks, 1995). Compared to other racial/ethnic groups, Asian Americans had the fewest number of targeted year 2000 objectives (Chen, 1993). The President's Advisory Commission on Asian Americans recently made recommendations for decreasing health disparities among Asians in the U.S. One of these recommendations specified

that the research community should support population-based studies to better understand the health knowledge and practices of Asian Americans (President's Advisory Commission on Asian Americans and Pacific Islanders, 2003).

Chinese Americans are the largest Asian American subgroup and numbered 2.4 million in the 2000 Census (U.S. Department of Commerce, 2004). Furthermore, over the last four decades, Chinese immigration to the U.S. has increased dramatically (Park, 1999). Therefore, it is not surprising that Chinese Americans are mostly foreign born (69%) and that the majority speak a Chinese language/dialect at home (83%) (U.S. Department of Commerce, 2004). Due to low levels of acculturation, many Chinese immigrants face multiple social, economic, and health challenges (Lasky and Martz, 1993; Park, 1999). However, they have so far been largely neglected with regards to health status assessment and health promotion program development (Kuo and Porter, 1998).

In China, the prevalence of tobacco use among men exceeds 60% (Niu et al, 1998; Yu et al, 2002). However, accurate estimates of smoking rates among Chinese in the

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U.S. are limited (Shelley et al, 2004). The few available recent studies suggest that smoking rates in Chinese American men are approximately 33% and may be as high as 83% in some sub-groups (Averbach et al, 2002; Ma et al, 2002; Yu et al, 2002). However, Asian immigrants often neither recognize nor believe the health risks associated with smoking (Ma et al, 2002; Tu et al, 2000). Chinese American women rarely smoke and their prevalence rate has been estimated to be less than 5% (Averbach et al, 2002; Tu et al, 2000; Yu et al, 2002).

A recent qualitative research project suggested that tobacco use among Chinese American men is influenced by culturally specific values and traditional health beliefs (Tu et al, 2000). In this Seattle study, cigarette smoking played an important role in social and business etiquette. For example, some men reported that the presence of smoking and the token gift of cigarettes were customary and expected during business transactions. Further, some participants reported smoking to maintain health and a proper sense of balance, following the traditional Chinese Yin-Yang framework.

Public health intervention programs for Asian racial/ethnic groups should be based on a thorough understanding of the target population's knowledge, attitudes, and beliefs (President's Commission on Asian Americans and Pacific Islanders, 2003). We conducted a community-based needs assessment survey of Chinese American men in Seattle, Washington during 2004. Our objective was to better understand tobacco use among less acculturated Chinese men in the U.S., and provide data that could be used in planning tobacco cessation education programs. This descriptive brief report focuses on Chinese men's smoking practices, as well as their tobacco-related knowledge and cultural beliefs.

## Methods

### *Setting*

We studied Chinese American men in Seattle, Washington. This metropolitan city has a large ethnic Chinese population from Mainland China, Hong Kong, Taiwan, and Southeast Asia. The study took place in south Seattle, where most of the city's less-aculturated first-generation Chinese Americans reside. (This area includes Seattle's "International District.") All study procedures were approved by the Fred Hutchinson Cancer Research Center Institutional Review Board.

### *Sampling*

Chinese last names are relatively distinctive and include only a few hundred common variants (Choi et al, 1993; Hage et al, 1990). A sampling frame was created by applying a previously validated list of 50 Chinese last names to an electronic version of the Seattle telephone book (Lauderdale and Kestenbaum, 2000). We identified all households with one of these last names, and then randomly selected a sample of 600.

### *Recruitment*

Prior to any telephone interview attempts, households in the sampling frame received an introductory letter, written in both Chinese (simplified and traditional scripts) and English. At the first telephone contact and before conducting interviews, we verbally described the study purpose and procedures, answered questions, and requested verbal consent. Since differences in the ethnicity and gender of interviewers and survey participants can influence responses, all interviews were conducted by male trilingual (Cantonese, Mandarin and English) and bicultural interviewers (Kagawa-Singer, 2000). Twelve attempts were made to contact each household (including three daytime, three evening, and three weekend attempts). A token of \$10 was offered in appreciation of each participant's time. All participants were men of Chinese ethnicity (regardless of country of origin) and aged 18 years or older.

### *Survey Instrument*

The survey instrument was written in English, translated into Chinese (Cantonese and Mandarin versions), and then back translated into English to ensure lexical equivalence of the translated versions (Eremenco et al, 2005). Our questionnaire was extensively pre-tested among Chinese men for clarity and cultural acceptability. Smoking behavior questions were modeled after the National Health Interview Survey and Behavioral Risk Factor Surveillance System (BRFSS) surveys using standard definitions. Specifically, participants were asked if they had smoked 100 cigarettes in their lifetime and, if so, whether they had smoked in the last seven days.

Demographic items included age, English fluency, marital status, educational level, employment, and household income. Foreign-born participants were queried about their place of birth and year of immigration. Respondents were asked if they had visited a doctor in the last 12 months, if they had a regular doctor, and if they had had received care from a traditional provider (e.g., an acupuncturist and/or a herbalist) in the previous year. They also provided information about medical insurance and their health status.

Five questions addressed the health consequences of smoking. Specifically, respondents were asked if they thought smoking causes lung cancer, heart disease, strokes, health problems in non-smokers, and respiratory problems in children. A previous qualitative study suggested that cultural beliefs may impact smoking behavior among Chinese American men (Tu et al, 2000). We also used findings from this study to create 10 culturally specific tobacco survey items. For example, respondents were asked if they thought it is appropriate for Chinese men to smoke when with friends, and whether they thought it is impolite and disrespectful to refuse an offer of cigarettes.

### *Analysis*

We characterized participants by their smoking status: Current, former or never smokers. Men who had smoked 100 cigarettes in their lifetime and had smoked in the last

**Table 1. Demographic Characteristics**

Variable	Total N=168	Smokers			p-value
		Never N=61	Former N=70	Current N=37	
Age <50 years	29*	43	17	27	0.005
<25% of life in U.S.	35	34	33	38	0.88
English fluent/good	33	48	24	24	0.009
Currently married	89	82	94	89	0.08
<12 years education	57	51	63	57	0.38
Currently employed	55	64	44	60	0.06
Household income <\$20,000	45	40	47	50	0.58

\* Data are %

seven days were classified as current smokers, and those who had smoked at least 100 cigarettes but had not smoked in the last week were considered former smokers. Proportion of life in the U.S. (which is considered a good surrogate measure of acculturation) was calculated from each man's year of birth and year of immigration (Anderson et al, 1993). The chi-square test for independence was used to compare the characteristics of current, former, and never smokers (Rosner, 2005).

**Results**

*Response*

The study sample included 600 households. Our cooperation rate (response among reachable and eligible households) was 53%. Specifically 168 men completed the survey, and 155 refused participation. The remaining households were in one of the following categories: Ineligible (not Chinese or no Chinese man aged 18 years or older), no contact after 12 attempts, telephone disconnected, or non-residential. The majority of interviews were

**Table 2. Health Care**

Variable	Total N=168	Smokers			p-value
		Never N=61	Former N=70	Current N=37	
Doctor visit last year	68*	66	80	49	0.004
Regular doctor	74	69	87	59	0.004
Traditional provider visit	19	16	27	8	0.047
Medical Insurance	89	87	96	78	0.02
Self-reported health good	68	74	63	68	0.41

\* Data are %

**Table 3. Tobacco Knowledge**

Smoking can cause:	Total N=168	Smokers			p-value
		Never N=61	Former N=70	Current N=37	
Lung cancer	83*	93	83	64	0.001
Heart disease	62	69	59	56	0.34
Strokes	43	51	40	36	0.29
Second-hand smoke can cause health problems in nonsmokers	90	93	97	70	<0.001
Second-hand smoke can cause children to have respiratory problems	88	93	94	65	<0.001

\* Data are %

conducted in Cantonese (89%), 4% were conducted in Mandarin, and 7% were conducted in English.

*Study Group Characteristics*

As shown in Table 1, a majority of respondents were married (89%), were aged 50 years or older (71%), had less than a high school education (57%), and were currently employed (55%). About one-third of the respondents had spent less than 25% of their life in the U.S. (35%). Similarly, one-third spoke English fluently or well (33%). Eighty-four percent were born in China, 11% were born in other Asian countries, and 5% were born in the U.S. Over two-thirds of the men reported having visited a doctor in the last year (68%), having a regular doctor (74%), and having medical insurance (89%) (Table 2).

*Knowledge and Beliefs*

Table 3 provides data about tobacco knowledge levels. The respondents had relatively high levels of knowledge about the relationship between tobacco use and lung cancer and the effects of second-hand smoke. However, the overall proportions who knew that smoking can cause heart disease and strokes were only 62% and 43%, respectively. Tobacco beliefs are summarized in Table 4. Over one-quarter of the study group reported the following beliefs: It is appropriate for Chinese men to smoke with friends (27%), giving gifts of tobacco products is acceptable in the Chinese community (30%), smoking improves relaxation (39%), and quitting "cold turkey" or abruptly can lead to physical imbalance and new health problems (26%).

*Comparison between Never, Former and Current Smokers*

In this study population, 61 men (36%) were never smokers, 70 men (42%) were former smokers, and 37 men (22%) were current smokers. Never, former, and current smokers were similar with regard to proportion of life in the U.S., marital status, education, employment, and income (Table 1). However, the three groups differed in age (p=0.005) and levels of English proficiency (p=0.009). Comparisons between the groups also showed significant differences in access to health care (Table 2). For example, the proportions of never, former, and current smokers who had medical insurance were 87%, 96%, and 78%, respectively (p=0.02). Self-reported health was similar between the three groups.

In general, current smokers were less likely to have accurate knowledge about the negative health effects of tobacco than former and never smokers (Table 3). Only 64% of current smokers knew that smoking causes lung cancer, compared to 93% of never smokers and 83% of former smokers (p=0.001). The three groups also differed significantly in the proportions that knew second-hand smoke can cause health problems in non-smokers (p<0.001), and second-hand smoke can cause children to have respiratory problems (p<0.001). As shown in Table 4, there were significant differences between current smokers, former smokers, and never smokers for the following beliefs: It is

**Table 4. Tobacco Beliefs**

Variable	Total N=168	Smokers			p-value
		Never N=61	Former N=70	Current N=37	
It is appropriate for Chinese men to smoke when with friends	27*	13	29	46	0.002
Smoking makes men appear more sophisticated and confident	15	15	14	19	0.80
Giving gifts of tobacco products is acceptable in the Chinese community	30	23	33	35	0.34
It is impolite and disrespectful to refuse an offer of cigarettes	17	16	11	27	0.12
Smoking improves relaxation	39	20	37	73	<0.001
Smoking moderate amounts is not associated with health problems	13	10	16	14	0.61
If there are no symptoms of smoking, then there is no need to quit smoking	8	5	4	22	0.004
Physical exercise can balance the negative health effects of smoking	14	13	11	19	0.56
Quitting smoking "cold turkey" or abruptly can lead to physical imbalance and new health problems	26	21	23	41	0.08
Smoking improves success in Mahjong	11	10	13	11	0.86

\* Data are %

appropriate for Chinese men to smoke when with friends ( $p=0.002$ ), smoking improves relaxation ( $p<0.001$ ), and there is no need to quit smoking in the absence of symptoms ( $p=0.004$ ). In addition, we found a trend toward statistical significance for the belief that quitting smoking abruptly can lead to physical imbalance and health problems ( $p=0.08$ ).

## Discussion

In this Seattle population of Chinese American men, we found the tobacco prevalence rate to be 22% for current smoking and 64% for having ever smoked (current and former smokers). This smoking rate is lower than reported in recent studies of Chinese American men living in Chicago (34% current smokers) and New York City (29% current smokers), but does not approach the Healthy People 2010 goal of reducing tobacco use among adults to 12% (Shelley et al, 2004; U.S. Department of Health and Human Services, 2000; Yu et al, 2002). Yu and colleagues found that current smokers were more likely to have limited English proficiency than never smokers (Yu et al, 2002). We found a similar relationship in our comparisons of men who were current, former, and never smokers.

Nearly one-quarter (22%) of current smokers did not have medical insurance. In addition, 41% did not have a regular doctor. In contrast, the proportions among former smokers were only 4% and 13%, respectively. These findings suggest an association between health care access and tobacco cessation. Since health care providers are an important source of smoking cessation advice and counseling, improving access to health care among Chinese American men would probably have a positive impact on

smoking rates.

A recent study, conducted in Chicago's "Chinatown", found that 78% of Chinese men knew that tobacco use is associated with lung cancer, 75% knew that tobacco use is associated with emphysema, and 50% knew that tobacco use is associated with heart disease (Yu et al, 2002). Among our respondents, 83% knew that smoking causes lung cancer, 62% knew that smoking causes heart disease, and 43% knew that smoking causes strokes. We also found that current smokers were less likely to know about certain health risks of tobacco use than non-smokers. A meaningful proportion of our participants thought it is appropriate for Chinese men to smoke when with friends, giving gifts of tobacco products is acceptable in the Chinese community, and quitting smoking abruptly can lead to physical imbalance. In addition, cultural beliefs differed between current smokers and non-smokers. These findings suggest that tobacco cessation programs for Chinese men should address knowledge about the health effects of smoking, community norms concerning tobacco use, and relevant cultural beliefs.

Relatively few research projects have evaluated tobacco cessation programs for Asian American populations. However, Ma and colleagues recently examined the feasibility of a culturally tailored one-to-one counseling session, combined with nicotine replacement therapy, for Chinese and Korean smokers in the Delaware Valley region. Among the 43 participants, the smoking quit rate three months post-intervention was 59%. Furthermore, the majority of the participants indicated they were satisfied with the cessation program, that it had met their expectations, and that they would in fact recommend it to others (Ma et al, 2005).

Our study has several strengths: We used population-based sampling methods and administered the survey in the language of each participant's choice. The study also has several limitations. Our cooperation rate of 53% is comparable to other recent surveys of Asian American populations (Nguyen et al, 2002; Taylor et al, 2006). However, smokers are probably less willing to engage in conversations about tobacco use than non-smokers, and the current smoking prevalence rate of 22% is probably an under-estimate. Additionally, respondents were recruited in one geographic area of the U.S. and only households with listed telephone numbers were eligible. Finally, our study was cross-sectional and does not provide information about causal relationships between knowledge, beliefs, and smoking practices.

In conclusion, tobacco use continues to be a significant health concern among Chinese American men. Culturally and linguistically appropriate tobacco prevention and cessation programs should be developed, implemented, and evaluated in Chinese immigrant populations. These efforts should target men with limited English proficiency and those without a regular source of health care. Educational materials should specifically address the negative health effects of smoking. They should also both acknowledge and address Chinese cultural beliefs about tobacco use.

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