
RESEARCH COMMUNICATION

Secondhand Smoke in the Home and Pap Testing Among Vietnamese American Women

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Abstract

The purpose of this study was to report the prevalence of Vietnamese households with smokers and examine Papanicolau (Pap) testing among Vietnamese American women living in households with and without smokers. In 2002, we surveyed Vietnamese between 18 and 64 years of age from a population-based sample of randomly selected households in Seattle, Washington zip codes known to have a high density of Vietnamese residents. The response rate among eligible households was 82%, and our sample included 418 households. We used two measures of Pap testing: ever had a Pap test and had one in the last two years. Household smoking status was categorized as current smoker in the house vs. no current smoker in the house. Overall, 47% of Vietnamese American women lived with a current smoker in the household, 73% had ever received a Pap test, and 63% received one in the last two years. Pap testing behavior varied only slightly by household smoking status, and the findings were not statistically significant. With nearly half of Vietnamese women in our study currently living with smokers, future studies should examine the relationship between secondhand smoke at home and other health behaviors in Vietnamese American households.

Key Words: Vietnamese Americans - secondhand smoke - Pap testing

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Introduction

Vietnamese American women have a higher incidence of cervical cancer than any other American race or ethnicity (Cockburn and Deapen, 2004). Papanicolau (Pap) testing can lower cervical cancer deaths (Saslow D, Runowicz CD, et al. 2002), but Vietnamese American women have lower rates of Pap testing than others (Pasick et al., 1996; McPhee and Nguyen, 2000).

The most important risk factors for cervical cancer include human papilloma virus (HPV) infection and behavior that increases risk of HPV infection (e.g. having sex at an early age or having multiple sex partners) (Schiffman et al., 1993). Recently, the International Agency for Research on Cancer and the US Surgeon General added cigarette smoking as another causal factor for cervical cancer (US Department of Health and Human Services., 2004; International Agency for Research on Cancer., 2002). International studies suggest secondhand smoke may be another risk factor (Slattery et al., 1989; Hirose et al., 1996; Wu et al., 2003; Tay and Tay, 2004). Some studies also suggest that women living with a

smoker tend to have negative health behaviors (Matanoski et al., 1995; Koo et al., 1997; Inaba et al., 1998) and participate in fewer cancer screenings (Koo et al. 1997; Clark et al., 2000).

Little is known about how Pap testing behavior might be associated with living with a smoker. For this study, we examined use of Pap testing among Vietnamese American women living with smokers for three reasons: a) Vietnamese American women have high risk for cervical cancer; b) secondhand smoke exposure is a possible risk factor for cervical cancer; and c) women living with smokers might be less likely to use Pap testing. We present our findings from a population-based survey of Vietnamese Americans in Seattle, Washington.

Patients and Methods

Sampling

In 2002, we conducted a cross-sectional health survey among Vietnamese Americans in Seattle, Washington. We sampled households from seven adjacent South Seattle zip codes with a high concentration of Vietnamese

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American residents (Department of Commerce 1993). A previously validated list of common surnames shared by over 95% of Vietnamese Americans was applied to the 2001 telephone book for metropolitan Seattle (Jenkins et al., 1990). We identified 1,639 Vietnamese households located in the target zip codes. Nine hundred of these households were randomly selected for inclusion in the survey. Twenty of these addresses were subsequently found to be duplicates. The final study sample included 880 households.

Household Recruitment

The University of Washington Institutional Review Board approved the study procedures. We publicized the survey by placing posters about the study in community settings. Households received an introductory mailing from the Medical Director of the International Medical Clinic at Seattle's county hospital (JCJ). Bilingual, bicultural survey workers conducted face-to-face interviews in respondents' homes, with women interviewing female respondents and men interviewing male respondents. Participation incentives included posters depicting Vietnamese artwork and a summary of Seattle organizations providing social and health services to Vietnamese families. Materials were available in both Vietnamese and English. Up to five door-to-door attempts were made to contact each household (including at least one daytime, one evening, and one weekend attempt).

Participant Selection

We aimed to interview one man and one woman aged 18 to 64 years in each household. Our Vietnamese community coalition believed that the survey response rate would be negatively impacted if we attempted to roster household members and then randomly select respondents in households with two or more age-eligible men and women. To ensure our sample was representative of different age-groups, however, we randomly assigned households to one of two groups: households where we initially asked to speak with a man or woman in the 18-to-39-year age-group (and then asked to speak with a man or woman aged 40 to 64 years if there were no men or women in the younger age-group); and those where we initially asked to speak with a man or woman in the 40-to-64-year age-group (and then asked to speak with a man or woman aged 18 to 39 years if there were no men or women in the older age-group).

Survey Instrument

The survey instrument was developed in English, translated into Vietnamese, back-translated into English to ensure lexical equivalence, and reconciled (Brislin 1986).

Pap testing. We defined the receipt of Pap testing two ways: ever vs. never; and < 2 years vs. > 2 years or never. Responses of "not sure" or "don't know" were grouped with "never" (Saslow D, Runowicz CD et al. 2002) (US Preventive Services Task Force 1996).

Smoking status. We created one household smoking status variable with two categories: (current) smoker vs. no current smoker in the house, which included households

with never or former smokers. Smoking status was based on self-report. Since few Vietnamese American women smoke, we only asked men about questions related to smoking history (Jenkins et al., 1995; Chae et al., 2006). We asked all men if anyone in the household other than the respondent currently smoked, and if so, to please specify their relationship to the respondent. Households with men who answered "Yes" were coded as having a current smoker in the house. Otherwise, households with men who smoked at least 100 cigarettes in their lifetime and currently smoked were also coded as having a current smoker in the house; households with men who smoked at least 100 cigarettes and currently did not smoke were coded as having a former, thus no current smoker in the house; and finally, households with men who were not sure, did not know, or did not smoke at least 100 cigarettes in their lifetime were also coded as having no current smoker in the house (Benson and Marano, 1995; Nguyen and McPhee, 1996).

Demographic variables. We also asked women about their age, marital status, education level, and religion. Economic status was measured by housing type, household income, and health insurance questions. Also, respondents specified how many years they had lived in the US and provided information about their English-language and Vietnamese-language proficiency. Proportion of life in the US (a proxy measure for acculturation) was calculated as years spent in the US divided by current age (Anderson et al., 1993).

Data Analysis

Using chi-square and Fisher's exact tests, we examined associations of the demographic characteristics with the household smoking status (Rosner 2000). These tests were also used to assess the association of household smoking status with Pap testing history. In addition to comparing Pap testing history by current vs. nonsmoking households, we also compared Pap testing history by current, former, and never-smoking households. There were no differences between former and nonsmoking households, therefore we chose to present comparisons between current and nonsmoking households for this report. We conducted all of the analyses in this study using SAS, Version 9.1 (SAS 2002-2003).

Results

We received completed surveys from 544 women. Of the remaining 336 addresses, 44 were vacant dwellings or businesses, 21 were unable to be reached after five contact attempts, 165 were ineligible because the household was not Vietnamese or had no Vietnamese woman aged 18-64 years, and 106 were eligible but refused to participate. Response rate calculations have been described elsewhere (Taylor et al., 2004a; 2004b). The overall estimated response rate was 82%; the cooperation rate was 84%. For this analysis, we excluded 10 women who did not provide adequate information about Pap testing history, 16 women without uteri, and 108 women for whom we had insufficient information about their household smoking status (e.g. no man in the household or no man

Table 1. Bivariate Associations of Sociodemographic Characteristics with Household Smoking Status

Characteristics	Current Smoker in House?			p-value
	Total (%)	% Yes	% No*	
Age (years)				
<35	132 (31)	34	29	0.35
35-49	128 (31)	31	30	
>50	158 (38)	35	41	
Married?				
Currently	364 (87)	86	88	0.75
Previously	16 (4)	4	4	
Never	18 (9)	10	8	
Education (years)				
<12	205 (50)	54	46	0.28
12	110 (27)	26	28	
>12	97 (23)	20	26	
Household Income				
< \$20,000	133 (32)	34	30	0.20
\$20,000-\$49,000	130 (31)	27	35	
> \$49,000	104 (25)	24	25	
Unknown	51 (12)	15	10	
Has health insurance				
Yes	376 (90)	86	94	0.008
No	42 (10)	14	6	
Proportion of life spent in the US (%)				
< 25	236 (57)	55	59	0.50
25-49	147 (36)	38	33	
> 49	31 (7)	7	8	
English fluency				
Fluent	52 (12)	10	15	0.33
Quite well	86 (21)	20	21	
Not well	280 (67)	70	64	
Religion				
Buddhist/Eastern	226 (54)	54	54	0.97
Christian	178 (43)	42	43	
Other	14 (3)	4	3	

* Includes former smokers

in the household completed a survey). Response and cooperation rates for men were 79% and 82%, respectively (Woodall et al., 2006). Eight of the women with insufficient household smoking status information also either had a hysterectomy or insufficient Pap testing history. Thus, we excluded a total of 126 women from the analysis. The final study sample included 418 women.

Study Group Characteristics

Of the 418 women included in the study, 47% (n=197) lived with a current smoker, while 53% (n=221) lived in a currently nonsmoking household. (Table 1) Among households that replied there was another smoker in the home other than the respondent (n=109), only one specified that the other smoker was a female. All others specified that the other smoker was a male. Thus, one percent of households in which there was a current smoker

Table 2. Pap Testing by Household Smoking Status

Characteristics	Current Smoker in House?			p-value
	Total (%)	% Yes	% No*	
Ever had a Pap test	302 (73)	71	75	0.41
Had a Pap test in the last two years	263 (63)	61	65	0.42

* Includes former smokers

had a female smoker. Table 1 shows demographic characteristics for the study group. Briefly, 62% of the women were less than 50 years of age, 9% had never been married, 50% had less than 12 years of education, and 32% had a household income of less than \$20,000. Nearly all the women (99%) were born in Vietnam. Fifty-seven percent of women spent less than 25% of their lives in the US, 67% did not speak English well or at all, and 54% were Buddhist or practiced another Eastern religion. Most (90%) respondents had health insurance. However, health insurance varied by household smoking status. Eighty-six percent of women who lived with a current smoker reported having health insurance compared 95% among women living in nonsmoking households (p=0.008). There were no other significant differences in demographic characteristics among these groups. We also compared demographic characteristics for women living in current, former, or never-smoking households and found similar results (data not shown).

Pap Testing by Household Smoking Status

Table 2 shows Pap testing behavior by household smoking status. Overall, 73% of women had at least one Pap test and 63% had a Pap test in the last two years. Women living with nonsmokers had a higher percentage of ever having had a Pap test (75%) compared to women living with current smokers (71%). However, these differences were not statistically significant. We also found no statistically significant differences in Pap testing for households with current, former, or never smokers (data not shown).

Discussion

To our knowledge, this is the first study to investigate the association between household smoking status and Pap testing in Vietnamese Americans. Our study found that overall, nearly half (47%) of Vietnamese American women lived with a current smoker in the household and 73% have ever received a Pap test while 63% received one in the last two years. Although observed Pap testing rates varied slightly by household smoking status, the differences were not statistically significant.

Unlike our study, one previous US cross-sectional study showed a significant difference in cancer screening between women living with smokers and nonsmokers in a two person household (Clark et al., 2000) . In that analysis of the 1994 National Health Interview Survey, the authors found nonsmoking women living with nonsmoking spouses had the highest screening rates for cervical exams compared to women living with smoking spouses (Clark et al., 2000). For example, more (80%) women living with nonsmoking spouses received a Pap test in the last three years compared to 73% of women living with smoking spouses. They also found nonsmoking women living with smoking spouses were 10-12% less likely to receive cancer screenings, compared to women in nonsmoking households, even after adjusting for several potential confounders such as age, education, income, race, and region of country. Similarly, two other cohort studies in Japan found women living with smokers

participated in fewer cancer screenings (Koo et al., 1997; Inaba et al., 1998). Thus, some studies suggest a negative association between spousal smoking status and women's cancer screening, whereas our study suggests a lack of association between household smoking status and Pap testing behavior. Our study does, however, concur with one other cross-sectional study conducted in Italy, which found no relationship between spousal smoking status and Pap testing of nonsmoking women (Forastiere et al., 2000).

Of note, our findings corroborate a recent study which found 45% of Vietnamese Americans reported smoking in the home (Ma et al. 2004). Our findings also indicate a greater percentage of Vietnamese Americans may suffer from secondhand smoke in the home compared to national averages, which range by state from 21% to 39% (Centers for Disease Control and Prevention, 2001). Furthermore, Pap testing use among Vietnamese women in our study is similar to those reported in previous studies and lower than the US average (McPhee and Nguyen, 2000; Nguyen et al., 2002; Hewitt et al., 2004).

This study had several limitations. Findings from our study may not be generalizable to Vietnamese Americans living elsewhere, in more heterogeneous neighborhoods, or with unlisted household addresses. Responses to our questions on cervical cancer screening and household smoking were based on self-report and may be subject to recall or response bias. As we did not assess secondhand smoke by asking respondents if anyone smoked in the household in the last 30 days, we can only infer that household members were exposed to secondhand smoke. Finally, although we did not ask about smoking histories of female respondents, studies report Vietnamese women have smoking prevalence of less than 5%.

Despite the limitations, this study has several strengths. This study was designed and conducted culturally appropriately with significant input from the Vietnamese community coalition. Our study also had a large sample size and strong response rates.

In conclusion, our study found nearly half of Vietnamese American women currently lived with smokers, but Pap testing was not associated with household smoking status. Interventions to promote Pap use and smoking cessation and control in this community are needed.

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