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Smoking Behaviors Among Immigrant Asian Americans Rules for Smoke-Free Homes

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Abstract

Background—Higher acculturation is associated with Asian-American smoking prevalence decreasing in men and increasing in women. Asian immigrants in California are significantly more likely than their counterparts in Asia to have quit smoking. Smoke-free environments may mediate this acculturation effect because such environments are not widespread in Asia.

Methods—In 2006, Asian-American current and former smokers were analyzed using the 2003 California Health Interview Survey. A multivariate logistic regression analysis examined how the interaction between having a smoke-free-home rule and immigrating to the U.S. is associated with status as a former smoker and lighter smoking.

Results—For recent Asian immigrants (<10 years in the U.S.) and longer-term residents (born/≥10 years in the U.S.), having a smoke-free-home rule was associated with status as a former smoker (OR 14.19, 95% CI=4.46, 45.12; OR 3.25, 95% CI=1.79, 5.90, respectively). This association was stronger for recent immigrants (p=0.02). Having a smoke-free-home rule was associated with lighter smoking only for longer-term residents (OR 5.37, 95% CI=2.79, 10.31).

Conclusions—For Asian Americans, smoke-free-home rules are associated with status as a former smoker, particularly among recent immigrants, and lighter smoking in long-term residents. Interventions encouraging Asian Americans to adopt smoke-free-home rules should be evaluated.

Introduction

Acculturation is associated with Asian-American smoking prevalence with opposite effects by gender. More-acculturated men smoke at a lower rate, whereas more-acculturated women have an increase in smoking prevalence.[1-5] Asian immigrants in California are significantly more likely than their counterparts in Asia to have quit smoking.[6] Smoke-free environments may mediate the impact of this acculturation on men's quitting because smoke-free environments are not widespread in Asia,[7] where almost half of the world's smokers live.[8] Smoke-free environments are considered a major social-norm change that encourage a reduction or

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cessation of smoking in the home or workplace.[9,10] California has long-standing regulations for smoke-free public areas and workplaces,[11] with a statewide Asian-language media campaign.[12]

This study examined how the interaction between having a smoke-free-home rule and immigrating to the U.S. are associated with status as a former smoker and lighter smoking by California Asian Americans. The first hypothesis was that the existence of a smoke-free-home rule would be associated with status as a former smoker among this population. The second hypothesis was that the existence of a smoke-free-home rule would be associated with the smoking of fewer cigarettes for longer-term immigrants.

Methods

Data Set

The 2003 California Health Interview Survey (CHIS 2003) is a population-based household survey conducted by random-digit dialing. The survey over-sampled areas with relatively high concentrations of Koreans and Vietnamese and was conducted in the Chinese (Mandarin and Cantonese), Vietnamese, and Korean languages.[13] In CHIS 2003, the household screener rate was 56%, and the extended adult-interview response rate was 60%, for an overall response rate of 33.5%, similar to two other random-digit-dial surveys conducted in California.[13] Between 11% and 13% of the total completed screener and adult interviews were done in languages other than English, with 87% of the Vietnamese interviews conducted in Vietnamese, and 84% of the Korean interviews conducted in Korean; the reduction of nonresponse bias for the Asian populations with in-language interviews is probably greater than the simple response rate computations suggest.[13]

Measures

Demographic variables included age, gender, education, marital status, income, and Asian ethnicity. The University of California Los Angeles's Center for Health Policy Research Asian ethnicity variable was used, with "other Asian" defined as Cambodian/other single Asian/multiple Asian. For the regression analysis, a dichotomous immigration variable was created to represent more recent immigration (<10 years in the U.S.) and longer-term residence (born/≥10 years in the U.S.). A cut-off of 10 years was used because California's statewide smoke-free regulations and media campaign were implemented approximately 10 years before this survey.

Current and former smokers were defined in the survey as ever having smoked at least 100 or more cigarettes in a lifetime. Smoking intensity was defined as follows: heavier (≥10 cigarettes per day (cpd); reported to reflect ethnic minority smoking patterns[14]); lighter (<10 cpd/not daily); and former (not at all). The survey's question about smoking rules inside the home was modified into whether a smoke-free-home rule (smoking never allowed inside) was present or not.

Statistical Analyses

The seven Asian national-origin groups were compared in terms of demographics by gender, using a modified F-test suitable for complex survey data. Multivariate logistic regression models were used to assess the variables associated with (1) status as a former smoker compared to current smoking, and (2) lighter smoking compared to heavier smoking. Both models were set up to estimate the effect of having a smoke-free home stratified by years in the U.S., and these effects were compared by testing their interaction. All analyses were performed in 2006 with Stata 8.0, using the "svr" functions, which use the replication weights supplied with the CHIS data to obtain weighted estimates and SEs that account for the complex survey design.

Results

Table 1 demonstrates the prevalence of each smoking pattern within each demographic variable, separated by gender. There were no differences in smoking-intensity percentages based on years lived in the U.S. Former smokers led lighter and heavier smokers in having a smoke-free-home rule.

In the multivariate analysis comparing Asian-American former smokers to current smokers (Table 2), respondents with a smoke-free-home rule were more likely to be former smokers, but the association was stronger among recent immigrants than among longer-term residents. Other variables associated with status as a former smoker included being in the oldest category and not being single or Vietnamese (compared to Chinese). There was a trend for the highest educated to be former smokers.

In the multivariate analysis comparing Asian-American lighter smokers to heavier smokers (Table 2), having a smoke-free home was associated with lighter smoking among longer-term residents, but not among more recent immigrants. Among those who did not have a smoke-free-home rule, more recent immigrants were more likely than U.S.-born or long-term residents to be lighter smokers. Other variables associated with lighter smoking included being female and not Korean (compared to Chinese).

Discussion

This study showed that smoke-free-home rules are associated with former smoking—particularly among recent immigrants—lighter smoking among long-term residents. These results are consistent with a previous study demonstrating that home smoking restrictions are associated with former and lighter smoking in the general California population.[9] The novel aspect of these findings is that the study demonstrates that this association with cessation is stronger for more-recent Asian-American immigrants, reflecting the change in smoke-free social norms. The contradictory finding that smoke-free-home rules were not associated with lighter smoking for recent immigrants may be due to the fact that the recent male immigrants in the study tended to be lighter smokers than longer-term residents, and the addition of a smoke-free-home rule may not have made a significant difference in reducing smoking. Previous evidence demonstrates that Asian-American smokers are more likely to increase their cigarette consumption with greater time in the U.S.[15]

Smoke-free environments and their health benefits should be emphasized for Asian Americans, especially for recent immigrants. Secondhand-smoke exposure is high among Asian Americans outside of California (38% at home, 40% at work).[16] Chinese Americans in New York City with smoke-free-home rules reported significantly less 30-day exposure to secondhand smoke than those living in homes with a partial ban or no ban.[17] Secondhand-smoke screening and counseling, which have usually been employed to encourage parents to stop smoking for the benefit of their children,[18] may be a promising behavioral smoking-cessation strategy for Asian-American smokers. Almost all Californian Chinese and Korean smokers state that their families want them to quit,[19,20] and the largest percentage of California quit-line callers who called for help on behalf of another smoker were Asian-speaking Asians (35%, compared to 5% for English-speaking whites).[12]

Limitations of this study include lack of access to a telephone by recent immigrants or lack of desire to participate in a survey asking for personal information. Smoking status is from self-report and was not verified with a biochemical test. The survey represents Californian Asian Americans only, and did not over-sample or conduct the survey in-language for all Asian national-origin groups. The survey is cross-sectional, and whether the associations with smoke-free-home rules and immigration are causal for former or lighter smoking cannot be determined

because, for example, former smokers may enact no-smoking rules in their homes only after they quit.

Future research should investigate a smoke-free behavioral-cessation approach for Asian smokers in the U.S. and in Asia. Prospective studies of smoke-free-home rules might help establish whether these effects encourage cessation and reduce consumption. The effect of smoke-free-home rules and immigration may be investigated in other ethnicities.

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Table 1

Demographics of Asian-American current and former smokers, California Health Interview Study, 2003

	Men			Women		
	Heavier (≥10 cpd) (*n*=165)	**Lighter (<10 cpd/ not daily) (*n*=187)**	**Former (*n*=415)**	**Heavier (≥10 cpd) (*n*=47)**	**Lighter (<10 cpd/ not daily) (*n*=80)**	**Former (*n*=156)**
Age (years) *,*a***						
18–24	22.5	61.6	15.8	31.2	37.6	31.1
25–44	29.7	34.8	35.4	10.0	39.2	51.0
45–64	21.5	18.8	59.7	28.1	17.5	54.5
≥65	10.8	9.7	79.4	5.4	16.7	77.8
Marital status *,*a***						
Married	21.3	18.5	60.2	12.5	26.1	61.4
Wid/div/sep	21.6	30.4	48.0	23.1	14.3	62.6
Single	28.2	53.2	18.6	25.9	51.1	23.0
Education*a****						
<HS diploma	27.6	30.2	42.2	28.9	13.4	57.7
HS grad/college	26.0	31.0	43.1	23.8	21.5	54.8
≥College grad	19.2	24.9	55.9	7.4	40.3	52.3
Income ($)						
≤30,000	20.0	32.7	47.3	20.9	18.7	60.3
30,001–80,000	25.8	25.0	49.1	17.6	30.7	51.7
>80,000	22.7	26.3	50.9	16.2	34.6	49.2
National origin						
Chinese	16.7	26.7	56.6	9.4	19.4	71.2
Filipino	24.0	28.7	47.3	16.0	29.8	54.3
South Asian	25.2	32.4	42.4	14.8	44.4	40.8
Japanese	22.3	14.9	62.8	29.3	22.9	47.8
Korean	35.5	20.5	44.0	15.9	34.4	49.7
Vietnamese	18.6	40.1	41.3	8.7	38.6	52.6
Other	22.6	24.5	52.8	34.9	14.8	50.2
Years in U.S.						
Born in U.S.	20.0	32.0	48.0	24.5	27.5	48.0
≥10 years	26.2	24.7	49.1	11.1	27.4	61.4
<10 years	15.0	35.4	49.5	32.7	26.4	41.0
Smoke-free-home rule *,*a*****	17.1	28.2	54.7	12.5	26.6	60.8

a Significance for women

* $p \leq 0.0001$;

** $p \leq 0.01$;

*** $p \leq 0.05$;

**** $p \leq 0.001$

cpd, cigarettes per day; div, divorced; HS, high school; sep, separated; wid, widowed

Table 2

Multivariate logistic analysis of factors associated with former or lighter smoking among Asian Americans, California Health Interview Study, 2003

	OR for former vs current smoker (95% CI)	*p*-value	OR for lighter (<10 cpd/ not daily) vs heavier (≥10 cpd) smoker (95% CI)	*p*-value
Age (years)				
18–24 (ref)	—	—	—	—
25–44	1.12 (0.44–2.86)	0.81	0.82 (0.25–2.70)	0.75
45–64	2.17 (0.79–5.98)	0.13	0.50 (0.15–1.64)	0.25
>65	6.70 (2.13–21.13)	**0.001**	1.33 (0.28–6.27)	0.72
Gender				
Male (ref)	—	—	—	—
Female	1.47 (0.88–2.45)	0.13	1.97 (1.07–3.62)	**0.03**
Subgroup				
Chinese (ref)	—	—	—	—
Filipino	0.62 (0.35–1.09)	0.09	0.71 (0.29–1.75)	0.45
South Asian	0.54 (0.28–1.03)	0.06	0.44 (0.14–1.40)	0.16
Japanese	0.63 (0.32–1.25)	0.18	0.36 (0.11–1.20)	0.09
Korean	0.76 (0.40–1.45)	0.40	0.33 (0.13–0.82)	**0.02**
Vietnamese	0.44 (0.24–0.81)	**0.01**	1.36 (0.56–3.32)	0.49
Cambodian/other	1.04 (0.42–2.62)	0.92	0.43 (0.11–1.68)	0.22
Marital status				
Married (ref)	—	—	—	—
Formerly married	0.80 (0.44–1.46)	0.47	1.21 (0.44–3.32)	0.71
Single	0.28 (0.16–0.49)	**<0.0001**	1.75 (0.73–4.20)	0.21
Education				
<HS grad (ref)	—	—	—	—
HS grad/college	1.30 (0.72–2.37)	0.45	1.44 (0.55–3.81)	0.45
≥College grad	1.78 (1.01–3.13)	0.05	2.69 (0.97–7.48)	0.06
Income ($)				
≤30,000 (ref)	—	—	—	—
30,001–80,000	1.12 (0.70–1.78)	0.62	0.80 (0.36–1.76)	0.57
>80,000	1.16 (0.67–2.02)	0.59	0.76 (0.35–1.66)	0.49
Years in U.S. (no smoke-free home)				
U.S. born/≥10 yrs (ref)	—	—	—	—
<10 yrs	0.42 (0.14–1.27)	0.12	4.43 (1.50–13.07)	**0.01**
Smoke-free home				
Among long-term residents (born/≥10 yrs in U.S.)[a]	3.25 (1.79–5.90)	**<0.0001**	5.37 (2.79–10.31)	**<0.0001**
Among recent immigrants (<10 yrs in U.S.)[a]	14.19 (4.46–45.12)	**<0.0001**	1.19 (0.33–4.23)	0.79

[a]The *p*-value for interaction comparing effects of *smoke-free home among long-term residents* vs *smoke-free home among recent immigrants* for (1) former vs current smoker outcome is $p=0.02$ and (2) lighter vs heavier smoker outcome is $p=0.03$. Reference group for each category reflects having smoke-free home for the respective category of years in U.S.

cpd, cigarettes per day; HS, high school; yrs, years