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Longitudinal Study of Household Smoking Ban Adoption Among Korean Americans

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Abstract

Background—Few longitudinal studies have examined the adoption of bans on smoking in private homes.

Purpose—This longitudinal study examined: (1) the prevalence of home smoking bans at baseline, (2) the incidence and predictors of new ban implementation by follow-up, and (3) the reasons for banning smoking and the difficulties with enforcement.

Methods—The sample consisted of 1,360 adults of Korean descent residing in California who were interviewed by telephone (in English/Korean) at baseline during 2001–2002 and re-interviewed in 2006–2007. Data analyses were conducted in 2007–2008.

Results—The proportion of respondents with a complete household smoking ban grew from 59% at baseline to 91% by the follow-up interview. Among the 552 respondents who did not have a ban at baseline, 84% had adopted a ban by follow-up. Three baseline factors independently predicted ban adoption during the follow-up period: the presence of a nonsmoking respondent or spouse, the presence of nonsmoking family members, and respondent's belief that secondhand smoke caused lung cancer. The most highly rated reasons for banning smoking were: because smoke annoys others, to protect family members, to avoid the odor, to discourage youth from smoking, and to encourage smokers to quit. Finally, respondents indicated that they would find it most difficult to ask their parent-in-law not to smoke.

Conclusions—The proportion of households with smoking bans increased substantially, but households with smokers or family members who smoke remained less likely to implement bans. The importance of culturally sensitive programs to promote households bans cannot be overstated.

Introduction

Since the 1990's, as awareness of the dangers of secondhand tobacco smoke (SHS) exposure has grown, so have smoking restrictions in public and private spaces.¹ Home smoking bans (hereafter referred to as bans) in American households increased from 43% in 1992–1993 to

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72% in 2003.¹ Bans have been less common among Korean Americans: in California, only 54%–78% had complete bans,^{1–2} versus 86% of Asians/Pacific Islanders⁵ and 84% of the general population.¹ Bans among Korean Americans are important because SHS exposure is common among them³ and their population is growing rapidly.⁶

There are few longitudinal studies of HSBs, and they focused mainly on smokers.^{7–9} Among Korean Americans, inclusion of nonsmokers in ban studies is important since smoking by friends and family is typical and influences ban implementation.³ This longitudinal study surveyed Korean Americans in California, where one third of Korean Americans live.¹⁰ This paper describes the prevalence and predictors of, reasons for, and difficulties with enforcing bans.

Methods

A representative telephone survey of 2830 adults of Korean descent in California was conducted during 2001–2002. Detailed methods are available elsewhere.¹¹ The longitudinal sample consisted of 1360 respondents (48% follow-up) who completed another interview in 2006–2007. The mean follow-up interval was 4 years ($SD=0.2$ years). Surveys were conducted in Korean or English. Verbal consent was obtained. The study was approved by the IRB at San Diego State University.

Home smoking ban

Respondents described how cigarette smoking was handled at home: “no one allowed to smoke, special guests allowed, allowed in certain areas, or allowed anywhere.” “No one allowed” was defined as a (complete) ban. Other responses were coded as no ban.

Baseline demographics included gender, age, education, marital status, children at home, and acculturation.^{12–13} *Respondent's smoking status* was defined as smoker if he/she smoked every day or some days, and had smoked more than 100 cigarettes in his/her lifetime.¹⁴ *Spouse's, other family's, and friends' smoking status* were also reported. *Composite smoking status*: A trichotomous variable combined respondent's smoking and marital status, with spouse's smoking status: (1) Smoker/s: respondent was single and smoked, or married and both respondent and spouse smoked; (2) Mixed: married respondent, and either respondent or spouse smoked (but not both); (3) Nonsmoker/s: Respondent was a single nonsmoker, or a nonsmoker married to a nonsmoker. *Discouragement*: Number of groups (spouse, parents, siblings, friends, children, grandparents, aunts/uncles, teachers, others) who “...discourage you from smoking.” *Anti-SHS media messages*: Number of sources (TV, radio, Internet, newspaper/magazines, billboards, videotapes) stating SHS was harmful, in the past 3 months. *Health concern*: Respondents' level of concern about their health. *Beliefs*: Whether respondents' believed SHS caused lung cancer.

Social aspects

At follow-up, respondents rated the importance of various reasons for bans and their difficulty in asking others (spouse, mother, father, in-laws, close friends, and casual acquaintances) not to smoke.

Data Analysis

Analyses were performed with SPSS version 15.0. Chi-square tests assessed bivariate differences in bans. An initial multiple logistic regression model included significant ($p<0.20$) baseline variables from the bivariate analyses, except for education, marital status, and respondent's and spouse smoking status, which were part of other variables. Nonsignificant

($p \geq 0.05$) variables were removed sequentially. Age, gender and acculturation were retained to control for demographic variation.

Results

The majority of the longitudinal sample had college level or more education (70%), was married (79%), was a nonsmoker (86%), and preferred interviewing in Korean (75%). At baseline, 808 (59%) respondents had a complete ban. Special guests were allowed to smoke by 42 (3%) respondents. The ban prevalence increased to 91% by follow-up ($p < 0.001$).

Table 1 shows that of 552 respondents without bans at baseline, 462 (84%) implemented one by follow-up ($p < 0.001$). The bivariate predictors of ban uptake were nonsmoker status, being married, having a nonsmoking spouse, having nonsmoking family, belief that SHS causes lung cancer, and fewer groups discouraging smoking.

Only three variables predicted ban uptake in the multivariate analysis (Table 2). Compared to households containing only smokers, ban adoption was more likely in nonsmoker/s households (OR=3.34) and in mixed households (OR=2.23). Respondents were almost twice as likely to adopt bans if their family members did not smoke, as those whose family smoked. Finally, respondents who believed that SHS causes lung cancer were over three times more likely to adopt bans compared to nonbelievers.

Over 97% of respondents rated each of the following reasons as important/very important: because smoke annoys others, protect a smoke-sensitive family member, protect their family, avoid the odor, discourage youth smoking, and encourage smoking cessation. One fifth of respondents said asking parents-in-law not to smoke would be difficult/very difficult.

Discussion

To our knowledge, this is the first longitudinal study of ban uptake in an Asian American subgroup. This study confirms increases in bans reported by cross-sectional studies of Korean Americans and Californians between 2001 and 2007.^{1,2,4,5}

This study also provides further evidence that nonsmokers' presence in households is an important determinant of ban adoption.^{15,19} This finding is corroborated by formative research showing that ban adoption may be resisted or considered unnecessary by household members and family members who smoke.¹⁶

This study confirms results from cross-sectional studies^{15,17-18} showing that bans were associated with the belief that SHS is harmful. In the present study, ban uptake was predicted by belief that SHS causes lung cancer, among smokers and nonsmokers alike (data not shown), suggesting that differences in ban adoption between smokers and nonsmokers cannot be attributed to lower levels of beliefs among smokers that SHS is harmful.

In the present study, neither others' disapproval of smoking, nor children's presence predicted ban uptake, controlling for other variables. However, in previous studies, ban uptake was predicted by "people who are important to me believe I should not smoke"¹⁹ and "people close to me are upset by my smoking".⁹ With regard to children's presence, in longitudinal studies, only infants' presence have predicted bans (19), probably due to parent's perception of infants' vulnerability. These variables warrant further study.

Potential study limitations include recall bias, social desirability bias,²⁰ and restricted generalizability. This study was not initially designed with follow-up; 52% of the sample did not complete follow-up surveys, due mainly to disconnected numbers. Only 2% refused the

interview. Other studies have reported similar follow-ups.^{9,19} The present study may have overestimated ban prevalence at follow-up, since lost respondents were more likely to be smokers, have family and friends who smoked, and less likely to have baseline bans, compared to respondents who had a follow-up assessment (63% vs 67%, $p=0.012$). The multivariate analyses controlled for those variables.

Bans are vital to reduce SHS exposure.^{21–23} Interventions should promote bans especially in households with smokers or family that smoke since adoption lagged in those households. Such interventions should also provide culturally sensitive ban enforcement skills to address issues such as how to ask parents-in-law not to smoke or how to handle special guests. To be successful, these approaches may require changing the social acceptance of smoking and raising awareness of SHS health effects even further. These efforts might be facilitated by appealing to Korean values such as consideration for others' well-being, and protection of family and children of all ages. Further research is needed to develop and test culturally appropriate SHS interventions for Korean Americans.

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Table 1

Bivariate analysis of ban uptake by follow-up (N=552 respondents without ban at baseline)

Respondents' baseline characteristic	Homes with ban uptake ^a n (%)	Homes with no ban uptake n (%)	Total N (%)
Overall	462 (84)	90 (16)	552 (100)
Age (years)			
<50	271 (83)	54 (17)	325 (59)
50+	191 (84)	191 (84)	227 (41)
Gender			
Male	218 (82)	47 (18)	265 (48)
Female	244 (85)	43 (15)	287 (52)
Education			
High school or less	143 (79)	38 (21)	181 (34)
College	238 (84)	44 (16)	282 (53)
Graduate	66 (90)	7 (10)	73 (14)
Married/Cohabiting			
No	77 (74)**	27 (26)	104 (19)
Yes	384 (86)	63 (70)	447 (81)
Current smoker			
No	363 (86)*	59 (14)	422 (76)
Yes	99 (76)	31 (24)	130 (24)
Spouse smokes			
No/unmarried	300 (90)**	35 (10)	335 (74)
Yes	89 (75)	29 (25)	118 (26)
Composite smoking status			
Nonsmoker/s	284 (88)**	38 (12)	322 (59)
Mixed	145 (82)	33 (18)	178 (32)
Smoker/s	30 (62)	18 (38)	48 (9)
Family smokes (nonspouse)			
No	145 (90)*	16 (10)	161 (29)
Yes	317 (81)	73 (19)	390 (71)
Friend/s smoke			
No	161 (85)	28 (15)	189 (35)
Yes	297 (83)	61 (17)	358 (65)
Child aged <18 years at home			
No	229 (82)	49 (18)	278 (50)
Yes	233 (85)	41 (15)	274 (50)
Number of groups who discourage smoking			
0-5	149 (78)*	42 (22)	191 (35)
6-9	313 (87)	48 (13)	361 (65)

Respondents' baseline characteristic	Homes with ban uptake ^a n (%)	Homes with no ban uptake n (%)	Total N (%)
Number of sources of anti-SHS ^b message			
0–2	53 (19)	226 (81)	279 (51)
3–6	37 (14)	235 (86)	272 (49)
Acculturation level			
Low	109 (82)	24 (18)	133 (24)
Medium	234 (85)	41 (15)	275 (50)
High	118 (82)	25 (18)	143 (26)
Concerned about health			
Not at all/Not very much	149 (81)	35 (19)	184 (34)
Some/Great deal	308 (85)	55 (15)	363 (66)
Believe SHS causes lung cancer			
No	21 (62)**	13 (38)	34 (6)
Yes	435 (85)	77 (15)	512 (94)

*
p<0.05, Chi-square test

**
p<0.01, Chi-square test

^a Ban uptake= no complete ban at baseline, but had a complete ban at follow-up

^b SHS=secondhand smoke

Table 2

Multiple logistic regression model predicting home smoking ban uptake (N=541)

Respondent baseline characteristics	Adjusted OR ^a (95% CI)
Age (10 years)	1.14 (0.94–1.38)
Acculturation	1.20 (0.79–1.81)
Gender ^b	
Female: Male	1.14 (0.71–1.84)
Composite smoking status	
Nonsmoker/s: Smoker/s	3.34 (1.59–6.99)
Mixed: Smoker/s	2.23 (1.05–4.73)
Family smokes	
No: Yes	1.92 (1.06–3.46)
Believe SHS causes lung cancer	
Yes: No	3.25 (1.48–7.13)

^aThe OR is adjusted for all other variables shown in the table^bThe last category is the reference category