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Nonsmoker assertive behavior against smoke exposure: Chinese and Korean American nonsmokers

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Abstract

Introduction—Non-smokers' assertive behaviour towards smokers by asking them not to smoke is important in promoting smokefree environments. Korean and Chinese Americans come from countries where most women are non-smokers and assertive behaviour may not be prevalent but may increase after migration due to social-ecological factors. This study assessed the extent to which Korean and Chinese American non-smokers ask someone not to smoke and associated factors.

Methods—The 2003 California Chinese American and Korean American Tobacco Use Surveys were analysed. Multivariate logistic regression analyses examined factors related to non-smoker self-reports that they asked someone not to smoke within the past year.

Results—Forty percent reported past year assertive behaviour against smoking, with higher rates among Koreans than Chinese (60.4% vs. 34.5%). Rates were also higher among those living with smokers (63.5%), ever exposed with a smokefree home rule (62.3%), recently exposed at work without a smokefree work policy (67.6%) and regularly exposed at other locations (52.3%). In combined multivariate analyses of both ethnic groups, assertive behaviour was associated with individual factors (single vs. married, tobacco exposure knowledge), family factors (living with smokers, exposed at home despite a smokefree rule), community factors (exposed at work with no smokefree policy, exposed at other locations) and cultural factors (Korean vs. Chinese ethnicity, lower acculturation).

Discussion and Conclusions—Chinese and Korean American non-smokers report assertive behaviour against smoking, which is associated with social-ecological factors. Results help identify target groups and strategies for future intervention, including the need to implement or enforce smokefree environments and promote empowerment.

Keywords

smoke exposure; tobacco; Asian; assertive behaviour; smokefree policy

Background

Promoting smokefree environments is critical in protecting populations from second-hand smoke (SHS) exposure [1]. SHS exposure remains a major public health problem, accounting for more than 42,000 deaths and nearly 600,000 years of potential life lost annually in the United States [2]. Although smokefree policies are meant to protect non-smokers from SHS exposure, such policies do not offer full protection if they are not strongly enforced. Non-smokers' verbal objection to SHS exposure is an important individual action to promote smokefree environments because it reinforces antismoking norms and represents an immediate and aversive consequence to smokers [3–5].

A non-smoker asking someone not to smoke has been described as an assertive behaviour predominantly for European and other Western populations [4,6,7]. In an Australian population-based survey, only 5% of non-smokers would ask someone not to smoke in a public place, but this increased to almost half if a smoker asked if the non-smoker minded them smoking [7]. In a Greek workplace study, 77% of employees reported being annoyed by SHS exposure at work, but only 37% reported having asked a colleague not to smoke in the past month [6]. In a Dutch workplace study, 51% of non-smoking employees asked co-workers not to smoke [4]. In these studies, asking someone not to smoke was associated with psychological and behavioural factors such as perceived self-efficacy, perceived control, annoyance with SHS exposure, intention for the behaviour, past instances of the behaviour, as well as social normative factors, specifically perceptions that co-workers would also behave the same.[4, 6]

Little research has examined social-ecological factors influencing non-smokers asking someone not to smoke, yet such factors may be particularly salient for Korean and Chinese Americans, of which two-thirds are immigrants [8]. Korean and Chinese Americans come from countries where most women are non-smokers and such assertive behaviour may not be prevalent. Men in China and South Korea have high smoking prevalence rates (53% and 42%) [9, 10], whereas women in these countries have low smoking prevalence rates (2% and 6%) but high SHS exposure (China: 64% at home, 83% in restaurants; Korea: 12% at home, 81% in public places) [11,12]. Immigration to the US may shift smoking norms and willingness to engage in assertive smokefree behaviours. Whereas California began implementation of smokefree policies in public places in 1994, such bans against smoking were only widely implemented in Korea or China within the past 10 years [13,14]. There may also be differences in assertive behaviours among Chinese and Korean American non-smokers due to social-ecological factors. Chinese and Korean American non-smoking women in California may have high rates of home/work smokefree policies and knowledge about SHS harms, but lower-educated women had more exposure which suggests differences in assertive smokefree behaviours [15]. Among Asian Americans in the Pennsylvania/

Delaware Valley region, sub-group differences were noted for tolerance of smoking at home with Koreans being more tolerant than Chinese [16,17].

The purpose of this paper is to assess the extent to which Chinese and Korean American non-smokers in California report an assertive behaviour of asking smokers to stop smoking, and social-ecological factors associated with this assertive behaviour. Our analysis uses two state-wide surveys of Chinese and Korean Americans in California, which are among the largest tobacco surveys ever conducted for these populations and in-language; no similar survey of this size and scope has been conducted for both of these populations since. We hypothesised that male gender, higher education, greater acculturation, stronger smokefree attitudes/knowledge, and more SHS exposure would be associated with non-smoker assertive behaviour.

Methods

Data Sources

The California Chinese American Tobacco Use Survey and California Korean American Tobacco Use Survey are state-wide computer-assisted telephone interview surveys conducted in English, various dialects of Chinese and Korean in 2003. A total of 2117 respondents participated in the California Chinese American Tobacco Use Survey and a total of 2545 respondents participated in the California Korean American Tobacco Use Survey. Informed consent was obtained from each participant prior to the beginning the survey. Detailed survey methodology is described elsewhere [18,19]. The present study used data from non-smoker respondents who reported either being a never (n=3111) or former smoker (n=812), including 1902 Chinese and 2021 Korean. In logistic regression analysis, 3779 individuals were included due to missing values in some variables in the model. Overall, only 3.67% individuals who responded to the assertive behaviour questions had missing values in one or more predictor variables. As the result, they were excluded from the multiple logistic regression model. There are no statistically significant differences between respondents with missing values and respondents remained in the regression analysis in terms of how they responded to the assertive behaviour questions.

Framework

Social-ecological (SE) models serve as a framework for this paper [20]. SE models emphasise multiple levels of influence on health behaviours and the interactions across levels. Individual level factors include demographics such as age, gender and education, as well knowledge about the harms of tobacco exposure. Family level variables include the presence of household members and home SHS exposure with or without a smokefree home rule. Community level variables include SHS exposure at work with or without a smokefree work policy. Cultural level factors reflect ethnicity and acculturation. Variations of these models have been previously used for Chinese, Korean and South Asian American populations to understand tobacco-related behaviours [5, 21–26].

Measures

The main outcome variable was non-smoker self-report of past-year assertive behaviour towards smokers, which was assessed with the question, “In the past 12 months, have you ever asked someone not to smoke” (yes/no). The variables below are organised by the individual, family, community and cultural levels described above.

Individual level variables reflect demographics and tobacco exposure knowledge. Demographics include: gender, age group, education level, marital status and household income. Tobacco exposure knowledge was measured as a composite of responses to three statements (“Inhaling smoke from someone else’s cigarette causes lung cancer in a non-smoker”, “Inhaling smoke from someone else’s cigarette harms the health of babies and children”, and “If a woman smokes when pregnant, it will harm the health of her baby”). Responses were dichotomised into a tobacco exposure knowledge variable: if respondents reported “strongly agree” to all three statements, then their tobacco exposure knowledge was categorised as “Strong”; all other responses were categorised as “Fair.”

Family level variables include presence of household members and presence of SHS exposure at home. The household member variables include presence of a household smoker (“How many other household members currently smoke?”) and presence of children under age 18 in the same household. Community level variables include presence of SHS exposure at work and other locations. To explore how SHS exposure and policy presence interacts with behaviour, we created a combined variable for SHS exposure at home or work in conjunction with the presence or absence of a smokefree policy. The presence of SHS exposure at home or work was controlled for in the context of presence or absence of a smokefree policy. Home exposure of SHS (“Does anyone ever smoke inside your home?”) was coded as “No”, “Yes, with smokefree home rule”, and “Yes, no smokefree home rule”. Work exposure of SHS (“During the past 2 weeks did anyone smoke in the area in which you work?”) was coded as “No”, “Yes, with smokefree work policy”, and “Yes, no smokefree work policy”. Exposure in other locations (“Are you often exposed to other people’s tobacco smoke at any other place besides your home and work place?”), in which responses mostly reflected a variety of public places like stores or parks that may or may not have smokefree policies, was coded as “No” or “Yes”.

Cultural level variables reflect ethnicity (Chinese or Korean) and acculturation measures based on self-reported language proficiency or years in the US. For the acculturation measure with language proficiency, individuals were categorised as “traditional” if they answered the survey in Chinese/Korean and rated their English proficiency as “so so”, “not very well”, or “not at all”. Individuals were categorised as “bilingual” if they answered the survey in Chinese/Korean and rated their English proficiency as “very well” or “pretty well”. Individuals were categorised as “assimilated” if they answered the survey in English and rated their native language proficiency as “so so”, “not very well”, or “not at all”. Years in the US was categorised as <10 years in the US, 10 years in the US, or born in the US.

Participants who self-reported past-year assertive behaviour were asked which type of person they most recently asked not to smoke. Answers were categorised as “spouse or

partner”, “parent”, “child”, “other relative”, “friend”, “co-worker”, “other known person” and “stranger”.

Data Analyses

Non-smokers’ assertive behaviour toward smokers was compared among individual, family, community and cultural level variables using Pearson chi-square tests. Based on these bivariate results, variables that attained a P -value <0.15 were included in a multiple logistic regression to examine factors associated with non-smokers’ assertive behaviour toward smokers. Regression analyses were conducted with the two ethnic groups separately and then combined. Data were combined for several reasons: the survey methodologies and timeframe are identical, most surveys would typically aggregate Chinese and Korean Americans together due to low sample size, and this allows a comparison between Chinese and Korean American participants.

SAS version 9.3 (SAS Institute, Cary, NC) PROC SURVEYFREQ procedure was used for the bivariate analysis and PROC SURVEYLOGISTICS procedure was used for multiple regression analyses to account for weighting, clustering and stratification in the survey design. All percentages were weighted to reflect Chinese and Korean American populations in California based on 2000 Census data.

Results

Factor Subgroups Associated Across Assertive Behaviour

Among the Chinese and Korean American non-smokers, about 40% reported past-year assertive behaviour towards smokers. Table 1 displays differences across individual, family, community and cultural level factors for Chinese and Korean American non-smokers’ assertive behaviour. Individual factors associated with significantly more assertive behaviour include being female, having a high school diploma/some college, being single, having a household income of \$35,000–\$75,000, and having a “strong” level of knowledge about SHS. There were no significant differences among age group categories and never vs. former smoking status.

Among family and community level variables, living with smokers and having greater SHS exposure (at home, workplace, and other places separately and combined) were associated with more non-smoker assertive behaviour. Non-smoker assertive behaviour was associated more with SHS exposure at home if there was a smokefree home rule, but conversely was associated more with SHS exposure at work if there was *not* a smokefree work rule. Living with children was not associated with non-smoker assertive behaviour.

For cultural level variables, a greater proportion of Korean American than Chinese American non-smokers reported assertive behaviour. Furthermore, a greater proportion of those with lower acculturation than higher acculturation by language proficiency reported assertive behaviour toward smokers. Years lived in the US was not associated with non-smoker assertive behaviour.

Multivariate Regression Analyses for Assertive Behaviour

Table 2 shows a multivariate regression analysis of factors associated with past-year non-smoker assertive behaviour among Korean and Chinese American non-smokers combined. At the individual level, being single and having strong tobacco knowledge were associated with assertive behaviour. At the family level, living with smokers, ever household exposure to SHS with a smokefree home rule, recent workplace exposure to SHS without a workplace smokefree policy, and regular SHS exposure in other locations were significant correlates. At the cultural level, significant correlates of assertive behaviour were Korean (vs. Chinese) ethnicity and lower acculturation with less English language proficiency (traditional vs. assimilated).

Table 2 also shows the results of regression analyses for Chinese and Korean Americans separately, compared to the combined analyses. At the individual level, being single was associated for both groups, but having strong tobacco exposure knowledge was only associated for Chinese Americans. At the family level, living with smokers was associated for both groups, but ever SHS exposure at home with a smokefree home rule was only associated for Chinese Americans. At the community level, recent workplace exposure without a smokefree policy was significant for Chinese Americans, whereas recent workplace exposure with a smokefree policy was significant for Korean Americans. Being often exposed to SHS in other locations was significant for Korean Americans and approached significance for Chinese Americans. At the cultural level, being less acculturated (traditional or bicultural vs. assimilated) was associated for Korean Americans but not Chinese Americans.

Targets of Assertive Behaviour

Chinese and Korean American non-smokers reported that friends, spouse/partner or other relatives were the most frequently reported targets of assertive behaviour (40.1%, 11.2%, and 12.6%) (not shown). Koreans endorsed spouse/partner, other known person and child as the target of assertive behaviour more frequently than Chinese respondents. In contrast, Chinese endorsed other relatives, friends, and strangers more frequently than Korean respondents.

Discussion

Non-smokers' assertive behaviour towards smokers is a powerful means of promoting and enforcing anti-tobacco norms and smokefree environments [5]. Using data from two large, in-language surveys, the present study found that about 40% of Chinese and Korean American non-smokers are assertive towards smokers by asking them not to smoke, and rates are higher (>50–60%) among those exposed to SHS. Despite perceptions of Asian Americans as unassertive [27, 28], the study's results suggest that Asian American non-smokers assert their preference for smokefree environments at rates similar to or higher than the general population [29]. Though the questions differ, a general California population survey conducted in 2002 found that, when annoyed by the smoke from someone's cigarette, 36% of Californian non-smokers have asked someone not to smoke at least sometimes in a place where smoking is allowed and 67% have asked someone not to smoke at least

sometimes in a place where smoking is not allowed [29]. This study identified factors related to non-smokers' assertive behaviour using a SE framework.

At the individual level, those who were single were more likely to ask someone not to smoke. The relationship between single marital status and assertive behaviour is consistent with a previous study conducted in Korea and may suggest variability in the social contexts where individuals are exposed to SHS and feel empowered to ask smokers not to smoke [30,31]. As has been found in previous research conducted in Western workplace settings [4,32], beliefs about the harms of tobacco exposure were associated with assertive behaviour. Therefore, efforts to educate non-smokers, especially given that some Asian Americans hold inaccurate beliefs about the harms of tobacco use and SHS exposure [33], should help empower non-smokers to be assertive. Although previous research suggests that male gender and higher education would be associated with assertive behaviour [4,34,35], we did not find this in multivariate analyses.

At the family level, living with smokers was significantly related to assertive behaviour, suggesting that more work is needed to promote implementation and enforcement of smokefree home rules. Previous research links children in the household to the assertive behaviour of smokefree home rule implementation; yet, we did not find that children in the household was associated with non-smokers' assertive behaviour.[36] Compared to those with no SHS exposure at home, those exposed at home with a smokefree rule in place are more likely to ask someone not to smoke than those exposed but without a smokefree rule, reflecting a commitment to maintaining smokefree environments among those who proactively initiate a smokefree home rule.

At the community level, non-smokers who were recently exposed to SHS in a workplace without an existing smokefree policy were more likely to report assertive behaviour. However, among those who were exposed at work, having an existing smokefree policy was not associated with assertive behaviour. It may be the case that because workplace smokefree policies are initiated by employers or fall under state law, individual non-smokers leave the responsibility of enforcement to employers rather than taking personal initiative in asking someone not to smoke. Being exposed to SHS in other places was associated with assertive behaviour. Other locations where non-smokers are exposed may include restaurants, bars, and other public places where smoking policies are not being enforced.[37] Future research is needed to identify these environments to promote greater enforcement of smokefree policies. Ethnic differences in how SHS exposure interacted with the presence of smokefree policies were found; among Chinese Americans, those exposed at home with a smokefree home rule were more likely to be assertive, whereas those exposed at work without a smokefree policy were more likely to be assertive. Among Korean Americans, presence of a smokefree home rule among those exposed at home only marginally increased the likelihood of assertive behaviour, whereas the presence of a smokefree work policy among those exposed at work increased the likelihood of assertive behaviour compared to those not exposed at work. Further research is needed to better understand these findings.

The present study also found ethnic differences between Chinese and Korean American non-smokers in assertive behaviour. Korean Americans had a greater likelihood of assertive

behaviour compared to Chinese Americans, even after controlling for other factors such as SHS exposure. This result differs from a study of Asian Americans living in Pennsylvania/Delaware Valley, which found Korean Americans more tolerant of SHS than Chinese Americans [16,38]. In the current study, acculturation was not associated with assertive behaviour for Chinese but was negatively associated for Korean American non-smokers. That is, traditional or bilingual Korean Americans were more assertive towards smokers than their assimilated Korean American counterparts. Chinese and Korean American non-smokers varied in the targets of their assertiveness with Korean Americans targeting immediate family members and Chinese Americans targeting friends and other relatives. This may be reflective of the greater presence of smoking in Korean American compared to Chinese American households (23.1% vs. 17.4% report at least one household member other than themselves who currently smoke). These results of the impacts of ethnicity and acculturation may also point to culturally influenced communication dynamics in which those of higher social rank are more assertive toward smokers than those of lower rank, as has been suggested elsewhere [34,39]. For example, a qualitative study of Korean American non-smokers in California found that older male and female non-smokers were less tolerant of SHS compared to their younger counterparts and over 60% of older non-smokers had verbally commented and/or asked someone not to smoke [34]. More research is needed to better understand how acculturation, age, differences in social status, and other factors influence Asian American non-smokers' assertive behaviours toward smokers and under what contexts, especially given previous work with Asian Americans indicating that assertive behaviour is situationally specific.[40]

Drastically different smoking norms between the United States (California especially) and Asia must be culturally negotiated by Asian Americans, especially recent immigrants. Smokers in China and Korea use smoking as a means to enhance social relationships among men, such as by gifting cigarettes [5,33,41]. By contrast, the social acceptability of smoking in the United States has decreased substantially in the past five decades [42]. Anti-smoking norms, which likely influence non-smokers' assertive behaviour, are strengthened through implementation of and compliance with environmental smokefree policies [43]. Although California started implementing smokefree policies in public places, enclosed workplaces and restaurants in 1994 and bars in 1998, the current study found that, in 2003 many Chinese and Korean American non-smokers in California continued to be exposed to SHS and had to take the initiative to ask smokers not to smoke. This finding supports another study conducted in 2007–2009, which found poor compliance with smokefree policies in Korean bars in California [37]. Poor compliance of smokefree policies have also been documented in Korea and China. In Korea, which did not enact comprehensive smokefree public policies until 2011, smoking is still allowed in many public places including small restaurants and bars [13]. Between 2009–2013, almost half of Chinese provincial capitals enacted some smokefree policies, yet smoking is still allowed in many public places, including workplaces, restaurants and bars [14]. The current study's findings underscore the ongoing problems of inadequate smokefree policy enforcement.

These results should be interpreted with several limitations in mind. The data used in the current study were collected in 2002–2003. Since then, there have been significant declines in rates of tobacco use and increases in knowledge about smoking and SHS exposure.

However, tobacco use rates among men in China and Korea remain high [9,10], and US migration from China and Korea remains steady among non-students and is increasing among international students [44,45]. Because the data are based on self-report, they may be subject to recall bias. Furthermore, these were cross-sectional data and there were variations in the timeframe measured for different variables (e.g. assertive behaviour was assessed dichotomously for the past year, SHS exposure at home was queried as whether exposure “ever” occurs, SHS exposure at work was queried within the past two weeks, and SHS exposure in other locations was queried as whether exposure occurs “often”); therefore, temporal associations cannot be made to ascertain the impact of these cultural, community, family, and individual level variables on assertive behaviour.

The current study has several important implications for medicine and public health. The sample sizes for these studies are the largest to date for Chinese American and Korean American surveys of tobacco use in the US. Asian Americans are the fastest growing ethnic group in the United States [46], but national data on Asian Americans usually examine this heterogeneous population in aggregate and only include English-speaking participants [47,48]. Regional studies demonstrate that smoking and SHS exposure disproportionately affect some Asian American populations [15,49–51]. The richness of these data has yet to be fully realised and so these data are the most relevant and recent findings to date.

Our results demonstrate that although many Chinese and Korean American non-smokers are assertive towards smokers, a high proportion of SHS-exposed non-smokers are not. Education about the health harms of SHS exposure and assertive behaviour skills training can be helpful [15]. A randomised controlled trial in China demonstrated that educating non-smoking pregnant women about SHS exposure and improving assertive communication skills led to self-reported assertive action (i.e. asking smoker to quit or stop smoking in their presence) and lower SHS exposure [52]. Furthermore, interventions to promote household and other environmental smokefree policies (e.g. enforcement of smokefree policies in ethnic businesses) to encourage other assertive smokefree behaviours are needed. Given the importance of family relationships to Chinese, Korean and other cultures, emphasis on the harms of SHS to non-smoking family members, as well as the benefits of cessation to family harmony, may be one strategy to encourage tobacco use reduction or cessation [33,53]. Finally, promoting empowerment for Asian American non-smokers, specifically women and children, to take individual and collective assertive action is key [15]

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Table 1

Bivariate associations within individual, family, community, and cultural level variables and non-smokers' past-year assertive behaviour against SHS exposure in the California Chinese American Tobacco Use Survey and California Korean American Tobacco Use Survey (N=3923)

Variables	% reported past-year assertive behaviour	P
Individual level		
Age group		
18–24 (n=592)	48.0	0.128
25–44 (n=1486)	41.5	
45–64 (n=988)	42.2	
65+ (n=549)	37.3	
Gender		
Female (n=1789)	42.9	0.023
Male (n=2,134)	37.7	
Education level		
<High school (n=360)	38.8	0.005
High school, some college (n=1049)	48.2	
College and above (n=2473)	38.8	
Income		
<\$35K (n=2017)	40.8	0.013
\$35K–\$74.9k (n=885)	46.1	
≥75K (n=1021)	35.8	
Smoking status		
Never (n=3111)	40.5	0.634
Former (n=812)	41.8	
Tobacco exposure knowledge		
Strong (n=2881)	43.0	0.002
Fair (n=1042)	34.7	
Marital status		
Married (n=2430)	39.4	0.001
Widowed, divorced, separated (n=327)	33.5	
Single (n=1098)	47.6	
Family level		
Living with smokers		
Yes (n=517)	63.5	<0.001
No (n=3405)	36.2	
Living with children under age 18		
Yes (n=1727)	41.0	0.827
No (n=2187)	40.4	
SHS exposure at home		
Yes, with home smokefree rule (n=155)	62.3	
Yes, without home smokefree rule (n=299)	44.0	

Variables	% reported past-year assertive behaviour	<i>P</i>
No (n=3,450)	38.8	<0.001
Community level		
<i>SHS exposure at work</i>		
Yes, with work smokefree policy (n=233)	48.3	
Yes, without work smokefree policy (n=61)	67.6	
No (n=1,815)	39.5	0.004
<i>SHS exposure in other locations</i>		
Yes (n=1040)	52.3	
No (n=2855)	37.7	<0.001
Cultural level		
<i>Ethnicity</i>		
Chinese (n=1902)	34.5	
Korean (n=2021)	60.4	<0.001
<i>Acculturation</i>		
Assimilated (n=1032)	35.2	
Bilingual (n=1045)	39.2	
Traditional (n=1846)	42.8	0.041
<i>Years in US</i>		
Born in US (n=1177)	36.0	
>= 10 years (n=1843)	40.5	
<10 years (n=903)	43.0	0.118

SHS, second-hand smoke.

Multiple logistic regression model of non-smokers' past-year assertive behaviour against SHS exposure in the California Chinese American Tobacco Use Survey and California Korean American Tobacco Use Survey (N=3779).

Table 2

	Combined (n=3779)			Chinese (n=1819)			Korean (n=1960)		
	OR	95% CI	P	OR	95% CI	P	OR	95% CI	P
Individual level variables									
<i>Gender</i>									
Female	1.15	0.93, 1.42	0.210	1.21	0.92, 1.58	0.177	0.98	0.78, 1.23	0.872
Male	REF			REF			REF		
<i>Marital status</i>									
Widowed, divorced, separated	0.80	0.55, 1.15	0.226	0.68	0.39, 1.17	0.160	1.07	0.71, 1.62	0.736
Single	1.49	1.11, 2.01	0.008	1.49	1.05, 2.12	0.024	1.65	1.13, 2.41	0.010
Married	REF			REF			REF		
<i>Income</i>									
<\$35,000	1.06	0.80, 1.41	0.664	1.12	0.78, 1.59	0.547	0.93	0.68, 1.25	0.611
\$35,000–\$75,000	1.13	0.83, 1.54	0.452	1.13	0.76, 1.69	0.553	1.11	0.80, 1.54	0.541
<\$75,000	REF			REF			REF		
<i>Tobacco exposure knowledge</i>									
Strong	1.36	1.05, 1.74	0.018	1.38	1.00, 1.90	0.048	1.24	0.96, 1.60	0.106
Fair	REF			REF			REF		
Family level variables									
<i>Living with smokers</i>									
Yes	2.92	2.12, 4.02	<0.001	2.55	1.74, 3.76	<0.001	6.74	4.27, 10.63	<0.001
No	REF			REF			REF		
<i>Ever home exposure</i>									
Yes, with home smokefree rule	2.94	1.81, 4.75	<0.001	3.28	1.98, 5.42	<0.001	0.45	0.19, 1.06	0.067
Yes, without home smokefree rule	0.88	0.59, 1.31	0.530	0.92	0.57, 1.46	0.709	0.69	0.40, 1.19	0.184
No	REF			REF			REF		
Community Level Variables									
<i>Recent workplace exposure</i>									
Yes, with work smokefree policy	1.48	0.89, 2.45	0.134	1.35	0.73, 2.50	0.332	2.20	1.34, 3.61	0.002

	Combined (n=3779)			Chinese (n=1819)			Korean (n=1960)		
	OR	95% CI	P	OR	95% CI	P	OR	95% CI	P
Yes, without work smokefree policy	3.05	1.38, 6.71	0.006	3.36	1.36, 8.29	0.009	2.04	0.69, 6.06	0.200
No workplace	0.87	0.69, 1.10	0.247	0.91	0.67, 1.23	0.528	0.78	0.61, 1.00	0.048
No	REF			REF			REF		
<i>Often exposure in other locations</i>									
Yes	1.47	1.14, 1.90	0.003	1.42	1.00, 2.02	0.052	1.53	1.18, 1.98	0.001
No	REF			REF			REF		
Cultural Level Variables									
<i>Ethnicity</i>									
Korean	3.06	2.54, 3.69	<0.001	N/A			N/A		
Chinese	REF								
<i>Acculturation</i>									
Traditional	1.52	1.12, 2.07	0.008	1.17	0.81, 1.69	0.393	4.25	2.81, 6.43	<0.001
Bilingual	1.33	0.98, 1.80	0.069	1.17	0.82, 1.66	0.395	2.55	1.75, 3.73	<0.001
Assimilated	REF			REF			REF		

CI, confidence interval; OR, odds ratio; SHS, second-hand smoke.