

# Support for smoke-free policies among smokers and non-smokers in six cities in China: ITC China Survey

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Received 1 February 2009  
Accepted 1 July 2009  
Published Online First  
13 August 2009

## ABSTRACT

**Objective:** To examine levels of support for comprehensive smoke-free policies in six large Chinese cities.

**Methods:** Data from Wave 1 of the International Tobacco Control (ITC) China Survey (April–August 2006) were analysed. The ITC China Survey employed a multistage sampling design in Beijing, Shenyang, Shanghai, Changsha, Guangzhou and Yinchuan (none of which has comprehensive smoke-free policies in place). Face-to-face interviews were conducted with 4815 smokers and 1270 non-smokers. Multivariate logistic regression models were used to identify factors associated with support for comprehensive smoke-free policies.

**Results:** About one in two Chinese urban smokers and four in five non-smokers believed that secondhand smoke (SHS) causes lung cancer. The majority of respondents supported comprehensive smoke-free policies in hospitals, schools and public transport vehicles while support for smoke-free workplaces, restaurants and bars was lower. Levels of support were generally comparable between smokers and non-smokers. Support for comprehensive smoke-free policies was positively associated with knowledge about the harm of SHS. Respondents who worked in a smoke-free worksite or who frequented smoke-free indoor entertainment places were more likely to support comprehensive smoking restriction in bars and restaurants.

**Conclusion:** Considerable support for smoke-free policies exists in these six large cities in China. Greater public education about the dangers of SHS may further increase support. Experiencing the benefits of smoke-free indoor entertainment places and/or workplaces increases support for these policies and suggests that some initial smoke-free policy implementation may hasten the diffusion of these public health policies.

Secondhand smoke (SHS) exposure causes death, disease and disability.<sup>1</sup> In China, the biggest tobacco producer and consumer in the world, SHS is a serious public health problem. The 2002 China national epidemiological survey on smoking behaviour suggested that 51.9% of the Chinese non-smokers were exposed to SHS for at least 15 minutes daily for more than one day every week.<sup>2</sup> It was estimated that in 2002, more than 100 000 Chinese died from diseases associated with SHS exposure.<sup>3</sup>

Workplaces and public venues are common sources of SHS exposure; therefore, restricting smoking in these venues through smoke-free policies is an effective way to reduce SHS exposure and to protect health.<sup>4–6</sup> The World Health Organization Framework Convention on Tobacco Control (FCTC) requires ratifying countries, which China ratified in October 2005, to “adopt and

implement in areas of existing national jurisdiction as determined by national law and actively promote at other jurisdictional levels the adoption and implementation of effective legislative, executive, administrative and/or other measures, providing for protection from exposure to tobacco smoke in indoor workplaces, public transport, indoor public places and, as appropriate, other public places”. Studies suggest that to achieve the best SHS reductions the smoke-free policies must be comprehensive<sup>7</sup>—that is, all indoor workplaces and public places must be smoke-free without exception. In comparison, partial smoke-free policies that allow designated smoking areas or rooms do not offer adequate SHS protection. Today, 16 countries have comprehensive smoke-free indoor air laws at the national level; and some countries have substantial levels of comprehensive subnational smoke-free policies including Canada, Australia and the United States.<sup>7</sup>

China does not have a comprehensive smoke-free law at the national level. However, several national laws and policies regulate smoking in public places. For example, *Regulations on the Sanitary Administration of Public Places* bans smoking in gymnasiums, libraries, museums, art galleries, marketplaces, bookstores, public transport waiting rooms, trains, passenger liners and aeroplanes. *Law of the People's Republic of China on Tobacco Monopoly* “bans or restricts smoking in public transportation vehicles and public venues”. *Law of the Peoples Republic of China on the Protection of Minors* bans smoking in the classrooms, dorms and activity rooms of middle or primary schools, kindergartens and nurseries. No national level laws restrict smoking in workplaces, restaurants and bars, which are all common venues for SHS exposure. Although these national level laws are not comprehensive and not well enforced,<sup>8</sup> they were the first smoke-free laws in China and became the templates for subsequent local level smoke-free laws and policies. About half of the Chinese cities have city level smoke-free policies, although most of these policies are just mirroring the national level laws and the enforcement is limited.<sup>8,9</sup> Only a few cities' local laws are more stringent than the national laws. For example, Guangzhou's local smoke-free law bans smoking in workplaces and restaurants with air conditioning, which is beyond the scope of the national laws.

By ratifying the FCTC, China has agreed that all workplaces and public places should be smoke-free by 2011. Recently, efforts have been made in China to expand smoke-free places. At the national level, the central government is revising the *Regulations on the Sanitary Administration of Public Places*. At the

local level, many cities are also strengthening smoke-free policies. For example, in March 2008, Beijing released its new regulations on the scope of banning smoking in public places, which restrict smoking in workplaces though they are not comprehensive and designated smoking rooms are still allowed. In addition, the new regulations require restaurants to set up non-smoking areas, which makes Beijing the third city (along with Guangzhou and Shenzhen) in China that partially bans smoking in restaurants. Just like in the United States where the first smoke-free policies were incremental but they laid the framework for subsequently stronger policies, the new Beijing regulations are considered an important step towards the fulfilment of Article 8 of the FCTC and will lead the way for the rest of China.

Despite the progress being made, China is still far from 100% smoke-free in public venues and workplaces, though the deadline to fulfil the country's commitment to Article 8 in FCTC is very close. We expect that China will formulate stronger smoke-free policies in the coming years. Thus, to study China's attitudes towards smoke-free policies and factors associated with support for smoking bans is valuable and has important policy implications. Previous studies suggest that comprehensive smoke-free policies are popular,<sup>7, 10</sup> well complied with<sup>7, 11, 12</sup> and that support for smoke-free policies is associated with knowledge about the adverse health effects of SHS.<sup>11</sup> There is also evidence that public support for smoke-free policies increases after the smoke-free policies are implemented.<sup>13, 14</sup> However, all of these studies were conducted in Western countries with different cultural norms about smoking, and it is unclear if these findings will generalise to China, where one-third of the world smokers live.

The current study uses data from six cities in China to address three research questions: (1) what are the smoke-free policies in six large Chinese cities; (2) what percentage of smokers and non-smokers support comprehensive smoke-free policies in different public venues and workplaces; and (3) what factors are associated with support for comprehensive smoke-free policies?

## METHODS

### Participants

The ITC China Survey is a prospective cohort survey in six large cities in China: Beijing, Shanghai, Guangzhou, Shenyang, Changsha and Yinchuan. The Wave 1 survey was conducted between April and August 2006. About 800 smokers and 200 non-smokers were interviewed in each city for a total of 4815 smokers and 1270 non-smokers completing the Wave 1 survey across cities. Subsequent waves of data collection are being performed in this cohort, but for the purposes of this paper only data from the baseline 2006 survey are analysed.

In this paper, a smoker refers to a respondent who had smoked more than 100 cigarettes in lifetime and smoked at least weekly at recruitment, and a non-smoker refers to a respondent who had not smoked 100 cigarettes in lifetime or who didn't smoke weekly at recruitment.

### Sampling design

The six cities were selected based on their size, diverse geographic location and level of economic development (see fig 1). Table 1 shows the population size and the smoke-free policies in the six cities at the time the survey was conducted in 2006. The registered population in each city is 11 million in Beijing, 5 million in Shenyang, 13 million in Shanghai, 2 million



**Figure 1** The geographical distribution of the ITC China cities.

in Changsha, 6 million in Guangzhou and 1 million in Yinchuan.<sup>15</sup> In 2006, all the six cities had comprehensive or partial smoke-free policies for hospitals, conference rooms, public transportation vehicles and schools. However, for restaurants and workplaces, only Guangzhou had partial smoke-free policies (places with air conditioning are required to be smoke-free), and the other five cities had no restrictions on smoking in these two kinds of venues.

In each city, the ITC China Survey employed a multistage cluster sampling design where 10 street districts (Jie Dao) were randomly selected, with probability of selection proportionate to the population size of the Jie Dao. Within each of these Jie Dao, two residential blocks (Ju Wei Hui) were selected with probability proportionate to the population size of the Ju Wei Hui. Within each selected Ju Wei Hui, a complete list of addresses of the dwelling units (households) was compiled and a simple random sample without replacement of 300 households was drawn from the list to construct the sampling frame.

Each of these 300 households was visited to attempt to complete a survey(s), and information on age, gender and smoking status for all adults living in each household was collected. The enumerated 300 households were then randomly ordered, and adult smokers and non-smokers were then approached face to face following the randomised order until 40 adult smokers and 10 adult non-smokers were surveyed. Because of low smoking prevalence among women, one male smoker and one female smoker from every selected household were surveyed whenever possible to increase the sample size for women. At most one non-smoker was interviewed per household. Where there was more than one person in a sampling category to choose from in a household, the next birthday method was used to select the individual to be interviewed.

### Procedure

After providing the potential respondent with information about the survey they completed the consent form, the average time to complete a survey was 31.4 minutes for smokers and 10.6 for non-smokers, with respective interquartile ranges of approximately 10 minutes and 5 minutes, respectively.

Interviewers followed a strict protocol in their interview session with each respondent. Up to four visits to a household were made in order to interview the target person(s) within that

**Table 1** Population size and the smoking policies in different venues in the six cities in 2006

	Venues					
	Beijing	Shenyang	Shanghai	Changsha	Guangzhou	Yinchuan
Registered population (million people)	11	5	13	2	6	1
<b>Smoking policy</b>						
Hospitals	Partial ban	Partial ban	Partial ban	Partial ban	Partial ban	Partial ban
Workplaces	No rules	No rules	No rules	No rules	Partial ban	No rules
Conference rooms	Total ban	Partial ban	Total ban	Total ban	Partial ban	Total ban
Restaurants or bars	No rules	No rules	No rules	No rules	Partial ban	No rules
Bars	No rules	No rules	No rules	No rules	No rules	No rules
Public transportation vehicles	Total ban	Total ban	Total ban	Partial ban	Partial ban	Total ban
Schools	Partial ban	Partial ban	Partial ban	Partial ban	Partial ban	Partial ban

household. The Wave 1 cooperation rates, defined as the proportion of all respondents interviewed of all eligible subjects ever contacted, ranged from approximately 80% in Beijing and Guangzhou to 95% in Changsha. The response rates, defined as the proportion of all cases interviewed of all subjects that we tried to reach, ranged from 39.4% in Yinchuan to 66.0% in Guangzhou. All materials and procedures used in the ITC China Survey were reviewed and cleared for ethics by the research ethics board at the University of Waterloo and by the institutional review boards at the China National Centers for Disease Control and Prevention.

To understand the current smoke-free law in each city, during the field work we collected the local smoke-free law in each city. These laws were reviewed to address the first research question.

**Measures**

The dependent variable in this study is support for comprehensive smoke-free policies in various public places. In the survey, respondents were asked, “for each of the following public places, please tell me if you think smoking should not be allowed in any indoor areas, should be allowed only in some indoor areas, or no rules or restrictions.” Venues being asked include hospitals, workplaces, conference rooms, restaurants or bars, public transportation vehicles, and schools.

The major independent variables and control in this study include:

- ▶ City (Beijing, Shenyang, Shanghai, Changsha, Guangzhou, Yinchuan)
- ▶ Gender (male, female)
- ▶ Age (18–34 years, 35–44 years, 45–54 years, 55 years or older).
- ▶ Highest level of education (low = no education or elementary school, medium = junior high school or high school/technical high school, high = college, university or higher)
- ▶ Household income per month (low: <1000 yuan per month, medium: 1000 yuan to 2999 yuan, high: >3000 yuan, don't know/cannot say)
- ▶ Ethnicity (Han, others)
- ▶ Whether respondents believe that “smoking causes lung cancer in non-smokers from second hand smoke” (yes, no)
- ▶ Self-reported smoking rules at workplaces: In the survey respondents were asked, “Which of the following best describes the smoking policy where you work?” Response options include smoking is not allowed in any indoor areas, smoking is allowed only in some indoor areas, no rules or restrictions, and others.
- ▶ Self-reported smoking rules in indoor entertainment places that the respondents go most often: In the survey respondents were asked, “Which of the following best

describes the rules about smoking in indoor entertainment places such as restaurants, coffee shops, and karaoke lounges that you go most often?” Response options include smoking is not allowed in any indoor areas, smoking is allowed only in some indoor areas, no rules or restrictions, and others.

- ▶ Cigarettes smoked per day (1–10, 11–20, 21–30, 31+, only used in the analysis of smokers)

**Weighting procedures**

Sampling weights were constructed to provide the best possible prevalence estimates. The weights were constructed separately for male adult smokers, female adult smokers, and adult non-smokers.

**Table 2** Sample characteristic, belief about the harm of secondhand smoke (SHS) of the ITC China baseline respondents

	Smokers	Non-smokers
	No (%)	No (%)
<b>City</b>		
Beijing	804 (16.7)	219 (17.2)
Shenyang	801 (16.6)	200 (15.8)
Shanghai	801 (16.6)	204 (16.1)
Changsha	803 (16.7)	205 (16.1)
Guangzhou	804 (16.7)	227 (17.9)
Yinchuan	802 (16.7)	215 (16.9)
<b>Gender</b>		
Male	4570 (94.9)	528 (41.6)
Female	245 (5.1)	742 (58.4)
<b>Age (years)</b>		
18–34	473 (9.9)	201 (15.9)
35–44	1162 (24.2)	264 (20.8)
45–54	1648 (34.3)	355 (28.0)
55 or older	1519 (31.6)	448 (35.3)
<b>Ethnic group</b>		
Han	4575 (95.0)	1192 (93.9)
Others	240 (5.0)	78 (6.1)
<b>Highest education</b>		
Low	629 (13.1)	152 (12.0)
Middle	3147 (65.5)	752 (59.2)
High	1032 (21.5)	366 (28.8)
<b>Household income</b>		
Low	942 (19.6)	238 (19.0)
Middle	2158 (44.9)	595 (47.6)
High	1361 (28.3)	343 (27.4)
Don't know	350 (7.3)	75 (6.0)
<b>Believe smoking causes lung cancer in non-smokers from SHS</b>		
No/don't know	2231 (46.4)	236 (18.6)
Yes	2577 (53.6)	1032 (81.4)
<b>Total</b>	4815	1270

Numbers are unweighted results.

Wave 1 weights were constructed by taking into account the four levels of sample selection: Jie Dao, Ju Wei Hui, household and individual. The final weight for a sampled individual was the number of people in the city population and the sampling category represented by that individual. A full description of the weighting methodology is available at <http://www.itcproject.org>. All results reported in this paper are weighted statistics unless otherwise noted.

### Statistical analyses

SPSS for Windows version 13.0 was used for all analyses. The percentages of respondents who support comprehensive smoke-free policies in different venues were computed. Multivariate logistic regression models were developed to examine factors associated with comprehensive smoke-free policies. The analyses were conducted with the SPSS complex samples module to account for the possible nested effects within cities. All the analyses were stratified by smoking status.

### RESULTS

Table 2 describes the sample characteristics and the belief about the adverse health effects of SHS. The majority (94.9%) of the smoking respondents are male, but among non-smokers, females represented a majority of the sample. More than 30% of the study respondents were aged 55 years or older. Over 90% of both non-smokers and smokers belonged to the Han ethnic group. A key group difference was noted for knowledge of SHS effects—53.6% of the smokers and 81.4% of the non-smokers endorsed the belief that SHS causes lung cancer in non-smokers.

Figure 2 shows the percentages of support for comprehensive smoke-free policies in different venues among smokers and non-smokers. Smokers' support is highest for public transportation vehicles (93.6%) and schools (93.5%), followed by hospitals (73.7%), conference rooms (73.4%), workplaces (42.8%) and restaurants or bars (21.3%). Non-smokers' support tends to be higher than smokers, but shows similar patterns.

Tables 3 and 4 show the results of logistic regression models predicting support for total smoking bans in workplaces (table 3) and restaurants/bars (table 4), the two venues with the lowest support level for total smoking ban. Several factors were associated with support for total ban in both venues. For example, knowledge about the adverse health effects of SHS

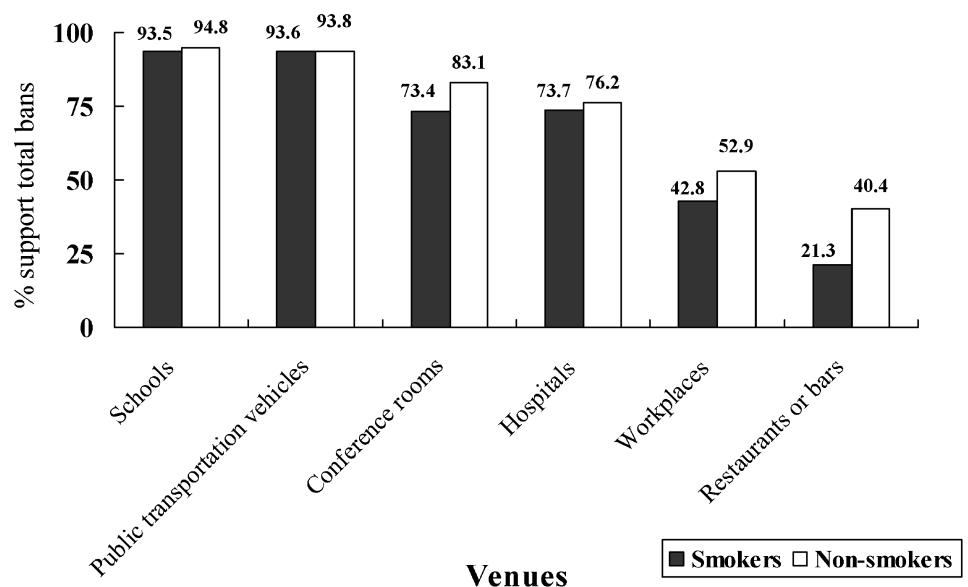
was positively associated with smokers' support for total ban in both venues and non-smokers' support for total ban in restaurants/bars. Older and lighter smokers were more likely to support smoke-free policies in these two venues compared with younger and heavier smokers. Self-reported smoking rules at workplaces were associated with support for total ban at workplaces among both smokers and non-smokers. Compared to respondents who work at places without restrictions on smoking, those who work at places with total a smoking ban were more likely to support total ban. Similarly, self-reported smoking rules in indoor entertainment places that the respondents go to most often were also associated with support for a total ban in restaurants and bars among smokers. Respondents who went to indoor entertainment venues with total smoking bans were more likely to support total ban in restaurants or bars. Several factors differed in terms of the association with support for total ban in the two venues. Female smokers were more likely to support total smoking ban in workplaces, but this association only showed borderline significance for restaurants or bars (OR = 1.61, 95% CI 0.99 to 2.59). With regard to the differences between cities, smokers and non-smokers in Yinchuan were more likely to support a total ban in workplaces than those in Beijing; while for restaurants or bars, smokers in Shenyang and non-smokers in Guangzhou were more likely to support total ban compared to those in Beijing.

### DISCUSSION

This study is the first to examine the support for smoke-free policies in different venues among urban residents in China. The major findings of the current study include: (1) in the six cities, support for total smoking ban in schools, public transportation vehicles, hospitals, and conference rooms was relatively high among both smokers and non-smokers, while support for a total ban in workplaces, restaurants and bars was present in a sizeable minority of respondents; (2) knowledge about the adverse health effects of SHS and the presence existing smoke-free policies was associated with increased support for a total smoking ban in workplaces, restaurants and bars.

Studies in other countries suggest that support for bans was strongest for those with bans already in place.<sup>11</sup> In other words,

**Figure 2** Support for total smoking bans in different venues among smokers and non-smokers in six cities in China. Notes: National level smoke-free laws are in place for schools, public transportation vehicles, conference rooms and hospitals. No national laws restrict smoking in workplaces, restaurants and bars. According to the local smoke-free laws in the six cities, smoking is allowed in workplaces, restaurants and bars except that Guangzhou bans smoking in workplaces and restaurants with air conditioning.





**Table 3** Results of multivariate logistic regression models predicting support for total smoking ban at workplaces

	Smokers		Non-smokers	
	% support total ban	OR (95% CI)	% support total ban	OR (95% CI)
<b>City</b>				
Beijing	44.3	Referent	52.0	Referent
Shenyang	45.7	1.11 (0.73 to 1.71)	52.4	1.05 (0.58 to 1.92)
Shanghai	35.0	0.65 (0.48 to 0.88)	49.5	0.82 (0.47 to 1.43)
Changsha	36.5	0.78 (0.52 to 1.18)	44.9	0.69 (0.41 to 1.16)
Guangzhou	40.2	0.81 (0.59 to 1.10)	53.8	1.08 (0.61 to 1.91)
Yinchuan	55.4	1.90 (1.32 to 2.74)	64.3	1.78 (1.00 to 3.18)
<b>Gender</b>				
Male	42.0	Referent	51.2	Referent
Female	62.6	2.20 (1.34 to 3.60)	54.3	1.22 (0.93 to 1.62)
<b>Age (years)</b>				
18–34	36.0	Referent	50.6	Referent
35–44	39.1	1.23 (0.93 to 1.64)	56.5	1.06 (0.67 to 1.69)
45–54	44.0	1.64 (1.20 to 2.26)	47.8	0.82 (0.49 to 1.37)
55 or older	46.8	1.88 (1.42 to 2.50)	55.7	1.13 (0.67 to 1.91)
<b>Ethnic group</b>				
Han	42.9	Referent	52.7	Referent
Others	40.2	0.61 (0.41 to 0.92)	55.6	0.77 (0.41 to 1.46)
<b>Highest education</b>				
Low	47.4	Referent	59.3	Referent
Medium	42.6	1.01 (0.77 to 1.32)	52.0	0.86 (0.54 to 1.37)
High	40.5	0.91 (0.65 to 1.28)	52.2	0.85 (0.50 to 1.46)
<b>Household income</b>				
Low	45.4	Referent	54.3	Referent
Medium	42.5	0.92 (0.74 to 1.15)	52.9	0.92 (0.61 to 1.39)
High	41.5	1.03 (0.78 to 1.34)	52.1	0.94 (0.57 to 1.57)
Don't know	43.6	1.11 (0.78 to 1.58)	55.1	0.94 (0.42 to 2.11)
<b>Believe smoking causes lung cancer in non-smokers from SHS</b>				
No/don't know	39.9	Referent	53.0	Referent
Yes	45.2	1.27 (1.09 to 1.49)	52.8	0.93 (0.66 to 1.31)
<b>Self-reported smoking rules at workplaces</b>				
No rules or restrictions	36.2	Referent	39.4	Referent
Smoking is allowed only in some indoor areas	31.3	0.89 (0.65 to 1.22)	37.3	0.87 (0.45 to 1.70)
Smoking is not allowed in any indoor areas	61.1	3.10 (2.23 to 4.29)	69.3	3.60 (2.23 to 5.82)
Others	43.5	1.32 (1.03 to 1.70)	53.6	1.68 (1.01 to 2.79)
<b>Number of cigarettes smoked per day</b>				
1–10	46.1	Referent	Not included in the model	
11–20	42.0	0.95 (0.76 to 1.17)		
21–30	35.6	0.75 (0.56 to 0.99)		
31 or more	39.4	0.91 (0.65 to 1.28)		

SHS, secondhand smoke.

despite some initial scepticism among the public, once they experience the benefits of smoke-free places they grow to adapt and support these policies. Two findings of the current study add evidence to this. First, we found that support for total smoking ban was high for venues covered by smoke-free policies in most cities, such as schools, public transportation vehicles, hospitals and conference rooms; in comparison, for workplaces, restaurants and bars where most cities had no restrictions on smoking, support for total ban was lower. Second, we found that if respondents' workplaces or the indoor entertainment places that the respondents go most often had total smoking bans in place, they would be more likely to support total ban in these venues. These findings, combined with previous study

results, suggest that comprehensive smoke-free policies grow in their popularity over time. Once implemented, smoke-free policies are likely to get extensive support from the public, even if the policy didn't get high levels of public support before it was implemented. For example, before Ireland made the national level comprehensive smoke-free law in 2004, support for total smoking ban in bars among Irish smokers was only 13%; while one year after the law was enforced, the number increased to 46%.<sup>13</sup> In this study, 21.3% of the smokers in the six cities support total smoking ban in restaurants or bars (much higher than support among Irish smokers before the Ireland smoke-free policy). Therefore, although this study shows that support for total smoking ban in workplaces, restaurants and

**Table 4** Results of multivariate logistic regression models predicting support for total smoking ban in restaurants or bars

	Smokers		Non-smokers	
	% support total ban	OR (95% CI)	% support total ban	OR (95% CI)
<b>City</b>				
Beijing	24.5	Referent	33.8	Referent
Shenyang	27.6	1.37 (1.01 to 1.86)	32.6	1.09 (0.65 to 1.83)
Shanghai	15.7	0.73 (0.50 to 1.06)	48.5	1.88 (0.94 to 3.76)
Changsha	20.6	0.99 (0.67 to 1.46)	37.0	1.47 (0.90 to 2.42)
Guangzhou	20.2	0.94 (0.67 to 1.32)	49.0	2.20 (1.23 to 3.96)
Yinchuan	19.3	0.93 (0.66 to 1.32)	41.3	1.52 (0.86 to 2.67)
<b>Gender</b>				
Male	20.7	Referent	42.2	Referent
Female	37.6	1.61 (0.99 to 2.59)	38.9	0.90 (0.68 to 1.18)
<b>Age (years)</b>				
18–34	14.6	Referent	27.2	Referent
35–44	20.0	1.46 (0.95 to 2.25)	36.5	1.62 (0.93 to 2.81)
45–54	20.5	1.55 (1.06 to 2.26)	39.5	1.83 (1.08 to 3.09)
55 or older	25.8	1.85 (1.19 to 2.90)	48.4	2.33 (1.41 to 3.86)
<b>Ethnic group</b>				
Han	21.2	Referent	40.8	Referent
Others	23.2	1.05 (0.62 to 1.78)	32.9	0.63 (0.33 to 1.24)
<b>Highest education</b>				
Low	27.4	Referent	43.5	Referent
Medium	21.2	0.85 (0.61 to 1.18)	41.2	1.11 (0.67 to 1.86)
High	18.5	0.70 (0.44 to 1.13)	38.0	1.15 (0.62 to 2.14)
<b>Household income</b>				
Low	22.7	Referent	41.7	Referent
Medium	22.5	0.99 (0.77 to 1.29)	39.2	0.89 (0.58 to 1.36)
High	18.8	0.94 (0.63 to 1.39)	44.4	1.03 (0.62 to 1.69)
Don't know	20.2	1.01 (0.69 to 1.49)	34.9	0.65 (0.31 to 1.36)
<b>Believe smoking causes lung cancer in non-smokers from SHS</b>				
No/don't know	17.3	Referent	32.8	Referent
Yes	24.6	1.56 (1.18 to 2.06)	42.0	1.60 (1.11 to 2.31)
<b>Self-reported smoking rules in indoor entertainment places that the respondents go most often</b>				
No rules or restrictions	15.5	Referent	32.2	Referent
Smoking is allowed only in some indoor areas	21.9	1.56 (1.18 to 2.07)	33.0	1.05 (0.68 to 1.62)
Smoking is not allowed in any indoor areas	39.6	3.23 (2.25 to 4.64)	61.6	3.05 (2.04 to 4.57)
Others	27.4	1.82 (1.43 to 2.30)	47.8	1.98 (1.31 to 3.00)
<b>Number of cigarettes smoked per day</b>				
1–10	25.6	Referent	Not included in the model	
11–20	19.7	0.76 (0.63 to 0.92)		
21–30	15.7	0.56 (0.38 to 0.84)		
31 or more	19.4	0.80 (0.54 to 1.17)		

SHS, secondhand smoke.

bars was relatively low among urban residents in China, it does not necessarily mean that China cannot enforce comprehensive smoke-free policies in these venues. On the contrary, the results of this study suggest that, like smokers in other countries, Chinese smokers are likely to adapt to and even eventually support smoking bans.

Knowledge about the adverse health effects of SHS is associated with support for total smoking ban in workplaces, restaurants or bars. This is consistent with previous studies.<sup>11</sup> In the present study, only 53% of the smokers knew that SHS causes lung cancer, which is lower than in Western countries. For example, in the ITC four-country survey conducted in 2002,

this statistics was 76.9% in Canada, 82.6% in the United States, 82.2% in United Kingdom and 72.1% in Australia. There is still room to increase Chinese urban smokers' knowledge level about the health harm of SHS. We should educate the public knowledge about SHS as this may increase public support for smoke-free policies.

Differences between cities do not show a consistent pattern. One might have predicted that the highest levels of support for smoke-free bars and restaurants to be found in Guangzhou, where partial smoking restrictions were in place at the time the survey was conducted; however, this association was only observed among non-smokers. This may be attributed to the

weak nature of the Guangzhou smoke-free policy. The Guangzhou smoke-free law is not comprehensive and exceptions are allowed in restaurants, and the enforcement of the law is also limited.<sup>9</sup> Such a policy may only have very limited effects. Therefore, the Guangzhou public doesn't truly experience a complete smoke-free environment. This finding indicates that a partial smoking ban may be ineffective and not as popular as comprehensive smoke-free laws in other countries.

We found some age and gender differences in this study. Generally, older people were more likely to support smoke-free policies in workplaces, restaurants or bars, a finding consistent with previous studies. Female smokers were more likely to support total smoking ban in workplaces, restaurants or bars, which is inconsistent with findings by Borland *et al.*<sup>11</sup> One possible interpretation is the cultural differences between China and Western countries. However, because the number of female smokers is very small in this study, further studies with larger sample size of female smokers are needed to verify this finding. Heavier smokers are less likely to support comprehensive smoke-free policies. Future research is needed from longitudinal samples to determine whether the support for smoke-free policies in these population changes over time and what factors drive those changes.

The strengths of the current study include a large sample size, a representative sample of smokers and non-smokers in each city, and the multi-city design which allows us to do comparisons among cities. There are several limitations in the study. First, the study was conducted in only six Chinese cities. The study sample is not representative of the whole Chinese population, and the results cannot be generalised to the national level. The rural population, which represents 54.3% of the total population in China, was not examined in this study. Perhaps a similar study conducted in rural areas of China can help address this limitation. Second, because older people were more likely to be at home and to cooperate with the investigation, this study slightly oversampled older respondents, which may result in biased estimates. However, the weighting procedure used in the analyses may help reduce the bias. Third, because of the cross sectional feature of the baseline data, this study is not able to make causal links. Fourth, the cooperation rate and the response rate vary among cities. The reason might be the differences in culture and economic levels. It is not clear whether and how those who refused to participate in the study differ from those who completed the survey, and this may generate bias in the results. Lastly, there are minor differences among surveys in different countries, which made some comparison among countries hard to do. For example, the ITC China Survey asked for respondents' attitudes towards smoking ban in "restaurants or bars", while the ITC surveys in other countries asked about restaurants and bars separately.

## CONCLUSION

Considerable support for smoke-free policies was observed in six cities in China. The current study suggests that smoke-free policies are popular. Once smoke-free policies are implemented, both smokers and non-smokers adapt and support these policies. The level of public knowledge about the adverse health effects of SHS was associated with support for smoke-free policies. The opportunity is ripe for public education to further boost awareness of SHS and support for smoke-free policies in China.

**Acknowledgements:** The authors would like to acknowledge the Chinese Center for Disease Control and Prevention and the local CDC representatives in each city for their role in data collection.

**Funding:** The ITC China Project was supported by grants from the US National Cancer Institute (R01 CA125116 and the Roswell Park Transdisciplinary Tobacco Use Research Center (P50 CA111236)), Canadian Institutes of Health Research (79551), Chinese Center for Disease Control and Prevention and the Ontario Institute for Cancer Research.

**Competing interests:** None.

**Provenance and peer review:** Not commissioned; externally peer reviewed.

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# 中国六城市吸烟者和非吸烟者对无烟政策的支持情况：ITC中国调查

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## 收稿日期:

2009年2月1日

## 接受日期:

2009年7月1日

## 网上首发日期:

2009年8月13日

## 摘要

**目的:** 探讨中国六个大城市对于全面无烟政策的支持情况。

**方法:** 对国际烟草控制 (ITC) 中国调查 (2006年4-8月) 第一轮调查数据进行分析。ITC中国调查采用多阶段抽样设计对北京、沈阳、上海、长沙、广州和银川六座城市进行抽样 (各城市均没有全面无烟政策)。第一轮调查共对4815名吸烟者和1270名非吸烟者进行了面对面访谈。本研究采用多元Logistic回归模型确定与支持全面无烟政策相关的因素。

**结果:** 中国城市居民吸烟者当中约有一半, 非吸烟者中约有五分之四认为二手烟会导致肺癌。大多数调查对象支持在医院、学校和公共交通工具上采取全面无烟政策, 而支持工作场所、餐厅和酒吧全面无烟的比例相对较低。吸烟者和非吸烟者之间的支持比例总体相近。对全面无烟政策的支持与关于二手烟危害的知识水平呈正相关。在无烟工作环境工作或者光顾过无烟室内娱乐场所的调查对象更倾向于支持在酒吧和餐厅全面禁烟。

**结论:** 这六个中国城市民众对于无烟政策的支持度都很高。加强对于二手烟危害的公共教育可以进一步提高这种支持。体验过无烟室内娱乐场所和/或工作场所好处的人对这类政策的支持度增加, 这暗示初步实施一些无烟政策可能会加快这些卫生政策的推广。

二手烟暴露可以导致死亡、疾病和残疾。<sup>1</sup> 中国是世界上最大的烟草生产国和消费国, 二手烟是一个严重的公共卫生问题。2002年中国全国吸烟行为流行病学调查结果显示, 51.9%的非吸烟者每周至少有一天暴露于二手烟超过15分钟。<sup>2</sup> 据估计, 2002年超过10万中国人死于二手烟暴露相关疾病。<sup>3</sup>

工作场所和公共场所是二手烟暴露经常发生的地点, 因此, 通过无烟政策限制在这些场所吸烟是减少二手烟暴露, 保护人们健康的一种有效手段。<sup>4,6</sup> 中国于2005年10月正式通过了世界卫生组织《烟草控制框架公约》(以下简称《公约》), 该公约要求各缔约国“每一缔约方应在国家法律规定的现有国家管辖范围内采取和实行, 并在其他司法管辖权限内积极促进采取和实行有效的立法、实施、行政和/或其

他措施, 以防止在室内工作场所、公共交通工具、室内公共场所, 适当时, 包括其他公共场所接触烟草烟雾。”多项研究表明, 要最大限度降低二手烟暴露, 必须采用全面的无烟政策,<sup>7</sup>即所有室内工作场所和公共场所都必须无例外地实现无烟化。与此相对的是, 部分无烟政策允许设置指定吸烟区或吸烟室, 这种政策无法提供充分的二手烟保护。目前, 全世界已经有16个国家建立了全国性的全面无烟法, 其他一些国家制定了相当水平的地区性全面无烟法, 譬如加拿大、澳大利亚和美国等国。<sup>7</sup>

中国目前还没有全国性的无烟法, 但是现有法律和政策当中有多项涉及对公共场所吸烟的管制。如《公共场所卫生管理条例》禁止在体育馆、图书馆、博物馆、艺术馆、超市、书店、公共交通等候室、火车、客轮和飞机内吸烟。《中华人民共和国烟草专卖法》“禁止或者限制在公共交通工具和公共场所吸烟”。

《中华人民共和国未成年人保护法》禁止在中小学、幼儿园和托儿所的教室、寝室和活动室内吸烟。目前尚没有全国性的法律限制在工作场所、餐厅和酒吧等二手烟常见场所内吸烟。尽管这些全国性的法律法规尚不全面, 同时在执行上也不到位,<sup>8</sup>但它们是中国的第一批无烟法, 并成为之后各地无烟法和政策的参考模板。中国大约有一半的城市都已经具备了市级的无烟政策, 尽管这些政策大都只是照搬国家级法律法规, 同时其执行水平也有限。<sup>8,9</sup> 仅有个别城市的当地法律严格程度超越了全国法律法规。例如, 广州市的无烟法禁止在安装有空调的工作场所和餐厅吸烟, 这超过了全国性法律法规规定的范畴。

中国批准了《公约》, 这就表示中国同意在2011年前使所有工作场所和公共场所无烟化。近年来, 中国采取了一系列措施扩大无烟场所的范围。在全国水平上, 中央政府正在对《公共场所卫生管理条例》进行修订。在地方层面上, 很多城市也正在加强各自的无烟政策。例如, 2008年3月, 北京发布了新的公共场所禁止吸烟范围规定, 禁止在工作场所吸烟——但该规定仍然不够全面, 并依然允许设置指定的吸烟室。另外, 新规定要求餐厅设置非吸烟区, 这使北京成为继广州和深圳之后中国第三个在餐厅实施部分禁烟政策的城市。同美国的经验一样, 最初的无烟政策并不完善, 但是它们为后面更加有力的政策奠定了基础, 因此, 北京的新规定被认为是为实现《公约》第8条迈出的重要一步, 为中国其他地区开了先河。

## 6 解锁

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尽管取得了一定成绩，但是中国距离公共场所和工作场所的完全无烟化目标尚有很大的距离，而距离履行《公约》第8条义务的最后期限也已经非常近了。我们期望看到中国在未来几年时间内能够出台更加有力的政策。因此，研究中国公众对于无烟政策的态度和其影响因素，具有十分重要的价值和政策意义。既往研究结果显示，无烟政策是受欢迎的，<sup>7 10</sup>可以得到很好的遵守，<sup>7 11 12</sup>，同时对于无烟政策的支持程度与人们对二手烟危害的认识水平有关。<sup>11</sup>同时，证据还显示，公众对于无烟政策的支持在政策实施之后还会继续提高。<sup>13 14</sup>然而，所有这些研究都是在西方国家开展的，这些国家对于吸烟有着不同的文化背景，因此我们并不能肯定这些研究的结果可以推广到中国这个拥有世界三分之一吸烟人口的国家。

本次研究采用了中国六个城市的数据，探讨三个问题：

(1) 这六大城市有哪些无烟政策？(2) 吸烟者和非吸烟者对不同公共场所和工作场所实施全面无烟政策的支持比例分别有多大？(3) 与支持全面无烟政策有关的因素包括哪些？

## 方法

### 调查对象

ITC中国调查是一项覆盖中国六个城市的前瞻性人群调查，包括北京、上海、广州、沈阳、长沙和银川，第一轮调查时间为2006年4月至8月。每个城市调查了约800名吸烟者和200名非吸烟者，六个城市共调查了4815名吸烟者和1270名非吸烟者。目前正在对这一人群进行随访研究。本文仅使用2006年基线调查数据进行相关分析。

在本文中，吸烟者是指吸烟超过100支且在被调查时至少每周吸烟的调查对象，非吸烟者是指吸烟不超过100支且在被调查时不是每周都吸烟或不吸烟的调查对象。

### 抽样设计

六个城市按照其规模、地理位置和经济发展水平为标准进行选择（见图1）。表1是六城市2006年调查时的人口数量和无烟政策情况。各城市户籍人口数分别为：北京1100万，沈阳500万，上海1300万，长沙200万，广州600万，银川100

图1. ITC中国项目城市的地理分布



万。<sup>15</sup> 2006年六城市都已经具有了针对医院、会议室、公共交通工具和学校的全面或者部分无烟政策。不过，其中仅有广州一个城市具有针对餐厅和工作场所的部分无烟政策（安装有空调的此类场所要求无烟化），其他五城市对于这两种场所没有限制吸烟的规定。

ITC中国调查采取多阶段整群抽样设计，在每个城市随机选取10个街道，入选概率与各街道的人口数量成正比。在每个街道抽取两个居委会，入选概率与各居委会的人口数量成正比。对每个居委会首先编制一份完整的家庭住址清单，然后从清单上使用不放回简单随机抽样法抽取300户家庭作为调查样本。

对这300户家庭进行访问，收集每个家庭所有成年人的年龄、性别和吸烟状况信息。经点算后的300户家庭再按照随机顺序，对其中的成年吸烟者和非吸烟者进行面对面访谈，直到完成对40名成年吸烟者和10名成年非吸烟者的调查。由于女性的吸烟率较低，因此只要有条件，则对一户家庭访谈1名男性吸烟者和1名女性吸烟者，以便提高女性的样本量。每户家庭最多调查1名非吸烟者。如果一户家庭同一采样类别下不止一名合格的调查对象，则采用下次生日法选择访谈对象。

表1: 2006年六城市人口规模和不同场所的禁烟政策

	场所					
	北京	沈阳	上海	长沙	广州	银川
户籍人口（百万）	11	5	13	2	6	1
<b>吸烟相关政策</b>						
医院	部分禁烟	部分禁烟	部分禁烟	部分禁烟	部分禁烟	部分禁烟
工作场所	没有规定	没有规定	没有规定	没有规定	部分禁烟	没有规定
会议室	全面禁烟	部分禁烟	全面禁烟	全面禁烟	部分禁烟	全面禁烟
餐厅	没有规定	没有规定	没有规定	没有规定	部分禁烟	没有规定
酒吧	没有规定	没有规定	没有规定	没有规定	没有规定	没有规定
公共交通工具	全面禁烟	全面禁烟	全面禁烟	部分禁烟	部分禁烟	全面禁烟
学校	部分禁烟	部分禁烟	部分禁烟	部分禁烟	部分禁烟	部分禁烟

程序

在对可能的调查对象讲解关于调查的基本情况之后，调查人员会请调查对象填写一份知情同意书，整个调查过程平均耗时为吸烟者31.4分钟，非吸烟者10.6分钟，四分位区间分别约为10分钟和5分钟。

访谈人员在对每位调查对象的访谈过程中都会遵循严格的调查程序。对每个家庭最多要进行4次家庭访问以便调查到目标调查对象。第一轮调查的合作率（所有受访调查对象占全部联系到的合格调查对象的比例）从北京、广州的约80%到长沙的95%。应答率（所有尝试联系的调查对象当中接受访谈的对象的比例）从银川的39.4%到广州的66.0%。ITC中国调查所使用的所有材料和程序均经过了滑铁卢大学科研伦理委员会和中国疾病预防控制中心机构评审委员会的伦理学审批。

为了解调查时各城市的无烟政策，我们收集了个城市的无烟政策文本。通过文献回顾法解决第一个研究问题。

变量指标

本次研究的因变量是对各种公共场所全面无烟政策的支持情况。在调查中，调查对象被问及：“在下面的每一个公共场所，你认为应该有怎样的禁烟规定？不能在室内任何区域吸烟，只能在室内某些区域吸烟，还是没有规定或限制？”其中涉及的场所包括医院、办公室、会议室、餐厅或酒吧、公共交通工具，以及学校。

研究当中的主要自变量和控制变量包括：

- ▶ 城市（北京、沈阳、上海、长沙、广州、银川）。
- ▶ 性别（男性、女性）。
- ▶ 年龄（18-34岁、35-44岁、45-54岁、55岁及以上）。
- ▶ 最高教育水平（低=未受教育或小学；中=初中或高中/职业高中；高=大学或以上）。
- ▶ 家庭月收入（低：每月<1000元；中：每月1000-2999元；高：每月3000元及以上；不知道/无法回答）。
- ▶ 民族（汉族、其它）。
- ▶ 调查对象是否认为“吸烟可导致非吸烟者由于二手烟患肺癌”（是、否）。
- ▶ 自报工作场所吸烟规定：调查中调查对象被问及：“下面哪一项最恰当地描述了你的工作场所关于吸烟的规定？”答案选项包括“不能在室内任何区域吸烟”，“只能在室内某些区域吸烟”，“没有规定或限制”，及“其它”。自报最常光顾的室内娱乐场所的吸烟规定：调查中调查对象被问及：“下面哪一项最恰当地描述了你最常去的室内娱乐场所的吸烟规定？如：饭店、咖啡厅、歌厅等。”答案选项包括“不能在室内任何区域吸烟”，“只能在室内某些区域吸烟”，“没有规定或限制”，及“其它”。
- ▶ 每日吸烟支数（1-10支、11-20支、21-30支、30支以上，仅用于对吸烟者的分析）。

表2：ITC中国基线调查对象样本特征和对二手烟危害的认识

	吸烟者		非吸烟者	
	N	%	N	%
<b>城市</b>				
北京	804	16.7	219	17.2
沈阳	801	16.6	200	15.8
上海	801	16.6	204	16.1
长沙	803	16.7	205	16.1
广州	804	16.7	227	17.9
银川	802	16.7	215	16.9
<b>性别</b>				
男性	4570	94.9	528	41.6
女性	245	5.1	742	58.4
<b>年龄</b>				
18-34	473	9.9	201	15.9
35-44	1162	24.2	264	20.8
45-54	1648	34.3	355	28.0
55 or older	1519	31.6	448	35.3
<b>民族</b>				
汉族	4575	95.0	1192	93.9
其他	240	5.0	78	6.1
<b>教育</b>				
低	629	13.1	152	12.0
中	3147	65.5	752	59.2
高	1032	21.5	366	28.8
<b>家庭收入</b>				
低	942	19.6	238	19.0
中	2158	44.9	595	47.6
高	1361	28.3	343	27.4
知道/拒绝回答	350	7.3	75	6.0
<b>是否认为二手烟可导致非吸烟者患肺癌</b>				
否/不知道	2231	46.4	236	18.6
是	2577	53.6	1032	81.4
<b>合计</b>	<b>4815</b>		<b>1270</b>	

数据为非加权数据

加权程序

构建抽样权重以尽可能准确地做出率的估计。对成年男性吸烟者、成年女性吸烟者和成年非吸烟者分别构建权重。第一轮调查权重的构建考虑了四个抽样层面：街道、居委会、家庭和个人。每个被抽中的调查对象最终的权重为该个人代表的该城市相应抽样类别的人口数量。加权方法详见：<http://www.itcproject.org>。除特别提示外，本文报道的所有结果都是加权后的统计数据。

### 统计学分析

所有分析均采用Windows版本的SPSS 13.0软件进行。计算支持不同场所全面无烟政策的调查对象百分比。建立多元Logistic回归模型，分析与全面无烟政策相关的各种因素。分析过程采用SPSS复杂抽样模块进行，以解释城市内可能存在的嵌套效应。所有分析按吸烟状况分层。

### 结果

表2描述的是样本特征和对于二手烟健康危害的认识的信息。所调查的吸烟者绝大多数为男性（94.9%），而调查的非吸烟者大部分都是女性。30%以上的研究对象年龄在55岁及以上。吸烟者和非吸烟者中90%以上都是汉族。在关于二手烟危害的知识方面，不同人群之间存在重要差异，81.4%的非吸烟者认为二手烟会导致非吸烟者患肺癌，而吸烟者仅为53.6%。图2是吸烟者和非吸烟者支持各种场所全面无烟政策的比例。吸烟者支持率最高的是公共交通工具（93.6%）和学校（93.5%），而后是医院（73.7%）、会议室（73.4%）、工作场所（42.8%）和餐厅/酒吧（21.3%）。非吸烟者的支持程度比吸烟者更高，但总体模式相同。

表3和表4是研究支持工作场所（表3）和餐厅/酒吧（表4）全面无烟政策的相关因素的Logistic回归模型的结果，对这两种场所全面无烟政策的支持率是最低的。多种因素与这两种场所全面无烟政策的支持水平相关。例如，对于二手烟健康危害的认识与吸烟者对两种场所完全禁烟，以及非吸烟者对餐厅/酒吧完全禁烟的支持水平呈正相关。与年龄更小、吸烟量更大的吸烟者相比，年龄越大、吸烟越少的吸烟者支持这两种场所无烟政策的可能性越高。吸烟者和非吸烟者自报工作场所吸烟规定的情况与其对工作场所禁烟的支持水平之间存在相关。与工作场所不限制吸烟的调查对象相比，工作场所完全禁烟的调查对象更支持办公室全面无烟化。同样，自报最常光顾的室内娱乐场所吸烟规定的情况与吸烟者对餐厅/酒吧无烟化的支持之间存在相关。光顾完全禁烟的室内娱乐场所的调查对象更加支持餐厅/酒吧全面无烟化。另外几个因素在与支持两个场所全面无烟的相关方面存在一定差异。女性吸烟者更加支持在工作场所禁烟，但是这一相关在餐厅/酒吧的支持方面仅处于一个临界水平（OR=1.61, 95% CI: 0.99-2.59）。从不同城市的差异而言，银川吸烟者和非吸烟者比北京吸烟者和非吸烟者更加

支持在工作场所完全禁烟；而针对在餐厅/酒吧禁烟问题，沈阳的吸烟者和广州的非吸烟者比北京的吸烟者和非吸烟者更加支持完全禁烟。

### 讨论

本研究第一次考察了中国城市居民对于不同场所无烟政策的支持情况。本次研究的主要结果包括：（1）六城市当中无论吸烟者还是非吸烟者对于在学校、公共交通工具、医院和会议室完全禁烟的支持率都比较高，但对工作场所、餐厅/酒吧全面禁烟的支持相对较低；（2）对二手烟健康危害的认识以及现有无烟政策的存在这两个因素与支持工作场所、餐厅/酒吧全面禁烟之间存在相关性。

其他国家的研究指出，对已经有禁烟政策存在的场所，人们对在这些场所禁烟的支持水平是最高的。<sup>14</sup>换言之，虽然公众最初会有一些的怀疑，但是一旦他们体会到了无烟政策的好处，那么他们便会逐渐适应并支持这些政策。本研究的两个结果也证明了这一结论。首先，我们发现在大多数城市已经具有无烟政策的场所，人们对于无烟政策的支持率很高，如学校、公共交通工具、医院和会议室；相比之下，大多数城市对于工作场所、餐厅/酒吧没有吸烟方面的限制，在这些场所人们对全面无烟政策的支持水平就比较低一些。第二，我们发现如果调查对象所在的工作场所或者最常光顾的室内娱乐场所已经有全面无烟政策，那么他们支持这些场所完全禁烟的比例就会更高。这些结果同以往的研究结果进行综合之后显示，全面无烟政策的受欢迎程度会随着时间的推移而提高。即便这些政策在实施之前不一定受欢迎，但一旦得以实施，无烟政策就可以得到公众广泛的支持。譬如，爱尔兰在2004年制定全国性的全面无烟法之前，爱尔兰吸烟者对酒吧完全禁烟的支持率仅为13%，而在法律实施一年后，这一比率就增加到了46%。<sup>13</sup> 本次研究发现，六城市的吸烟者中有21.3%支持餐厅/酒吧完全禁烟（比爱尔兰实施无烟政策之前的比率高很多）。因此，尽管本次研究结果显示，中国城市居民对工作场所、餐厅和酒吧完全禁烟的支持率相对较低，这并不意味着中国就不能在这些场所实施全面无烟政策。相反，这些结果指出，同其他国家的吸烟者一样，中国吸烟者也可以适应并最终支持禁烟。

对二手烟健康危害的认识与对工作场所、餐厅/酒吧全面禁烟的支持水平之间存在相关性。这和以往的研究结果是

图2：中国六城市吸烟者和非吸烟者支持不同场所全面禁烟的百分比

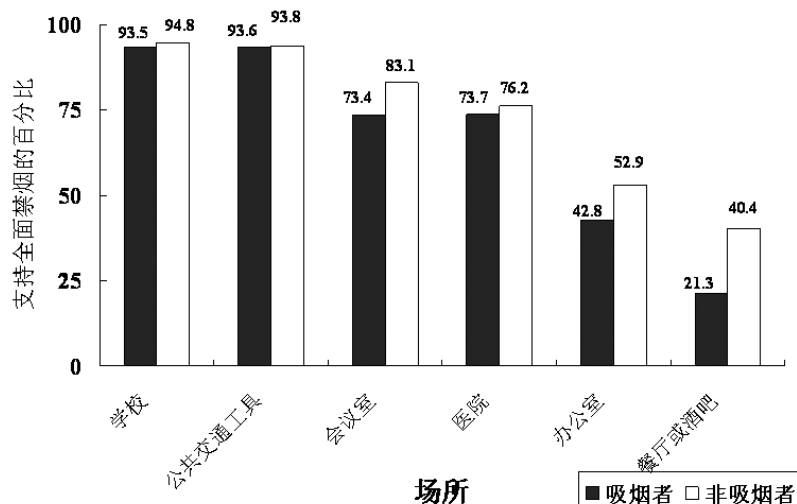


表3: 预测对工作场所完全禁烟支持率的多元Logistic回归模型结果

	吸烟者			非吸烟者		
	支持完全禁烟 (%)	OR	95% C.I.	支持完全禁烟 (%)	OR	95% C.I.
<b>城市</b>						
北京	44.3	对照		52.0	对照	
沈阳	45.7	1.11	0.73-1.71	52.4	1.05	0.58-1.92
上海	35.0	0.65	0.48-0.88	49.5	0.82	0.47-1.43
长沙	36.5	0.78	0.52-1.18	44.9	0.69	0.41-1.16
广州	40.2	0.81	0.59-1.10	53.8	1.08	0.61-1.91
银川	55.4	1.90	1.32-2.74	64.3	1.78	1.00-3.18
<b>性别</b>						
男性	42.0	对照		51.2	对照	
女性	62.6	2.20	1.34-3.60	54.3	1.22	0.93-1.62
<b>年龄 (岁)</b>						
18-34	36.0	对照		50.6	对照	
35-44	39.1	1.23	0.93-1.64	56.5	1.06	0.67-1.69
45-54	44.0	1.64	1.20-2.26	47.8	0.82	0.49-1.37
55岁及以上	46.8	1.88	1.42-2.50	55.7	1.13	0.67-1.91
<b>民族</b>						
汉族	42.9	对照		52.7	对照	
其他	40.2	0.61	0.41-0.92	55.6	0.77	0.41-1.46
<b>教育程度</b>						
低	47.4	对照		59.3	对照	
中	42.6	1.01	0.77-1.32	52.0	0.86	0.54-1.37
高	40.5	0.91	0.65-1.28	52.2	0.85	0.50-1.46
<b>家庭月收入</b>						
低	45.4	对照		54.3	对照	
中	42.5	0.92	0.74-1.15	52.9	0.92	0.61-1.39
高	41.5	1.03	0.78-1.34	52.1	0.94	0.57-1.57
不知道	43.6	1.11	0.78-1.58	55.1	0.94	0.42-2.11
<b>认为二手烟可导致非吸烟者患肺癌</b>						
否/不知道	39.9	对照		53.0	对照	
是	45.2	1.27	1.09-1.49	52.8	0.93	0.66-1.31
<b>自报工作场所吸烟政策</b>						
没有规定或限制	36.2	对照		39.4	对照	
只能在室内某些区域吸烟	31.3	0.89	0.65-1.22	37.3	0.87	0.45-1.70
不能在室内任何区域吸烟	61.1	3.10	2.23-4.29	69.3	3.60	2.23-5.82
其他	43.5	1.32	1.03-1.70	53.6	1.68	1.01-2.79
<b>每日吸烟量 (支)</b>						
1-10	46.1	对照		未纳入模型		
11-20	42.0	0.95	0.76-1.17			
21-30	35.6	0.75	0.56-0.99			
31支及以上	39.4	0.91	0.65-1.28			

SHS, secondhand smoke.



表4. 预测对餐厅或酒吧完全禁烟支持率的多元Logistic回归模型结果

	吸烟者			非吸烟者		
	支持完全禁烟 (%)	OR	95% C.I.	支持完全禁烟 (%)	OR	95% C.I.
<b>城市</b>						
北京	24.5	对照		33.8	对照	
沈阳	27.6	1.37	1.01-1.86	32.6	1.09	0.65-1.83
上海	15.7	0.73	0.50-1.06	48.5	1.88	0.94-3.76
长沙	20.6	0.99	0.67-1.46	37.0	1.47	0.90-2.42
广州	20.2	0.94	0.67-1.32	49.0	2.20	1.23-3.96
银川	19.3	0.93	0.66-1.32	41.3	1.52	0.86-2.67
<b>性别</b>						
男性	20.7	对照		42.2	对照	
女性	37.6	1.61	0.99-2.59	38.9	0.90	0.68-1.18
<b>年龄 (岁)</b>						
18-34	14.6	对照		27.2	对照	
35-44	20.0	1.46	0.95-2.25	36.5	1.62	0.93-2.81
45-54	20.5	1.55	1.06-2.26	39.5	1.83	1.08-3.09
55岁及以上	25.8	1.85	1.19-2.90	48.4	2.33	1.41-3.86
<b>民族</b>						
汉族	21.2	对照		40.8	对照	
其他	23.2	1.05	0.62-1.78	32.9	0.63	0.33-1.24
<b>教育程度</b>						
低	27.4	对照		43.5	对照	
中	21.2	0.85	0.61-1.18	41.2	1.11	0.67-1.86
高	18.5	0.70	0.44-1.13	38.0	1.15	0.62-2.14
<b>家庭月收入</b>						
低	22.7	对照		41.7	对照	
中	22.5	0.99	0.77-1.29	39.2	0.89	0.58-1.36
高	18.8	0.94	0.63-1.39	44.4	1.03	0.62-1.69
不知道	20.2	1.01	0.69-1.49	34.9	0.65	0.31-1.36
<b>认为二手烟可导致非吸烟者患肺癌</b>						
否/不知道	17.3	对照		32.8	对照	
是	24.6	1.56	1.18-2.06	42.0	1.60	1.11-2.31
<b>自报最常去的娱乐场所室内吸烟规定</b>						
没有规定或限制	15.5	对照		32.2	对照	
只能在室内某些区域吸烟	21.9	1.56	1.18-2.07	33.0	1.05	0.68-1.62
不能在室内任何区域吸烟	39.6	3.23	2.25-4.64	61.6	3.05	2.04-4.57
其他	27.4	1.82	1.43-2.30	47.8	1.98	1.31-3.00
<b>每日吸烟量 (支)</b>						
1-10	25.6	对照		未纳入模型		
11-20	19.7	0.76	0.63-0.92			
21-30	15.7	0.56	0.38-0.84			
31支及以上	19.4	0.80	0.54-1.17			

SHS, secondhand smoke.

一致的。<sup>11</sup> 在本次研究中, 仅有53%的吸烟者知道二手烟会导致肺癌, 这比西方国家的水平要低。譬如, 2002年的ITC 四国调查发现, 该指标在加拿大为76.9%, 美国为82.6%, 英国为82.2%, 澳大利亚为72.1%。中国城市吸烟者对于二手烟健康危害的认识水平仍有提高空间。我们应当教育公

众, 提高他们关于二手烟危害的认识, 这样将可以提高公众对于无烟政策的支持。

城市之间的差异并没有一定的规律。大家可能预计对酒吧、餐厅无烟化支持率最高的应该是广州, 因为在调查时广州的这些场所是部分无烟化的; 但是, 这种相关性却仅在非

吸烟者中出现。究其原因,可能是因为广州无烟政策的力度弱。广州无烟法并不全面,并且允许在餐厅中有例外,同时执法力度也相当有限。<sup>9</sup> 这样的政策效力只能十分有限。因此,广州公众并没有实际体验到完全无烟的环境。这一结果表明,部分禁烟是无效的,同时也无法达到其他国家全面无烟法律法规的受欢迎程度。

在本次研究中,我们发现一些年龄和性别方面的差异。总体上讲,年龄大的人更会支持工作场所、餐厅/酒吧的无烟政策,这一结果同以往的研究结果是一致的。女性更支持工作场所、餐厅/酒吧全面禁烟,这一结果同Borland等人的研究结果不一致。<sup>11</sup> 一个可能的解释是中国同西方国家之间存在文化上的差异。但是,鉴于本次研究中女性吸烟者的样本数量很小,今后还需要利用更大的女性样本开展进一步的研究,确认该结果。吸烟量大的吸烟者比较不支持全面无烟政策。今后需要采用纵向样本进行研究,以确定这些人群对于无烟政策的支持情况是否会随时间发生变化,同时探讨相关的影响因素。

本次研究的优势在于样本量大、每个城市都具有代表性的吸烟者和非吸烟者样本,以及多城市的设计让我们可以进行城市间的比较。当然,此次研究也存在局限性。首先,这次研究只在六个中国城市进行。研究样本对整个中国人口不具有代表性,因此研究结果也就不能在全国水平上推广。中国54.3%的人口都在农村,而本次研究并没有涉及这一领域。对于这一问题,可能可以通过开展一次针对农村地区的类似研究得到解决。第二,由于年龄更大的人待在家里和配合调查的机率更高,因此本次研究可能对于年龄较大的调查对象存在一定的过度抽样,从而导致估计数据发生偏倚。不过,分析过程当中采用的加权过程可以减少该偏倚。第三,由于基线数据的横断面性质,本次研究无法得出因果联系。第四,各城市间的合作率和应答率存在差异。可能的原因是各城市之间存在文化和经济水平方面的差异。目前我们还不清楚拒绝参与研究的人和完成研究的人之间是否存在差异,有什么差异,这也可能带来结果的偏倚。最后,不同国家的调查存在微小的差异,这也使得国与国之间的某些比较难以开展。譬如,ITC中国调查询问调查对象时采用的是“餐厅或酒吧”的问法,而其他国家的ITC调查都是把餐厅和酒吧分开询问的。

## 结论

中国六城市居民对于无烟政策具有相当高的支持水平。本次研究显示,无烟政策是受欢迎的。一旦政策得到实施,无论是吸烟者还是非吸烟者都会适应和支持这些政策。公众对于二手烟健康危害的认识与对无烟政策的支持水平之间存在相关性。目前,通过公众教育进一步提高中国人对二手烟的认识和对无烟政策的支持,时机已经成熟!

**致谢:** 本文作者感谢中国疾病预防控制中心及各地疾病预防控制中心代表在数据收集工作中的贡献。

**资金来源:** ITC中国项目由美国国家癌症研究院(R01 CA125116)和罗斯韦尔帕克跨学科烟草使用研究中心(P50 CA111236)、加拿大卫生研究院(79551)、中国疾病预防控制中心和安大略癌症研究所提供资金。

**竞争利益:** 无。

**来源及同行评价:** 未开展; 经外部同行评价。

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