



Cigarette smoking and anti-smoking counselling: dilemmas of Chinese physicians

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Abstract

Purpose – The purpose of this paper is to find out the anti-smoking counselling frequency and its correlates in a sample of Chinese physicians.

Design/methodology/approach – In this paper, 268 physicians in Baoding, a city near Beijing, filled out a questionnaire asking about their own smoking status, their anti-smoking behaviors as well as their opinions on how to reduce cigarette smoking in China.

Findings – The paper finds that 54 percent of the male and 8.4 percent of the female physicians were current cigarette smokers. When asked whether they had counselled their patients about cigarette smoking in the past year, 43.7 percent answered “always”; 38.1 percent “often”; 13.1 percent “sometimes”; 2.6 percent “occasionally”, and 2.6 percent said: “not much”. However, only 9.0 percent said that they were “very successful”. Physicians’ anti-smoking counselling practices were highly correlated with their own smoking status; whether they perceived their past anti-smoking activities as successful; whether they thought that they should set examples by not smoking; whether they felt that they had the responsibility to help patients and whether they perceived themselves as influential in persuading patients to quit smoking.

Practical implications – The paper shows that messages aimed at increasing Chinese physicians’ anti-smoking counselling should appeal to their responsibility, exemplary role, and unique influence on patients’ health-related behaviors.

Originality/value – The paper adds to the few studies on Chinese physicians’ cigarette smoking behavior and their anti-smoking activities. In a country where cigarette smoking is a way of life among males, and few people are aware of the health consequences of cigarette smoking, physicians’ efforts can be a spearhead to a cessation campaign.

Keywords Cigarettes, China, Counselling

Paper type Research paper



Introduction

Chinese physicians are in a unique position to help their patients to quit or reduce cigarette smoking as China’s political and cultural systems have created a norm to respect those in power (Bond, 1999; Li, 2002, 2004), and physicians are authorities on health and health-related behaviors (Gorin and Heck, 2004; Yu *et al.*, 1995). Although extensive research has been conducted in other parts of the world on the role physicians play in helping their patients to reduce cigarette smoking (e.g. Demers *et al.*, 1990; Orleans *et al.*, 1990; Gorin and Heck, 2004; Ockene *et al.*, 1994; Stretcher *et al.*, 1991), few studies have been done in China (Yu *et al.*, 1995, Li *et al.*, 1999). The purpose

of this study was to examine Chinese physicians' own cigarette smoking behaviors and their anti-smoking counselling practices.

With annual sales of 1.8 trillion cigarettes, the Chinese consume one-third of all cigarettes smoked on this planet (York, 2005). Two nationwide surveys of Chinese adults indicated that current cigarette smokers were 63 percent for males and 3.8 percent for females in 1996 (Yang *et al.*, 1999) and 66.0 percent for males and 3.08 percent for females in 2002 (Yang *et al.*, 2005). These rates changed little since the first national survey in 1984, which reported cigarette-smoking rates of 61 percent for males and 7 percent for females (Chen, 1985). These figures have been confirmed by regional studies reporting that 70 to 87 percent of Chinese males were cigarette smokers (Gao *et al.*, 1991; Lubin *et al.*, 1992; Qun and Dobson, 1992). Researchers have found that cigarette smoking is a contributing factor to a number of diseases in China such as lung cancer (Chen *et al.*, 1991, 1990; Liu, 1992; Liu *et al.*, 1993; Lubin *et al.*, 1992), cardiovascular diseases (Tao *et al.*, 1992; Yu *et al.*, 1995), and bladder cancer (Gao *et al.*, 1991, Liu *et al.*, 1998), but only 21.9 percent of the smokers and 29.5 percent of the non-smokers surveyed know that cigarette smoking has serious consequences to health (Yang *et al.*, 1999).

Physicians' counselling is found to be a feasible (Chaudhry *et al.*, 2000; Demers *et al.*, 1990; Orleans *et al.*, 1990) and effective method of reducing cigarette smoking among patients in the West (Gorin and Heck, 2004; Ockene *et al.*, 1994; Silagy and Ketteridge, 1997), but little is known about Chinese physicians' anti-smoking counselling practices. So far only two studies have been published.

In 1987, a survey of 480 Chinese physicians in Wuhan, a southern city along the Yangtze River, found that 85.6 percent had "always", "often" or "sometimes" engaged in anti-smoking counselling (Li and Rosenblood, 1996). In a similar survey among 493 Chinese physicians in the same city in 1996, 68.6 percent had "always", "often" or "sometimes" engaged in anti-smoking counselling (Li *et al.*, 1999). In the 1987 sample, 26.1 percent of the physicians felt that their anti-smoking activities were "very" or "somewhat" successful. In the 1996 sample, 38.0 percent felt so. In both the 1987 and 1996 samples, physicians who felt that they were successful carried out more anti-smoking counselling than physicians who felt otherwise. It was found that physicians' own smoking status was highly correlated with the frequency of physicians' anti-smoking counselling, non-smoking physicians engaging in more counselling than smoking physicians (Li and Rosenblood, 1996; Li *et al.*, 1999). It was also found that physicians who thought that they were the most influential people in persuading patients to quit or reduce smoking engaged in more anti-smoking counselling, and physicians who felt that it was their responsibility to help patients to quit or reduce smoking made more anti-smoking efforts (Li *et al.*, 1999).

In both the 1987 and 1996 surveys, the most frequently-used methods by physicians were "relating patients' illness with cigarette smoking" and "warning patients about the hazards of cigarette smoking to health". In the 1987 survey, 4.8 percent of the female compared to 50.9 percent of the male physicians were cigarette-smokers. In the 1996 survey, 12.2 percent of the female and 61.3 percent male physicians were cigarette smokers.

The present study continues to investigate Chinese physicians' anti-smoking counselling practice and its correlates but in a northern city. Major issues examined in this study were:

- What are the cigarette smoking patterns and their determinants (RQ1)?

- What is the pattern of the anti-smoking counselling practice and its correlates (RQ2)?
- What are the perceived smoking patterns of patients and their reasons to quit (RQ3)?
- What anti-smoking measures do physicians think best to help smokers to quit smoking (RQ4)?

Method

Participants

A convenience sample of 268 physicians was drawn from two hospitals in Baoding, a city in Hebei Province, the People's Republic of China. With a population of 600,000, Baoding stands in the middle of the vast fertile plain in northeast China. Beijing being a short train ride of 85 miles north, Baoding can be considered a modern city.

With permission of the president's councils of the two hospitals, a total of 314 questionnaires were distributed. A response rate of 93 percent was obtained with a return of 296 questionnaires, 28 being incomplete (the questionnaire has two pages, printed on both sides; these 28 physicians did not see the other side), therefore, were excluded from data analyses.

When given the questionnaires, physicians were instructed to answer the questions independently, without assistance from others. Among the 268 physicians whose data were analyzed, 68.7 percent were males and 31.3 percent were females. Most of the physicians (58.9 percent) were married, and 40.4 percent were single. At the time of the survey, 43.8 percent of the physicians had practised medicine for about five years; 23.5 percent for about ten years; 15.0 percent for about 15 years; 8.1 percent for about 20 years, and 9.6 percent for more than 20 years. About half (50.9 percent) of the physicians were under 30 years old; 32.5 percent were between 30-39; 9.8 percent were between 40-49, and 6.8 percent were 50 years or older. The reason that so many Chinese physicians are under 30 years old is that medical students in China are directly drawn from high school graduates, unlike in North America where medical students first finish a four-year university education, then go on to medical school. Also different from the West, the 12-year grade school in China provides an in-depth education in a number of subjects. Chinese medical students are chosen from those who pass the fiercely competitive university entrance examinations with high marks. The reason that few participants in this study were over 50 years old is that in recent years China's mandatory retirement age is 60 for males and 55 for females. Those who stay on after 60 years old are very special cases.

Among the participants, 43.1 percent were surgeons, and 28.2 percent were internal medicine doctors. The remaining were anaesthetists (9.2 percent), gynaecologists (7.3 percent), paediatricians (1.5 percent), traditional medicine doctors (0.4 percent) and physicians in "other" categories (10.3 percent). Due to their small numbers, physicians in the last five categories were placed into one category "other" in subsequent data analyses.

In China, every physician is a general practitioner as well as a specialist. Physicians mostly work in hospitals and rotate in the roles of a general practitioner and a specialist, also rotating between in- and out-patient clinics. China does not have a family practise system. Patients visit physicians in out-patient clinics.

Procedure

The co-authors of this study collected the data between October and November, 2005. They were physicians in the two hospitals where the samples were drawn. Data were entered into Microsoft Excel under the phone supervision of the first author, and then imported into SPSS V12.0. Pearson chi-square tests were chosen to examine whether there is an association between counselling frequency and a number of variables. Chi-square tests are especially appropriate for the data since the variables were measured either on a nominal or ordinal scale. Furthermore, the contingency table produced by the chi-square tests provide detailed information on the exact number of physicians in each category (see Tables I and II).

Questionnaire and coding

The questionnaire used in this study was identical to the one employed in previous studies (Li *et al.*, 1999; Li and Rosenblood, 1996), mainly a derivation of previous empirical studies (Kenney *et al.*, 1988; Stretcher *et al.*, 1991). The scales and coding systems employed in the present study were identical to those in previous studies (Li *et al.*, 1999; Li and Rosenblood, 1996). The questionnaire has been found to be reliable and valid with Cronbach alphas ranging from 0.85 to 0.90. A physician was defined as a smoker if he or she reported that he or she, "often" (coded as 1), "sometimes" (coded as 2),

	%	<i>n</i>
<i>Physicians' smoking status</i>		
Non-smokers	63.3	169/267
Occasionally	9.4	25/267
Sometimes	10.9	29/267
Often	16.5	44/267
<i>Self-reported number of cigarettes consumed per day</i>		
5	56.1	60/107
About 5	16.8	18/107
About 10	15.0	16/107
About 20	9.3	10/107
>20	2.8	3/107
<i>Attitudes toward quitting</i>		
Want to quit	35.5	38/107
Want to decrease	57.0	61/107
The same amount	7.5	8/107
Want to increase	0	0
<i>Past quitting experiences</i>		
Tried to quit	57.4	62/108
Never tried	42.6	46/108
<i>Age of starting smoking</i>		
16	12.5	18/144
16-19	27.8	40/144
20-25	45.8	66/144
>25	13.9	20/144

Note: The values of *n* were based on the number of physicians responding to each question

Table I.
Cigarette smoking
patterns of Chinese
physicians

Table II.
Physicians' cigarette
smoking status and
frequency of counseling
by gender, age and
specialty

	Smoking status "smokers"		Counseling "often or always"	
	%	<i>n</i>	%	<i>n</i>
<i>Gender</i>				
Male	54.7	99/181	79.7	145/182
Female	8.4	7/83	85.5	71/83
<i>Age</i>				
30	31.1	42/135	84.4	114/135
30-39	38.8	33/85	81.4	70/86
40-49	53.8	14/26	65.4	17/26
>50	44.4	8/18	83.3	15/18
<i>Specialty</i>				
Surgeons	50.9	57/112	81.4	92/113
Internal medicine	33.8	25/74	87.8	65/74
Other	20.0	15/75	74.7	56/75

Note: The values of *n* were based on the number of physicians responding to each question

or "occasionally" smoked (coded as 3). Non-smoking status was decided when a physician reported that he or she "never" smoked (coded as 4). Physicians' daily number of cigarette consumption was coded as the following: one to five cigarettes = 1, six to ten cigarettes = 2, 11-15 cigarettes = 3, 16-20 cigarettes = 4, 21 or more cigarettes = 5. The variable measuring anti-smoking counselling frequency was coded as the following: "always" = 1, "often" = 2, "sometimes" = 3, "occasionally" = 4, "not at all" = 5. Scales of relevant questions are presented in Table III.

Results

Cigarette smoking patterns and their determinants (RQ1)

Of the 267 physicians who reported their cigarette smoking status, 36.7 percent were current smokers and 63.3 percent were non-smokers. Among the smokers, 56.1 percent consumed less than five cigarettes daily, and 27.1 percent reported a daily consumption of ten or more cigarettes. Over a third of the smokers wished to quit, and 57 percent wanted to decrease. A total of 57 percent of the smokers reported that they seriously tried to quit in the past two years. About half of the smokers, past and current, reported that they commenced smoking between the ages of 20 to 25 (Table I).

Gender. Table II presents detailed information regarding physicians' smoking status and their characteristics. As shown in Table II, the cigarette smoking rate was significantly higher among male physicians (54.7 percent) than female physicians (8.4 percent), ANOVA indicating a statistical difference, $F(1, 262) = 51.64$, $P < 0.0001$, $\eta^2 = 0.17$. η^2 is effect size, a measure of the degree to which the two sample means differ in terms of standard deviation of the parent population; the larger the effect size, the more the means differ from each other. Male physicians also smoked more heavily than female physicians. Among those who reported a daily consumption of 16 cigarettes or more, 13.1 percent were males and none were females, but these differences did not reach statistical significance ($P > 0.05$, $\eta^2 = 0.02$).

	1	2	3	4	5	6	7	8	9	10	11	12
1. Smoking status (daily = 1, sometimes = 2, occasionally = 3, not at all = 4)	-											
2. Daily number of cigarettes (1-5, 6-10, 11-15, 16-20, 21 or more)	-0.62**	-										
3. Age of onset (15 or younger, 16-20, 21-25, 26 or older)	-0.07	0.02	-									
4. Number of years being a physician (five years or less, 6-10, 11-15, 16-20, 21 or more)	-0.20**	0.33**	0.29**	-								
5. Physicians' age (29 or younger, 30-39, 40-49, 50-59, 60 or older)	-0.16*	0.30**	0.26**	0.85**	-							
6. Anti-smoking counseling (always/not much; five-scale Likert)	0.21**	0.12	0.18*	-0.00	0.03	-						
7. Perceived success (very successful/very unsuccessful; five-scale Likert)	-0.08	0.08	-0.03	-0.03	0.03	0.29**	-					
8. Perceived responsibility (agree/disagree; five-scale Likert)	-0.13*	-0.02	0.02	0.00	-0.01	0.32**	0.27**	-				
9. Perceived exemplary role (agree/disagree; five-scale Likert)	-0.36**	0.03	0.03	-0.03	-0.06	0.24**	0.16**	0.46**	-			
10. Smoking is accepted in China (agree/disagree; five-scale Likert)	0.09	-0.08	-0.07	-0.08	-0.04	-0.01	-0.06	-0.09	-0.15**	-		
11. Chinese know about the harm of cigarette smoking (everyone = 1, most = 2, half = 3, a small number of people = 4)	0.11*	-0.18*	-0.05	-0.13*	-0.14*	-0.01	-0.04	0.01	0.09	0.08	-	
12. Do you want to (quit, reduce, the same, increase)?	-0.18*	0.12	-0.04	0.02	0.04	0.05	0.09	0.14	0.30**	0.04	0.04	-

Notes: *Correlation is significant at the 0.05 level (one-tailed); ** Correlation is significant at the 0.01 level (one-tailed)

Table III. Frequency of anti-smoking counseling practice and its correlates

Males. Among males, the highest smoking rate was among physicians between the ages of 40 to 49 (73.7 percent), followed by the 50 or older age group (58.3 percent), the 30-39 age group (53.2 percent), and the 29 or younger age group (44.3 percent). The percentages of physicians who consumed 16 cigarettes or more were 40.0 percent in the 50 or older age group, 17.6 percent in the 40-49 age group, 9.8 percent in the 29 or younger age group, and 6.5 percent in the 30-39 age group.

Females. Among females, four of the seven smokers were in the age group of "29 years old or younger", two were between the ages of 30-39 and one in the age group of "50 years or older". Of the seven smokers, five had a daily consumption of five cigarettes or less while the remaining two had a daily consumption between six to ten cigarettes.

Age. As shown in Table II, the highest smoking rate was found in the 40-49 age group (53.8 percent) and lowest among physicians younger than 29 years old (31.1 percent). The next highest rate was among physicians who were 50 years or older (44.4 percent), followed by the 30-39 age group (38.8 percent). ANOVA indicated a statistical difference among the age groups regarding smoking rate, $F(4, 259) = 3.15, P < 0.05, \eta^2 = 0.05$. Although the 40-49 age group had the highest smoking rate, the 50 or older age group produced the heaviest smokers. In total 36 percent of the physicians aged 50 or older reported a daily consumption of 16 cigarettes or more in comparison with 17.6 percent in the 40-49 age group, 8.9 percent in the 29 or younger age group, and 6.1 percent in the 30-39 age group. The differences among the age groups regarding the number of cigarettes consumed daily were statistically significant, $\chi^2(9, 106) = 16.2, p < 0.05$.

Specialty. Physicians' specialty seems to have a strong association with their smoking status. Surgeons had the highest smoking prevalence (50.9 percent), followed by internal medicine doctors (33.8 percent), and physicians of other categories (20.0 percent). These differences reached statistical significance, $\chi^2(2, 261) = 18.9, p < 0.001$. Among those who reported a daily consumption of 11 cigarettes or more, 35 percent were surgeons, 21 percent were physicians of other specialties, and 15 percent were internal medicine doctors. However, these differences did not reach statistical significance.

Onset of smoking. The percentages of smokers' starting age are presented in Table I. Among those who started smoking at the age of 15 or younger, 45.5 percent reported a daily consumption of 11 cigarettes or more. Among physicians who started smoking between the ages of 21-25 and the age of 26 or older, 29.8 and 28.6 percent, respectively, reported a daily consumption of 11 cigarettes or more. Among those who initiated smoking between the ages of 16-20, 19.4 percent reported a daily consumption of 11 cigarettes or more. These differences were statistically significant, $\chi^2(9, 103) = 21.1, p < 0.005$. Regarding the main reason for starting smoking, 69.7 percent said "influence of friends"; 30.3 percent said that they just "wanted to smoke"; and none cited "influence of parents" as a reason.

Smoking status of family members. About 5 percent of the physicians reported that both parents were cigarette smokers; 57.6 percent of the physicians reported that only their fathers were smokers; 4 percent reported that only their mothers smoked, and 37.5 percent said neither parent smoked. The smoking status of a physician seemed uninfluenced by his/her parental smoking status ($p > 0.05$). Among male physicians, 7.9 percent reported that their spouses smoked. Among female physicians, 42.9 percent reported that their spouses were smokers. The relationship between a physician's smoking status and his/her spousal smoking status was not statistically significant ($p > 0.05$).

Anti-smoking counselling practice and its correlates (RQ2)

When asked whether they had counselled their patients about cigarette smoking in the past year, 43.7 percent answered "always"; 38.1 percent answered "often"; 13.1 percent answered "sometimes"; 2.6 percent answered "occasionally", and 2.6 percent said "not much". However, only 9.0 percent said that they were "very successful"; 44.8 percent said "somewhat successful"; 38.1 percent said "somewhat unsuccessful", 5.2 percent said "unsuccessful", and 3.0 percent said "failure".

The most frequently-used methods to counsel their patients about cigarette smoking were "relating patients' illness with cigarette smoking" (58.3 percent) and "warning patients about the hazards of cigarette smoking to health" (34.8 percent), while 4.2 percent of the physicians said that they "ordered their patients to quit or reduce smoking". The remaining 2.7 percent of the physicians used "other" methods which they did not specify.

The relationship between physicians' counselling frequency and seven variables, physicians' own smoking status, age, gender, perceived influence, perceived success, perceived responsibility and perceived exemplary role were examined (see Table III for a correlation matrix).

Smoking status, age and gender. Physicians' own smoking status was highly associated with their anti-smoking counselling practices. Among smoking physicians, 69.9 percent "often" or "always" counselled their patients about cigarette smoking, while 30.6 percent did little or no anti-smoking counselling. Among non-smoking physicians, 88.8 percent "often" or "always" counselled their patients about cigarette smoking, and 11.2 percent did little or no anti-smoking counselling. The difference between smoking and non-smoking physicians regarding their anti-smoking counselling frequencies was statistically significant, $\chi^2(1, 267) = 15.5, p < 0.001$. Physicians' age was not associated with anti-smoking counselling practices. No significant gender difference regarding counselling frequency was found.

Perceived influence. When physicians were asked about the most influential people in helping patients quit smoking, 26.2 percent said "physicians"; 46.4 percent said "self", meaning the smoker himself or herself; 12.0 percent "spouse"; 9.0 percent "children", meaning the smoker's own children; 3.7 percent "working unit leaders"; 1.9 percent "parents"; and 0.7 percent said "friends". Nevertheless, physicians who perceived themselves as the most influential person in assisting patients to quit smoking carried out more anti-smoking counselling than those who thought otherwise. Among those who perceived physicians as the most influential, the mean of anti-smoking counselling frequency was 1.63(SD = 0.76). Among those who perceived "others" (e.g. self, spouse or working unit leader) as the most influential, the mean of anti-smoking counselling frequency was 1.88(SD = 0.96). As described in the Method section, anti-smoking counselling frequency was coded in a way that the lower the mean is, the more frequently physicians carried out smoking cessation counselling. The mean difference was statistically significant $t(265) = 2.2, p < 0.05$.

Perceived success. Among physicians who felt their past counselling practices "somewhat successful" or "very successful", the mean of anti-smoking counselling frequency was 1.60(SD = 0.73). Among those who felt their past counselling experience "somewhat unsuccessful" or "very unsuccessful", the mean of anti-smoking counselling frequency was 2.09(SD = 1.07). The mean difference was statistically significant $t(266) = 4.43, p < 0.001$.

Perceived exemplary role. Did Chinese physicians think that they should set examples for their patients by not smoking? The majority (59.6 percent) strongly agreed; 30.3 percent somewhat agreed; 8.2 percent somewhat disagreed, and 1.9 percent disagreed. Among those “strongly agreed” or “somewhat agreed”, the mean of anti-smoking counselling frequency was 1.76(SD = 0.88). Among those “somewhat disagreed” or “disagreed”, the mean of anti-smoking counselling frequency was 2.26(SD = 1.01). The mean difference was statistically significant, $t(265) = 2.69, p < 0.01$.

Perceived responsibility. When asked whether it was their responsibility to counsel patients about cigarette smoking, 67.4 percent of the physicians strongly agreed; 27.0 percent somewhat agreed; 3.4 percent somewhat disagreed, and 2.2 percent disagreed. Among those who “strongly agreed” or “somewhat agreed”, the mean of anti-smoking counselling frequency was 1.76(SD = 0.86). Among those who “somewhat disagreed” or “disagreed”, the mean of anti-smoking counselling frequency was 2.67(SD = 1.34). This difference was statistically significant, $t(265) = 3.80, p < 0.001$.

Perceived patients' smoking patterns and reasons to quit (RQ3)

When asked about patients' smoking prevalence, physicians estimated a rate of 79.5 percent for male and 18.2 percent for female patients. When asked about patients' smoking trends in the past year, over half of the physicians (53.6 percent) thought that there was no change; 24.3 percent thought it was on the decline, and 22.1 percent thought it was on the rise. About one-third (27.5 percent) of the physicians thought that most patients consume six to ten cigarettes per day; 25.3 percent thought that most patients consume 11-15 cigarettes daily; 21.9 percent thought 16-20 cigarettes daily; 15.8 percent thought one to five cigarettes, and 9.4 percent thought that most patients consume 20 or more cigarettes daily. According to these physicians, most Chinese smokers were moderate to heavy smokers. When Chinese physicians were asked “so what would be the primary reason for a Chinese patient to quit smoking”, 83.9 percent said “health”, 6.7 percent “social pressure”, 6.4 percent “family pressure”, and 3.0 percent “price”.

Suggested measures to limit smoking (RQ4)

When asked about the main reason for a Chinese to smoke, 47.4 percent of the physicians thought it a habit; 30.1 percent thought that cigarette smoking served as a social lubricant; 20.3 percent thought it a stress reliever; and 2.3 percent thought it a social status symbol. When asked whether Chinese smokers are aware of the harm cigarette smoking does to human health, 57.7 percent of the physicians thought that most people know; 21.6 percent of the physicians thought that everyone knows; 12.0 percent thought that a small amount of the people know, and 8.6 percent thought that about half of the people know. When asked whether cigarette smoking was accepted in China, 41.2 percent of the physicians somewhat agreed; 8.6 percent strongly agreed; 29.6 percent somewhat disagreed; 13.5 percent disagreed; and 7.1 percent strongly disagreed. The best way to limit smoking in China, according to 51.5 percent of the physicians, would be to educate the public about the harm of cigarette smoking; 34.6 percent thought that public restrictions would be effective; and 13.9 percent thought that raising the price of cigarettes a good method.

Discussion

Cigarette smoking patterns

Male physicians. The cigarette smoking rate of 54.7 percent among male physicians found in this survey (called Baoding sample thereafter) is similar to the rate of 50.9 percent among male physicians in Wuhan in a survey carried out in 1987 (Li and Rosenblood, 1996) and lower than the rate of 61.3 percent among male physicians in Wuhan in 1996 (Li *et al.*, 1999). The rate of 54.7 percent is lower than male smoking rates in the general population: 63 percent in 1996 and 66.0 percent in 2002 (Yang *et al.*, 1999, 2005).

Over two-thirds (73.6 percent) of the Baoding physicians started smoking between the ages of 16-25. That is to say, cigarette smokers began the habit in the last two years of high school and mostly in medical school. This pattern seems consistent with observations from other researchers who reported that as medical students enter their last two years of study, more seem to form the habit of cigarette smoking (Zhu *et al.*, 2004; Zhou *et al.*, 1997; Xiang *et al.*, 1999). Over two-thirds (69.7 percent) of the Baoding physicians cited "influence of friends" as the major reason for initiating smoking. This finding suggests that anti-smoking education should start in high school and continue in medical school. When composing anti-smoking messages it is necessary to train students the skill of resisting peer pressure.

Female physicians. It was found that 8.4 percent of the female physicians were current smokers. This rate is similar to the spousal smoking rate (7.9 percent) reported by the male physicians in the same sample. The 8.4 percent is slightly lower than the 12.2 percent reported by female physicians in the Wuhan in 1996, but higher than the 4.8 percent reported by female physicians in Wuhan in 1987. Interestingly, physicians in the Baoding sample estimated that 18.2 percent of their female patients were smokers.

In two surveys of medical students in China, female smoking rates were 1.8 percent (Zhou *et al.*, 1997) and 4.4 percent (Zhu *et al.*, 2004) respectively. A third study done in Wuhan found that no female medical students smoked (Xiang *et al.*, 1999). Under reporting by medical students is possible since cigarette smoking is not officially allowed among Chinese students.

Traditionally Chinese females rarely smoke cigarettes. As China changes from a traditional culture to a modern, westernized culture, female smoking, as part of the western culture, may have become part of the import. As female cigarette smoking is an old phenomenon in the West, problems associated with female smoking such as its impact on foetuses are known to the smokers themselves and the public (e.g. Kleinman *et al.*, 1998; Melvin *et al.*, 2000; Windsor *et al.*, 2000) and various smoking cessation programs have been in place (Kleinman *et al.*, 1998; Windsor *et al.*, 1998, 2000). On the other hand, female smoking is a new problem in China. The consequences of expectant mothers' smoking on foetuses have never been an issue and are not generally known in China. But research does exist. In a case-control study of 213 Chinese women who smoked during pregnancy, the incidence of low birth-weight was twice as high as that in the control group (Lam *et al.*, 1992). As each couple is allowed only one child in China, quality birth should be a serious concern of expectant parents and they should be very responsive to educational materials. Therefore, it is possible to stop the wide spread of cigarette smoking among females before it becomes an epidemic.

Frequency of anti-smoking counselling and its correlates

Despite their own smoking behaviour, 84.2 percent of the Baoding physicians “often” or “always” counselled their patients about cigarette smoking. This rate is much higher than the 58.1 percent reported in a sample of Wuhan physicians (Li *et al.*, 1999), but similar to reports by British physicians, 50 percent saying that they advised their patients to stop during most or all the consultations and 76 percent saying that they advised patients to cut down if they cannot stop (McEwen and West, 2001). Baoding physicians also felt more successful (9.0 percent said that they were very successful and 44.8 percent somewhat successful) than Wuhan physicians (9.2 percent said that they were very successful and 28.8 percent somewhat successful). These rates are similar to rates reported by British physicians with 40 percent feeling effective or very effective in their smoking cessation efforts (McAvoy *et al.*, 1999).

Differing from findings among French physicians who reported that their smoking status and attitudes were not associated with their smoking cessation counselling practices (Slama *et al.*, 1999), we found that non-smoking physicians carried out significantly more anti-smoking counselling than smoking physicians, regardless of their age and gender.

Among the variables strongly correlated with the frequency of physicians’ anti-smoking counselling were perceived responsibility, perceived success, and perceived exemplary role (Table III). The implication of this finding is that messages aiming at increasing Chinese physicians’ anti-smoking counselling should appeal to their responsibility, success in helping patients and exemplary role.

Suggested anti-smoking measures in China

According to one-third of the physicians in our sample, cigarette smoking serves as a social lubricant in China. In a society where “getting things done” is mostly through the intricate interpersonal connections (Cui, 1998; Li, 2002, 2003, 2004), it is common to use “lubricants” such as passing cigarettes around or presenting an expensive carton of cigarettes (e.g. the most popular brand for a gift is “China”, costing 600 yuan, about 80 USD), almost as much as the 700 yuan monthly salary of a paediatrician working in a state-run hospital in Wuhan). It is therefore not surprising that half of the physicians in our sample agreed that cigarette smoking is widely accepted in China. About one-third of the physicians believed that public restriction of cigarette smoking is an effective way to reduce smoking. More than half of the physicians considered that educating the public about the harm of cigarette smoking may be a good measure since only 21.6 percent of them thought that every Chinese knew about the health hazards. This estimation seems consistent with previous findings. From a random sample of 1,856 petrochemical complex workers in urban Shanghai, Qun and Dobson (1992) found that 53 percent of the smokers and 76 percent of the non-smokers believed that smoking was harmful to health, but “knowledge of which disease was associated with smoking” was poor.

Directions for anti-smoking efforts in China

This research adds to the few studies on Chinese physicians’ cigarette smoking behavior and their anti-smoking activities. In a country where cigarette smoking is a way of life among males, and few people have knowledge of the health consequences of cigarette smoking, physicians’ efforts can be a spearhead to a cessation campaign.

However, physicians alone cannot accomplish the huge task of reducing tobacco consumption in China. As pointed out by Slama (2004), tobacco control takes the coordination of multiple-level work. The most urgent task for the Chinese Ministry of Health is to lobby for the government to have more legislative and regulatory measures on tobacco industry marketing tactics and to limit smoking in public places such as restaurants and offices. It also needs to work out strategies to influence the deeply-rooted cultural norms and values of cigarette smoking. In conceiving these strategies, the Precede-Proceed Model (Green and Kreuter, 2005) could be used as a theoretical framework, for it perceives health as being influenced by multiple factors and at several levels such as societal (e.g. the media, policy, and resources), the individual (e.g. historical, psychological and behavioral determinants) and environmental (e.g. the ecosystem).

Besides physicians' counseling, pharmacotherapy (i.e. gum, transdermal patch spray, inhaler and sublingual tablets) has been reported to increase the odds of quitting (Karnath, 2002; McEwen and West, 2001, Nørregaard *et al.*, 1993; Silagy *et al.*, 2005) and could have great potential in China. Given the inexpensive labor market, nicotine replacement therapy devices can be produced inexpensively and with easy access. On the other hand, behavioral therapy, although effective (Windsor *et al.*, 2000; Slama *et al.*, 1990), may present a challenge, as Chinese health professionals, especially the young and inexperienced, are not aware of the complexities of behavioral change. A recent Cochrane review (Lancaster *et al.*, 2006) indicates that programs designed to train health professionals to provide smoking cessation intervention are effective in increasing the number of patients in receiving counseling, setting a quit date, and making follow-up appointments. Due to their time constraints, it may be difficult to persuade Chinese physicians to participate in training sessions, but it is possible to train residents, medical students and nurses. The Chinese Ministry of Health would need to realize the necessity of providing such training and include relevant courses in medical and nursing school curriculum.

Another feasible strategy in the Chinese context to help patients quit smoking is the schematic counseling model proposed by Harting *et al.* (2006). This model allows the health advisor to classify patients into one or more of the six consecutive motivational stages (i.e. receptiveness, awareness, willingness, ability, implementation, and maintenance). This model is individual-tailored and efficient. For example, patients who are ready to quit smoking can directly enter the implementation stage, thus avoiding boredom and saving time for both health educators and patients. This method is feasible in China because physicians are paid on a salary basis; therefore spending a few minutes on each patient to find out what stage the patient is at the schematic counseling model would not pose a problem.

Future research

An apparent limitation of this study is the small sample size, especially female physicians. Given the low smoking rate among female physicians (7/83), it is difficult to conduct meaningful statistical analysis. Future research should aim at larger sample sizes, possibly including physicians from three or more hospitals. As discussed previously, our findings are quite different from those reported by Wuhan physicians (Li *et al.*, 1999). Regional data, especially from rural hospitals, need to be collected in order to gain a better understanding of the cigarette smoking patterns and

anti-smoking counseling practices of Chinese physicians. Complementary to quantitative data, qualitative interviews of physicians on their smoking and anti-smoking counseling behaviors would be illuminating. The co-authors of this paper, Chinese physicians themselves, have observed that their colleagues sometimes choose not to advise patients to quit smoking for a number of reasons. For the newly affluent, presenting and lighting a brand-name cigarette serves as an identity card. Some of them may think that to be recognized is more important than to live a few years longer. For the middle-class (e.g. professors, lawyers and doctors), smoking cigarettes helps them release stress. For the poor people (e.g. peasants and construction workers in the cities), smoking cigarettes is one of the few enjoyments in their lives. Physicians simply do not have the heart to deprive them of this gratification. What is more, for the poor people, life is cheap. If they do not care how long they are going to live, why should their physicians? Furthermore, Chinese physicians, although trained in western medicine, still believe in the principles of traditional Chinese medicine that views health and illness from a systems perspective. According to this view, abruptly quitting smoking may shock the body and bring more harm than good. To conclude, in-depth interviews would allow researchers to verify the above observations and gain insight of the psychology of Chinese physicians, thus providing guidelines to increase their smoking cessation counseling.

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Further reading

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