LAY BELIEFS ABOUT SMOKING IN KELANTAN, MALAYSIA

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Abstract. Studies have shown that smokers rationalize smoking by self-exempting beliefs. This study explored lay beliefs about smoking in Kelantan, Malaysia, using focus groups among outpatients, medical students and staff, and a questionnaire survey of 193 male smokers. In focus groups, patients said they could do something to make smoking safe. When asked, 'Do you think there are any safe ways to smoke?' 132/193 (68%) male smokers described at least one way. The commonest were 'drink water' (69/193, 36%), 'use a filter' (60/193, 31%), 'smoke after food' (27/193, 14%), and 'take sour fruit' (21/193, 11%). At three- or six-month follow-up, numbers agreeing with these beliefs were: for 'drink water' 67/115 (58%), for 'take sour fruit' 61/115 (53%), and for 'smoke after food' 38/115 (33%), with 88/115 (77%) supporting at least one. The main explanations for water were that it cleaned or moistened the lungs or throat. Sour fruit was described as cleaning, and sometimes as 'sharp', able to scrape out the essence of cigarettes. The conclusion is that self-exempting false beliefs about smoking are widespread, and here they probably represent an extension of the traditional humoral system. Anti-smoking campaigns and health workers in smoking cessation services should address these beliefs.

INTRODUCTION

Smoking tobacco causes many diseases, and leads to the premature death of about 50% of smokers (Doll *et al*, 1994). Worldwide, WHO estimates that four million deaths per annum are attributable to smoking (WHO, 1999). Strategies to reduce smoking include a) smoking cessation advice by health professionals, and b) public education campaigns. Both require an awareness of smokers' knowledge and beliefs about smoking.

Studies assessing smokers' knowledge about the dangers of smoking show that while smokers are aware of risks they underestimate them (Halpern, 1994; Sutton, 1998). Other studies find that smokers have not applied their knowledge to themselves personally (Hansen and Malotte, 1986; Strecher *et al*, 1995). Unrealistic optimism operates, *ie*, 'It won't happen to me'. Some studies have documented rationalizations for smoking, that is, untrue statements that are used to justify smoking (McMaster and Lee, 1991).

Chapman *et al* (1993) assessed Australian smokers both for their knowledge of the relation of smoking to five diseases, and for their agreement with 14 self-exempting beliefs about smoking. Among smokers, the number who held the beliefs ranged from 258 (80%) for 'Most people who quit smoking put on weight' to 56 (18%) for 'Smoking less than 20 cigarettes per day is safe'. Other examples of these beliefs were 'The medical evidence that smoking causes cancer is not convincing', held by 146 (45%), and 'Physical activity and sports stretch the lungs and get the tar out of your system' held by 86 (27%). This study also showed that smokers could recognize the link between smoking and diseases, and simultaneously hold several of the self-exempting beliefs.

The studies described here were undertaken in Kelantan, a rural state in the northeast of Peninsular Malaysia. Data on smoking in Malaysia are limited. The 1996 National Health and Morbidity Survey found that 59.7% of adult males and 5.1% of adult females were smokers (Lim, 2002). Very little is known about knowledge and beliefs about smoking among Malaysian smokers.

More is known about Malaysian beliefs concerning food. Manderson (1981) has studied how the humoral hot/cold classification of foods is used in Peninsular Malaysia. Hot foods are meats,

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spicy and oily foods, whereas cold foods are most fruit and vegetables. Certain physiological conditions and illnesses are classified as hot or cold, and to restore a healthy balance sufferers are advised to take cold or hot foods. Pregnancy is a hot state, when women are encouraged to take cold foods, whereas the puerperium is a cold state, when women should take hot foods. Manderson (1981) concentrated on women, but among men she noted that smoking is a hot activity, and smokers should take cold food and drinks. Manderson described four other categories of food used in Malaysia: 'windy', 'itchy', 'poison' and 'sharp'. Sharp foods, *eg*, pineapple, mango, lemons, limes, and tapai, a fermented sour dough, and delay recovery from illness, are thought to induce abortion.

The objective of the present studies was to investigate attitudes in Kelantan to smoking. When evidence for lay beliefs began to emerge, the aims were to assess their frequency, and to find their underlying explanations and sources. Both qualitative and quantitative methods were used.

MATERIALS AND METHODS

The setting of these studies was the open-access outpatients clinic (Klinik Perubatan Masyarakat, KPM) attached to the teaching hospital of Universiti Sains Malaysia (HUSM) at Kota Bharu, the state capital of Kelantan, Malaysia. In 1994, a preliminary study included four focus groups among KPM patients. This produced unexpected evidence of lay beliefs about smoking.

In 1996-1997, a randomized, controlled trial of anti-smoking advice was conducted among male smokers attending KPM. In this context, a questionnaire collected data on variables that might affect quitting, including the subjects' beliefs. In the final phase, focus groups among medical staff and students attached to KPM discussed lay beliefs about smoking.

Patient focus groups

Participants for the KPM focus groups were recruited on the spot, as there were no appointments. To encourage members to speak freely, groups were single-sex, with members aged 17 years and above. The discussions were in the Malay language. The male groups were moderated by WAM, and the female groups by a female research assistant (RA), a local social sciences graduate. The conversations were tape-recorded. During the male groups, the female RA attended without participating to make notes. AJ attended all the groups as a non-participant observer. From the tape recordings and rough notes AJ and the RA prepared full transcripts in English. Participants were identified by numbers. Comments were indexed and categorized them under theme headings. Areas of consensus and disagreement were noted.

Intervention study

Subjects were male patients attending KPM, aged 10-59 years, from the two nearest districts, Kota Bharu and Bachok. Interviews were conducted by a young Malaysian male RA in private. Subjects were classified as current, ex- or non-smokers on the basis of their answers to two questions: 'Do you / did you ever smoke cigarettes, or rokok daun (local leaf cigarettes) or any other form of tobacco?'

Self-reported smokers were randomized to either an intervention or control group. Intervention subjects were asked about diseases related to smoking, and an open-ended question, 'Do you think there are any safe ways to smoke?' All smokers were invited to follow-up at three and six months. Most did not attend their follow-up appointment, in which case the RA attempted to trace them by telephone or letter.

Interim analysis was done on responses to the question about safe ways to smoke. Three of the most common lay beliefs were fed back to subjects at six-month follow-up. They were asked, 'Some people think it is safe to smoke if you do such-and-such. What is your opinion? Can you explain these beliefs? Where do these beliefs come from? [*eg* religion, custom, bomoh (village healer), doctor's advice, prohibitions etc']. Quantitative and codified data were analysed with Epi Info version 5. Textual data were translated and codified, with indexing of key ideas.

Focus groups among medical students and staff

Two groups were held among fourth year students during their attachment to KPM. One

group comprised junior doctors on the post-graduate course in Family Medicine. One group of senior doctors involved lecturers from the Department of Community Medicine. These were mixed sex groups of colleagues, moderated by AJ in English. The RA attended as a non-participatory co-moderator making notes. The discussions were tape-recorded. Data analysis was undertaken by AJ and the RA preparing complete transcripts of the discussions. Comments were categorized under theme headings.

RESULTS

Focus groups with patients, 1994

Average age of participants was: in the male groups 50 years (7 men) and 38 years (5 men), and in the female groups 39 years (6 women) and 37 years (4 women). All members were Malay except in the first male group where there was one Chinese. All members participated except this Chinese man. Some subjects revealed their smoking status.

The first male group discussed influences that promote smoking, and possible ways to reduce smoking. There was little personal anecdote, except from an ex-smoker to describe how he stopped. The first female group discussed similar themes, but also gave anecdotes about women smoking, and about different ways acquaintances had quit. The second female group added little: the general theme was, 'We don't like smoking, but it's hard to do anything about it, either in domestic or public life'.

The second male group produced the most new material. At least three members were smokers, and the conversation was much more positive about smoking. A 52-year-old smoker said:

'I think if we smoke but not a lot, it is not dangerous for us. The right method is to drink water after smoking a cigarette. The nicotine enters with the smoke and dries out the lungs, and the water wets the lungs and gets rid of the dryness'.

It was not clear if the others agreed with this, but another member, a 29-year-old smoker, said:

'From the health aspect smoking is not that dangerous, if the smoker knows how to use it. Sometimes we see sportsmen, *eg*, badminton players, taking a cigarette as soon as they've finished playing, and at that time our lungs are hot, and we haven't been drinking water, and the essence of the smoke gets into our lungs. To get rid of it we can drink lemon juice once a week to take it out'.

These men minimized the danger of smoking. Each described a method to make smoking safe, either drinking water to moisten the lungs, or drinking lemon juice to get rid of the essence of the smoke from the lungs. This was an unexpected new finding.

Results from questionnaire in intervention study, 1996

Of 1,140 eligible subjects, 96 (8.4%) were omitted as follows: 58 (5.1%) could not be found in the clinic; 19 (1.7%) were too ill; 8 (0.7%) refused; 8 (0.7%) were deaf or mentally ill; and 3 (0.3%) failed to complete the interview. Thus, 1,044 entered the study. Of these, 987 (94.5%) were Malay, 49 (4.7%) Chinese, and 8 (0.8%) other groups. Excluding subjects aged under 20, or on a pension, 472/689 (69%) were manual workers, and 217/689 (31%) professional/managerial workers. Self-reported current smokers numbered 387, of whom 193 were randomized to the intervention group.

Factual knowledge. When 193 subjects were asked, 'Do you think any of the following diseases are caused by smoking?' the numbers saying 'Yes' were: heart attack 163 (85%), lung cancer 170 (88%), stroke 32 (17%), throat cancer 129 (67%), and cough and breathlessness 188 (97%).

Lay beliefs about safe ways to smoke. Table 1 shows the frequency of responses to the open-ended question, 'Do you think there are any safe ways to smoke?' Excluding 'There's no safe way to smoke' and the non-respondents, 132 (68%) volunteered a safe way. It was common (77, 40%) to suggest more than one safe way.

Table 2 shows the mean ages of subjects reporting safe ways to smoke. Smoking after food, and not inhaling, were proposed by older men, whereas using a filter was expressed by younger men. For other responses, there was no difference

Table 1
Responses of 193 smokers to 'Do you think there are any safe ways to smoke?' (n = 193).

Response	Frequency	%
Drink water	69	36
Use a filter	60	31
Smoke after food, after food and/or drink	27	14
Take sour fruit, fruit, something sour	21	11
Take exercise	18	9
Don't inhale, don't inhale deeply	12	6
Don't smoke at night, in bed, lying down	6	3
Smoke less	5	3
There's no safe way to smoke	4	2
Don't smoke after doing sport	4	2
Wash or clean your teeth	3	2
Eat sweets	3	2
Other	8	4
No response, don't know	57	30

in age.

Reviewing distribution of beliefs with occupation, results were almost entirely negative. There were no significant differences with occupation except for the belief about sour fruit, which was mentioned by 17/83 (20%) of men employed in sales or production, compared to 4/110 (4%) of others (OR 6.83, 95% CI: 2.04 - 25.18).

Results from questionnaire at six-month follow-up

Participants. The subjects who attended at six months were 116 (30%) of the original 387 smokers. Data on beliefs are available for 115, of whom 56 had received the intervention, while 59 were controls who had not discussed beliefs before.

Frequency of lay beliefs. Three of the four commonest lay beliefs were selected for more

Table 2
Mean age of smokers reporting safe ways to smoke (n = 193).

Response	Frequency	%	Age Yes	Age No	p
Drink water	69	36	35.0	32.2	-
Use a filter	60	31	29.6	34.9	0.006
Smoke after food, after food and/or drink	27	14	39.2	32.2	0.003
Take sour fruit, fruit, something sour	21	11	35.7	32.9	-
Take exercise	18	9	34.3	33.1	-
Don't inhale, don't inhale deeply	12	6	44.3	32.5	0.003
No response, don't know	57	30	33.7	33.2	-

Table 3
Frequencies among smokers of explanations of how drinking water makes smoking safe (n=52).

Explanation		Frequency	Example
	Removes pati rokok	14	'If you drink a lot of water it reduces the pati rokok in the lungs, because it's taken away by the water'
Cleans (n=28)	Resists pati rokok	5 (1 both)	'Because then the pati rokok won't stick to the lungs'
	Cleans	10	'It clears all the dirt from the throat'
Moistens or cools (n=27, 3 both)	Moistens	24	'It moistens the lungs and then the lungs are not dry'
	Cools	7 (4 both)	'Because water cools the chest, like water cooling a car engine'

Table 4
Frequencies among smokers of explanations of how taking sour fruit is cleaning (n=48).

Explanation	Frequency	Example
Washes/cleans	21	'Because it washes the lungs, *eg*, pineapple, apple'
Gets rid of the effects	19	'Because lime juice gets rid of the pati rokok'
Scrapes	8	'It can scrape out the pati rokok that sticks in the lungs'

Table 5
Frequencies among smokers of explanations of how smoking after food is beneficial (n=32).

Explanation	Frequency	Example
It is comfortable	23	'It makes you feel comfortable' 'It gets rid of loya (nausea)'
It is safer	12 (both 3)	'Because before food the stomach is empty and that's dangerous, and after food is safer, because the food you've just taken will absorb the effect of the cigarette'.

Table 6
Sources of dominant beliefs about safe ways to smoke.

Source	Drink water (n = 52)	Take sour fruit (n = 48)	After food (n = 32)
My personal view	24 (46%)	15 (31%)	21 (66%)
Other people, friends	11 (21%)	17 (35%)	5 (16%)
Old people	11 (21%)	12 (25%)	-
Village tradition	-	4 (8%)	-
Doctors	5 (10%)	-	-
No source	1 (2%)	-	6 (19%)

detailed study. The 115 subjects were asked: 'Some people think that it is safe to smoke if you do something like drinking water, eating sour fruit, or smoking after food. What is your opinion?' For drinking water, 67 (58%) said 'Yes'; for eating sour fruit, 61 (53%) said 'Yes'; but for smoking after food, only 38 (33%) said 'Yes'.

Subjects commonly affirmed more than one belief. Overall 17 (15%) affirmed all three beliefs, 44 (38%) supported two, 27 (23%) supported one, and 27 (23%) denied all of them. In total 88 (77%) professed at least one belief.

There was no significant age difference between subjects affirming or rejecting each of the beliefs, nor in number of beliefs held. There were no significant differences with occupation for any individual belief, nor for number of beliefs.

Explanations for beliefs at six-month follow-up

Drinking water. When asked to explain this belief, 58/67 gave an explanation, of which 52 gave responses in one of two main themes, which were that water cleans, or that water moistens. The frequencies of these themes and their subdivisions are shown in Table 3, with examples of quotations from the subjects. Subjects tended to refer to the lungs or the throat. Of the 52 giving one of the dominant explanations, 19

mentioned the lungs, and 17 the throat.

Taking sour fruit. When asked to explain this, 57/61 gave an explanation. Seven gave an explanation on the lines of 'sour fruit makes you feel better', two gave another response, while 48 gave explanations with one dominant theme - cleaning. These could be sub-divided according to the verb used, as shown in Table 4. Pati rokok (the essence of the smoke) was the term used by the majority (29), as in Table 4, but others mentioned kesan rokok (the effect of smoking) (3), nicotine (3), or the effects or remains of smoking (4). As for water, some referred to the lungs (15), and some to the throat (9).

One interesting feature of this section was the use of analogy by six subjects; *eg*:

'Because limes and pineapples are sharp, and able to get rid of the pati rokok in the throat, but not 100%. For example, if you squeeze lime juice onto a plate that is rusty or faded, it will become bright and white'.

Smoking after food. When asked to explain this, 32/38 gave an explanation related to one of two dominant themes. The two dominant themes were either that it is comfortable to smoke after food, or that it is safer to smoke after food, as shown in Table 5.

Sources of dominant beliefs. In response to the question, 'Where do these beliefs come from?' subjects offered only a limited range of answers, which could be grouped in the same way (Table 6). For drinking water, and taking sour fruit, the results are similar, with three main sources: the subject's personal view, other people, and old people. The belief about smoking after food, which was less well supported overall, seemed to be much more a personal view, as though subjects were less confident of community support for it. A surprising finding is that five subjects attributed the belief about drinking water to doctors.

Results of focus groups with medical staff, 1997

Participants. There were two groups each of nine students. There were twelve junior doctors and six senior doctors. The majority were Malay Malaysians and non-smokers. Members had heard of the beliefs from friends or family or patients. On probing about sources and explanations of the beliefs they added a little material.

Student: 'I've heard some people say you can clean the lungs by drinking water. But I don't believe it.' On probing he said he had heard this when he was 'young, during my secondary school'.

Lecturer: 'They do believe pineapple because it's sharp, it can scrape. The problem is, they believe in pineapple as a sharp food because the unripe pineapple is used for abortion. For them, if pineapple's strong enough to abort the baby, it must be strong enough to scrape anything along the track, I suppose'.

The groups did not make the connection between Malay beliefs about heating and cooling foods and smoking; *eg*:

Lecturer: 'I think Malays' beliefs in food, health taboos, are more related to pregnancy and during illness, not related to smoking. I haven't come across that'.

DISCUSSION

This article has presented material from four lines of investigation: the patient focus groups; the open-ended question to the 193 smokers; the questions to 115 smokers at follow-up; and the staff focus groups. The findings from these four sources are consistent. From the original patient focus groups it emerged that some smokers believed they could do something to make smoking safe. The open-ended question to 193 smokers showed that a variety of such beliefs were widely held. Three of the commonest of these were reflected back at six-month follow-up, and 88/115 (77%) held at least one of them.

The strongest support was given to drinking water and taking sour fruit. Both were explained in terms of cleaning away the effect of smoking, often specified as the pati rokok, from the lungs or the throat. Sour fruit was sometimes described as sharp and able to scrape out the pati rokok. A second explanation for water was that it moistened dry body parts.

The third belief that was studied in detail, about smoking after food, received less support. The main explanation given was that smoking after food was more pleasant rather than safer. When asked for sources, subjects seemed less confident of community support for this than the other beliefs.

At the same time as holding these beliefs the smokers showed considerable factual knowledge. In the 1996 questionnaire large majorities of subjects recognized the link between smoking and related illnesses, except in the case of stroke.

The staff focus groups provided triangulation. The students and lecturers were aware of the lay beliefs but had not connected them with the heating-cooling classification. The lecturers suggested a link between regarding pineapple as an abortifacient, and sharp foods scraping out the pati rokok.

Lay beliefs about safe ways to smoke occurred in smokers of all ages and occupations. It is likely that these beliefs circulate among adolescents as they acquire smoking. This was also suggested by the student who had heard at secondary school that drinking water cleaned the lungs.

Our findings about lay beliefs can be compared with studies of rationalizations about smoking (McMaster and Lee, 1991), and the work by Chapman *et al* (1993) on self-exempting beliefs. As Chapman *et al* (1993) found, among our subjects also such beliefs are highly prevalent, subjects often hold several at once, and subjects may have factual knowledge about the dangers of smoking at the same time as holding lay beliefs.

This is the first study to look in a detailed, qualitative way at explanatory concepts for lay beliefs. One of Chapman *et al*'s findings resembles ours: he found 27% of subjects believed that 'Physical activity and sports stretch the lungs and get the tar out of your system'. In our study, 9% believed that taking exercise made smoking safe. 'Getting the tar out of your system' sounds like the beliefs about removing the pati rokok.

Comparing with the work of Manderson (1981) on traditional food beliefs, the humoral dyads wet/dry and hot/cool are both expressed by our subjects in their explanations of how drinking water makes smoking safe. Manderson (1981) mentions that smoking is a hot activity, and men should take cold food and drinks to counter it. The medical staff did not connect the traditional hot/cold food classification with smoking, but this may reflect a lack of awareness on their part. Manderson (1981) describes how sharp foods are thought to induce abortion. Some of our subjects used the idea of scraping, by sharp foods, to explain the benefit of sour fruit. The lecturers' group suggested a link with the abortifacient concept of sharp foods.

An overall model can be proposed that smoking is incorporated into the wider health beliefs of a community, on the general theme that smokers can do something to make smoking safe, and thus justify continuing to smoke, and excuse themselves from attempting to quit. It is recognized (Anderson, 1984) that the humoral system is flexible and able to assimilate new foodstuffs, and it seems also to have assimilated smoking. Among these Malaysian subjects, beliefs about hot/cold and wet/dry states, and about sharp foods, have been applied to smoking. Similarly, among Chapman's Australian subjects (Chapman *et al*, 1993) the idea that physical exercise is beneficial has been extended to say it will get rid of the tar from smoking.

Health professionals should realize that smokers hold many beliefs that are quite different from official statements on the dangers of smoking. These beliefs are often held at the same time as smokers have some knowledge of health risks. These beliefs probably circulate among adolescents and promote the uptake of smoking. Health education programs should address and correct these false beliefs. Health professionals dealing with smokers could explore the area with a question such as: 'Some people think smoking is not that dangerous. What do you think?'

There is extensive scope for further qualitative research into lay beliefs about smoking. This could be done in any ethnic group, either in Asian countries, or among ethnic minorities in western countries. The humoral system is widespread in non-western populations, and other groups might have incorporated smoking into their traditional health beliefs.

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