

## Research papers

# Why do Chinese people with COPD continue smoking: the attitudes and beliefs of Chinese residents of Vancouver, Canada

Iraj Poureslami, MSc HA, Ph.D.

Senior Health Evaluation Scientist, University of British Columbia, Vancouver, Canada

Jessica Shum, BA.

Research Assistant, University of British Columbia and Vancouver General Hospital Division of Respiratory Medicine, Vancouver, Canada

J. Mark FitzGerald, M.D. FRCPC. Professor of Medicine,

Head, University of British Columbia and Vancouver General Hospital Division of Respiratory Medicine UBC and VGH Divisions of Respiratory Medicine and Co-Director, Institute for Heart and Lung Health, Vancouver, Canada

### ABSTRACT

Chronic obstructive pulmonary disease (COPD) is currently one of the most common chronic lung diseases and a growing cause of global morbidity and mortality. Smoking is the most important risk factor for its development, and about 20% of smokers develop COPD. This study took place in Metro Vancouver, Canada. The aim of the study was to compare and contrast the smoking habits and associated beliefs among two groups of Chinese people after receiving a diagnosis of COPD: those who successfully stopped smoking and those who continued to smoking.

Ninety one Mandarin or Cantonese speaking patients with COPD, of whom 24 were current smokers and 67 were former smokers, participated in individual semi-structured interviews. Participants were recruited with the assistance of primary care physicians and respirologists in the Metro Vancouver. Data were analyzed using hand coding for qualitative content analysis.

Differences between the two groups were assessed.

Smoking experience, social influences, addiction/habit, and the advantages and disadvantages of smoking were identified. In particular, differences between smokers and former smokers found in terms of beliefs that smoking helps relaxation and reduces COPD anxiety and stress, and that smoking is a psychological habit that cannot give up easily. Significant information on barriers to successful smoking cessation was also elucidated.

This study suggests we need to first understand Chinese smokers' internal motivations to quit and then assist with culturally and linguistically relevant smoking cessation counselling. Further research is needed to determine if communication regarding tobacco use that is targeted toward the Chinese-speaking population in North America improves cessation rates.

**Keywords:** smoking, beliefs, attitudes, COPD, Chinese communities, differences between quitting versus non quitting subjects

### What is known about this subject?

- While most individuals understand the benefits of smoking cessation and many who are diagnosed with COPD quit smoking, some Chinese people with COPD continue to smoke.
- Despite knowing about the harmful effects of smoking, Chinese people with COPD report difficulties in cutting down or quitting smoking: high nicotine dependence, breaking lifelong smoking habits, and lack of motivation.
- Having respiratory symptoms is not reason enough to quit smoking. Many Chinese people with COPD continue to smoke because they feel regarded their illness as self-inflicted and believe themselves to be unworthy of smoking cessation assistance.
- Long-term behavioural support increases the number of ex-smokers; interventions that promote smoking cessation may be more effective when counselling and behavioural treatments are perceived relevant to individual need.

### What this paper adds

- Insight into Chinese people's perceptions of the consequences of smoking and their beliefs about the likelihood that they will develop COPD.

- Decisions about whether to give up smoking after a diagnosis of COPD are made collectively by individuals and their families. Family support is crucial to the success of smoking cessation.
- A different model of risk perception (applying Stage of Change model) should be designed and applied considering the age and gender of COPD patients in Chinese community.

It is essential that smoking cessation counselling and self-help materials are provided in a language understood by Chinese people with COPD.

## Introduction

Tobacco use and passive smoking are known to be the most important avoidable risk factors for chronic respiratory and cardiovascular diseases: asthma, chronic obstructive pulmonary disease (COPD), lung cancer, and ischaemic heart disease and hypertension (Beardall and Edwards, 1995; Baliuan et al, 2007; The Lung Association, 2008). Many chronic illnesses are affected by smoking; however, the effects are much more severe for those with respiratory diseases (Public Health Agency of Canada, 2007). Smoking cessation would have the greatest impact on reducing the problems and exacerbations associated with respiratory diseases, especially COPD (World Health Organization, 2008).

COPD is defined as irreversible airflow obstruction within the lungs and is the third most common cause of death in the world (Ernst et al, 2000; Rodriguez-Rosin et al, 2011). COPD greatly affects ethnic minority groups, who are known to have difficulty in accessing health information or understanding their chronic illness. In addition they may have significant exposure to biomass and biofuel smoke which further increases their risk (Lahiri et al, 2007; Po et al, 2011; Lozano et al, 2012; Martin et al, 2012; Prieto-Centurion et al, 2013). It is predicted that over 50% of long-term smokers will develop this disease (Schofield et al, 2007; Vestbo, 2007; Lin et al, 2008; Zhang et al, 2014). Despite current knowledge about the link between smoking and chronic diseases, including COPD, there is still a high prevalence of smoking across the world and every year over 5 million deaths reported as the result of direct tobacco use (World Health Organization, 2014-1; Jha and Peto, 2014; US Centers for Disease Control and Prevention, 2014). More than 80% of those deaths is reported in low- and middle-income countries (World Health Organization, 2014-1).

### Smoking among Chinese people

China, is the largest consumer of tobacco in the world with 350 million smokers (Wakefield et al, 2008; Wong et al, 2008; Gu et al, 2009; Burton et al, 2010; Yu et al, 2010). According to studies in China, 60% of the Chinese men and between 4 to 6% of Chinese women smoke daily (Gallup World, 2012; World Health Organization, 2014-2); whilst rates are much lower, around 20%, among Chinese migrants in Canada, Chinese-Canadian men are still known to be at significant risk of illness and death from smoking-related diseases (Chen, 2008; Yang et al, 2010). This suggests that they may not perceive smoking as a health risk to be concerned about and may not change their smoking habits even after being diagnosed with COPD (Cook, 1994; Ho et al, 2003; Gupta et al, 2006; Chen, 2008; Yang et al, 2010; Gallup World, 2012). Evidence from recent studies indicates that many Chinese migrants in Canada, who have COPD, continue to smoke (Ho et al, 1999; Lam et al,

2002; Lam et al, 2007). There is a lack of information about their understanding of their COPD, why so many continue to smoke and what motivates them to stop. Better understanding of these issues could inform and improve smoking cessation programmes for Chinese migrants. To our knowledge, no attempt has been made in Canada to investigate these issues and yet Chinese communities are the fastest growing immigrant groups in North America (Fu et al, 2003; Robles et al, 2008). Approximately 20% of Canada's new immigrants are Chinese (Statistics Canada, 2008). More than two-thirds (69%) of Chinese-Canadians are foreign-born, and up to 40% of this population have been classified as linguistically isolated (Solberg et al, 2007; Statistics Canada, 2008; BCStats, 2010; British Columbia Ministry of Health, 2012). Many Chinese live in ethnically concentrated communities in North America, where Mandarin and Cantonese are spoken almost exclusively; these communities have been targeted by the tobacco industry through the use of community media (Chen, 2008; Li et al, 2009; Pollay, 1995, 2000). To counter this targeted marketing and encourage smoking cessation and tobacco-reduction practices among Mandarin and Cantonese speaking Canadians, there is a critical need for a community-based approach encompassing both prevention strategies and cessation interventions.

This paper describes the results of a study that examined attitudes to and beliefs about smoking among Chinese Mandarin or Cantonese speaking people with COPD; current and former smokers were included. We studied a convenience sample of 91 people who had been recruited into a cross-sectional study which focused more generally on COPD management; 67 were former smokers. Subjects had spirometry done to confirm the diagnosis of COPD based on GOLD criteria (Rodriguez-Rosin et al, 2011). We examined their smoking habits, beliefs about the association between smoking and their disease, and motivational factors for discontinuing smoking. We aimed to identify current knowledge of and practices in smoking and whether having a smoking-induced chronic disease would facilitate intention stop smoking. The purpose was to identify and differentiate the smoking habits, beliefs, perceptions and attempts to give up smoking between those who had achieved this and those who continued to smoke. We believe this information could help to inform practical approaches to promoting smoking cessation among Chinese communities.

## Methods

### Project design

A community-based participatory research (CBPR) approach was used to provide a forum for active participation in the research process by patients and their home caregivers. This approach ensured the active contribution of participants and caregivers in study design, conceptual framework, development

of the study questionnaire, and implementation of research (Fu et al, 2003; Ferketich et al, 2004; Burton et al, 2004; Deason et al, 2010; Poureslami et al, 2011). We obtained ethics approval from the University of British Columbia Research Ethics Board and the study was conducted at a university-based research centre. All participants signed a written consent form in their native language at the time of enrolment into the study. Bilingual-bicultural community research assistants, who were proficient in either Mandarin or Cantonese, were hired and provided with relevant training, for example in conducting face-to-face interviews and interpreting medical terms.

### Participant recruitment

All participants spoke either Mandarin or Cantonese and lived in the Metro Vancouver (MV) area of the city. They had all received a diagnosis COPD from a physician and were recruited from the practices of MV's respirologists, primary care and emergency department physicians, community organization educators, and respiratory therapists who were collaborators in the study. Spirometry was performed to confirm the COPD diagnosis and the Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria (Stages 1–4) were used to determine the severity of COPD (World Health Organization, 2011; US Centers for Disease Control and Prevention, 2014). Most participants were in stages 2 (moderate) and 3 (severe). In total, 91 people were recruited; 24 were current smokers and 67 were ex-smokers. The demographic characteristics of participants were: 71 were male and 20 were female; the median age was 75 years. Most communicated mainly in their native language; 73 spoke Cantonese and 18 spoke Mandarin. All had resided in Canada for more than 15 years. To capture a range of community perspectives on smoking behaviours, 2 distinct groups of participants were identified in our study: (1) current smokers (n=24); (2) former smokers (n=67).

### Measurement instrument

To develop the study measurement tool, we initially began with an exploration sub-study consisting of five focus group sessions that were conducted in 2011, with 27 participants. The development of the instrument is described in detail in our previous publication (Poureslami et al, 2014). Given the absence of a validated assessment questionnaire in the target languages, a new measurement tool was developed based on input from focus group sessions, a review of relevant literature, and previous smoking-related qualitative studies with Mandarin and Cantonese patients with asthma and/or COPD (Xu et al, 2005; Li et al, 2009; Wong et al, 2009; Burton et al, 2010; Yu et al, 2010; Ho et al, 2010; Poureslami et al, 2014). We aimed to ensure the applicability, relevance, and understandability of the questions. The measurement tool included 17 self-reported items regarding participants' beliefs and attitudes towards smoking and smoking cessation, their perceptions of the advantages and disadvantages of smoking, links between health issues and their smoking habits, and the consequences (health, social, and costs, etc.) of smoking. Scoring for the quantitative questions [for instance; 'What benefits do you believe people would receive from smoking?' and 'When it comes to smoking, I usually follow the example of (my friends, my family members, my co-workers, my own belief)'] were 0 (incorrect answer) or 1 (correct answer). Additional questions

addressed attempts to give up smoking, reasons for continuing to smoke and withdrawal symptoms, if any. Smoking status was self-reported: 'At the present time, do you smoke cigarettes?' Frequency of smoking (i.e., daily, weekly, or less than a week) was also noted. The study measurement tool was pilot tested with 19 people, with a diagnosis of COPD, who provided input on face and content validity as well as the reproducibility of the questions. The instrument was also reviewed by community key-informants (n=5) and health practitioners (n=4) who helped us to further develop and finalize the measurement instrument.

### Data collection

Interview sessions were conducted at places and times of convenience for participants: e.g., participants' homes, community centers, and our clinical centre. Printed consent forms, in the participants' preferred written language (Chinese Simplified or Chinese Traditional), were explained and signed preceding the interview. Each smoker received CAD\$25 cash as an honorarium to cover time, travel, and parking expenses. Participants were aware that they would receive \$25 cash beforehand and signed a receipt at the end of the interview. Community research assistants (CRAs) conducted the interviews in either Mandarin or Cantonese and administered the study questionnaire. The interviews were audio recorded and each interview took 45 to 60 minutes to complete. To gather as much input and data on smoking attitudes and perceptions from the participants, family caregivers were also welcomed to participate in the discussions. However, only participants' responses were included in the final analyses for this article. A report from family caregivers' notes, perspectives, and suggestions was prepared to help the research team to design smoking cessation programmes in future projects. The qualitative data were analyzed using the transcripts of recorded interviews while the notes taken during the interviews by the CRAs (including verbal and non-verbal communication and thoughts and opinions about smoking and smoking cessation) (Popay et al, 1998) were also used to complement the transcripts (Eklund et al, 2012).

### Data analysis

For data analysis, we applied three steps in order to identify specific themes: (1) reviewed the participants' responses as well as the notes provided by the CRAs, and compared and contrasted the responses of the participants within and across groups to document emerging themes; (2) established categories and coding themes; and (3) sorted responses into thematic categories. Data were analysed by each investigator and the team then met to compare outcomes and reach a consensus. Our aim was to classify recurring, emergent themes using constant comparison of the data (Thompson et al, 2003; Eklund et al, 2012; Gierisch et al, 2012). Four main themes were identified: "reasons for starting smoking", "quitting motivation and previous quitting attempts and methods", "the advantages/disadvantages of smoking", and "smoking-related health beliefs".

### Findings

The two groups of current smokers (n=24) and ex-smokers (n=67) described dimensions of their smoking experience. Preliminary analyses revealed no differences for any outcome across participants' level of COPD severity, indicating that

length and severity of disease did not influence smoking beliefs and perceptions in the target patients.

#### i) Reasons for smoking initiation

The most commonly cited reasons mentioned by both groups (smokers and ex-smokers) for starting to smoke were curiosity and social matters when they were young:

✓ 'because everyone smoked back then, and to look more mature'. (woman).

✓ 'When I was young, I was curious and started smoking when I saw other people smoking. I started smoking because of my favorite movie actor'. (man)

Other reasons identified were work environment and being forced to smoke by older peers:

✓ 'older school mates forced me to have my first smoke.' (man)

Lack of perceived risk was also cited by some participants:

✓ 'A question I and my friends had in our mind [sic] was: How come some people smoke their whole lives and never have a problem?' (man)

Table 1 provides a summary of participants' reasons for starting smoking.

#### ii) Previous quitting attempts and reasons

The majority of patients who quit smoking did it on their own without using any other smoking cessation methods. Only five tried using medication/nicotine patches, who were happy with the result. Most of those who gave up smoking (60% n=40) did so for health reasons (e.g. constant coughing and short of breath) and after receiving advice from their doctor to quit:

✓ 'I quit smoking because my doctor said to quit. I had shortness of breath and declining lung function' (woman).

✓ '[After learning about health issues of smoking] I wanted to avoid exposure to smoke. I quit my job at the Casino'. (man)

✓ 'My doctor told me if I don't quit I will die. I quit smoking because of my COPD, I quit the next day'. (man)

Friends and family members were also mentioned by 35 ex-smokers (52.2%) in supporting and aiding cessation:

✓ 'After coming to Canada, I was forced to quit smoking by my family, my daughters told me to quit and yelled at me'. (woman)

Immigration to Canada and restrictions on smoking in the public also mentioned by 17 (25%) who quit successfully:

✓ 'Smoking is harder here (I had to smoke outside) and I didn't want to smoke in front of the children. When it is too cold I do not go out to smoke, so I quit'. (man)

More direct quotes from participants on their reasons to quit smoking can be found in Table 1.

#### iii) Advantages and disadvantages of smoking

Out of the 24 participants who still smoked, twelve (50%) subjects said that there were no advantages or benefits to smoking

and that the only reason for their continuation was because it had become a habit for them. In addition, 6 (25%) current smokers and 9 (13.4%) ex-smokers smoking helped them to relax. Two other often cited benefits of smoking were better concentration and help in reducing COPD-related anxiety and stress. Better concentration was mentioned by 5 (21%) of current smokers and 12 (18%) ex-smoker patients; 7 (29%) current smokers and 10 (15%) ex-smokers said that smoking helped them to deal with COPD anxiety and stress. Smoking was also thought to help fight disease/germs and re-energize people:

✓ 'Smoking helps with disinfection'. (man)

✓ 'Smoking gives you energy/recharge/revitalize and a psychological habit. (woman)

✓ 'Smoking helps during weather change when not feeling well (woman).

✓ 'There is no good replacement for getting focused. Smoking is the best thing to help me relaxed'. (man)

✓ 'Nicotine calms me down'. (man)

✓ 'I felt more relaxed when I smoked'. (woman)

A high total of 56 (61.5%) participants believed that smoking had some health-related disadvantages; the most commonly cited were lung diseases, cancer, shortness of breath, coughing, and heart problems. Interestingly, 38.5% of the participants were unaware their COPD was caused by smoking. Cost, causing harm to children, bad odours and headaches were mentioned by a few participants as other disadvantages of smoking. Some current smokers mentioned that, although they were aware of health-related risks attributed to smoking, they were still reluctant to quit because they thought it was too late:

✓ 'The time already passed by - It's hard to change my habit because I'm already old and have the disease [COPD]'. (man)

Other reasons for continuation were because their bodies needed nicotine, or they enjoyed smoking. One man who had stopped smoking said:

✓ 'Honestly, I don't think there's anything bad with smoking - but my doctor told me to stop'.

✓ 'My smoking depends on my mood: when I'm happy, then I don't smoke, when I'm unhappy and with stress [sic] I smoke'. (woman)

Table 1 lists comments made by COPD patients on smoking advantages and disadvantages.

#### iv) Smoking-related health beliefs

Although most current and ex-smokers perceived smoking as a health threat, over 26% persisted in smoking. Diverse ideas mentioned by smokers in our study for continue smoking: Five believed that a certain tobacco consumption level was safe (four men and one woman), four indicated quitting was pointless as they had seen friends give up and then die (four men), and five other smokers believed after, many years of smoking, their bodies needed nicotine and were simply addicted to it (three men and two women: 'I cannot quit because I am addicted but I can cut down when I want to' - woman). Additionally, three

**Table 1:** Results of qualitative content analyses presented as themes and categories

Themes	Categories
<b>Reasons for smoking initiation</b>	‘‘I started smoking because my friends smoked and I thought it was cool and fun.’ (man)
	‘I smoked to take a break from work.’ (man)
	‘‘Everyone used to smoke back then in the factory when I worked in China.’ (man)
	‘‘People told me smoking was cool.’ (man)
	‘‘My relatives gave me cigarettes to smoke when I was young and then I became addicted.’ (man)
	‘‘Smoking was a trend; everyone around me smoked. It was part of my social life.’ (man)
	‘ ‘I was exposed to 2nd hand smoke at home for 20 years because my father and husband were heavy smokers, then I started to smoke’. (woman)
	‘‘I start smoking because my father in-law and older brother used to smoke. Also I worked in office in Hong Kong and most people smoked there.’ (woman)
	‘‘My friends smoked, so I first exposed to smoke by my friends. My husband smoked for many years and I smoke too. It is hard to quit because I always wants to smoke.’ (woman)
	‘‘I start smoking because of culture and social reasons, fashion/it's what "in" - popular culture.’ (man)
	‘‘My doctor advised me to quit smoking and gave me medication to quit but the pharmacist told me there are a lot of side effects like sweating, etc., so I started to smoke again.’ (man)
	‘ ‘I quit because I was really short of breath and cough a lot.’ (man)
	‘ ‘I was forced to quit smoking by family.’ (man)
	‘‘I quit because the doctor told me that if I didn’t quit, I would die.’ (man)
‘‘It was too inconvenient to smoke at home because I can’t smoke inside.’ (man)	
‘‘I was always coughing, and then I quit.’ (man)	
‘‘I had to have surgery for my lungs and the doctor told me to quit.’ (man)	
‘‘I didn’t want to smoke in front of the children anymore.’ (man)	
‘‘After my husband dead I smoked for many years, then my children helped me to quit.’ (woman)	
‘‘I smoked because my husband smoked, but smoking made me feel uncomfortable so I quit.’ (woman)	
<b>Reasons for giving up smoking</b>	‘‘I tried to quit smoking [cold turkey] for many time, but I failed because I was still working and surrounding friends were smokers and work industry influenced me along with social interaction. At the end, I quit because my doctor told him I needed to quit.’ (man)
	‘‘I quit smoking after coming to Canada and observed that it's not a culturally good habit to smoke.’ (man)
	‘ ‘I quit because I didn't like the smell of smoke.’ (woman)
	‘ ‘I smoked just for fun and wasn't a heavy smoker so quit easily. One day I decided then quit.’ (woman)
	‘ ‘I quit smoking because of immigration to Canada.’ (woman)
	‘ ‘I quit because I had a stroke and was admitted to hospital for 3 weeks.’ (man)
	‘ ‘Smoking made me feel uncomfortable so I quit.’ (woman)
	<b>Advantages</b>
	‘‘Smoking can disinfect germs.’ (man)
	‘‘It is entertaining.’ (man)
	‘‘Time passer and also gives you energy.’ (man)
	‘‘Smoking makes you feel better when the weather is changing [when you are not feeling well].’ (woman)
	‘‘As soon as I quit I got asthma: when you smoke it covers your symptoms.’ (woman)
	‘ ‘I smoke 1-1/5 packs a day as smoking triggers my brain to think.’ (man)
‘ ‘Smoke keep me awake at night.’ (man)	
<b>Advantages and disadvantages of smoking</b>	‘ ‘It’s fun.’ (woman)
	‘ ‘When you quit smoking, your lung function improves, my doctor said.’ (man)
	<b>Disadvantages</b>
	‘‘Smoking makes the body weaker and you get sick more often.’ (man)
	‘‘It makes the house smell.’ (woman)
	‘‘I lose my appetite after smoking.’ (man)
	‘‘It gives you a headache and your eyesight will go bad.’ (woman)
	‘‘I cut down and smoke less because I know it is bad for the body.’ (woman)
	‘ ‘Smoking is expensive.’ (man)
	‘ ‘When I quit my COPD was around the same so I continued again.’ (man)
	‘ ‘Smoking harms’. (woman)

male smokers had the feeling that smoking helped digestion, and two female smokers indicated that it had a calming effect. Finally, six male and 2 female smokers also reported struggling to quit and nine participants stated that they had difficulty in maintaining their non-smoking status (eight men and one woman) – ‘I quit once, then I started to smoke again because smoking helps me build close relationships with my friends when we play cards’ (woman). ‘I know smoking is bad but I don’t know how to quit’. (woman)

Among those who tried to quit, cues to quitting were varied, ranging from disease severity (having COPD) to the beliefs that smoking help them to relieve stress and anxiety:

✓ ‘I cut down smoking because I hospitalized for my lung problem, then I cut my one-pack a day smoking [sic] to three packs a month’. (man)

✓ ‘My biggest motivation to quit was my older brother – he convinced me to quit’. (man)

✓ ‘I feel the effects of smoking on my health but it is not enough to make me want to stop’. (man)

v) Trusted sources to get advice about smoking

Although participants’ perceptions about the trustworthiness of sources of information source was not among the identified main themes, we discovered some useful information shared by the participants about which sources of information they trusted most when seeking advice about smoking. Fifty-three (58%) participants identified family members, 26 (29%) mentioned co-workers, 25 (27.5%) said friends and 9 (10%) said that they trusted their own judgment to make decisions about their smoking. Interestingly, only 34 participants (less than 37.5%), mainly ex-smokers, identified their doctor or other health professionals as trusted sources of smoking-related information and advice. While around 61% (n=45) of former smokers indicated that they listened to their care providers’ advice about quitting, over 83% (n=20) of current smokers indicated that their care providers had little or no role in their decision to quit smoking. They also reported difficulty in understanding and applying information provided by care providers, in particular how to overcome the withdrawal symptoms. For instance, seven current smokers mentioned they had stopped smoking but had experienced weight gain, dizziness, depression, and mood change, which led them to start smoking again.

## Discussion

In Canada, the Chinese community is of potential interest for researchers and policy makers for different reasons: 1) there is a high rate of smoking among Chinese immigrants despite their knowledge about the risks involved (Wakefield et al, 2008; Wong et al, 2008; Gu et al, 2009; Burton et al, 2010; Yu et al, 2010), 2) they encounter barriers to preventing smoking initiation and to quitting due to social norm and cultural beliefs (Ho et al, 2003; Gupta et al, 2006; Chen, 2008; Yang et al, 2010), and they are distinct from the general population in North America (Chan, 1991, Pang, 2003).

This community-based participatory study evaluated the smoking beliefs and perceptions and smoking cessation practices among 91 Chinese migrants living in one area of Vancouver,

Canada. All had received a diagnosis of COPD; 24 smoked and 67 were ex-smokers. Difficulty in breaking their smoking habits and the belief that their body needs nicotine after many years of smoking were mentioned by almost all current smokers in this study. Similar difficulties were reported by previous studies (Mikkelsen et al, 2004; Hilberink et al, 2006; Eklund et al, 2012). In addition, smoking was associated with specific events and positive feelings among our study participants, which made it even more difficult to quit smoking.

The current smoker patients in our study indicated that they received some information from their care providers that smoking is bad but still continued to smoke. Those who had already quit smoking identified doctors or health professionals as trusted sources to communicate about smoking cessation; current smokers indicated that their care providers had little or no role in their decision to quit smoking because they had difficulty in comprehending the information received from their doctors. These patients mentioned they might be willing to quit smoking if they received reliable information from trustworthy trustful sources on how to quit and overcome the withdrawal symptoms. Similar findings were also reported by other researchers who found that difficulty in understanding and using the information provided by care providers and low self-efficacy skills in relation to being able to cut down or quit smoking acted as major barriers for patients to break their long-term habitual behaviour (Hunt and Bepalec, 1974; DiClemente et al, 1985; Segan et al, 2008).

Few subjects in our study had used pharmacologic interventions to give up smoking. Researchers reported that primary care physicians rarely tailored consultation to the patient’s individual needs or suggested pharmacologic interventions (Jiang et al, 2007; Larzelere and Williams, 2012; Buczkowski et al, 2013). The majority of self-management education and support for stopping smoking is given through formal information sessions, generally not with motivational dialogue or individual and family members’ engagement that focuses on their abilities to break their smoking habit. Our study findings suggest that conversation between primary care doctors and people with COPD, who smoke, about smoking cessation services should be a practice of choice. Guidelines state smoking status should be queried at every patient contact at the primary care visit (Warner, 2005; New Zealand Smoking Cessation Guidance, 2012). It is crucial that information about the benefits of quitting, the appropriate use of pharmacologic interventions, and how to overcome the belief that smoking habits are not breakable should be communicated by care providers (Coronini-Cronberg et al, 2011). Early ‘myth-busting’ around erroneous beliefs (e.g., smoking facilitates digestion or body needing nicotine should also be included). Individuals might then be encouraged to acknowledge the link between their smoking habits and COPD status, so the possibility of giving up could be explored. Showing them that their lung function is declining due to smoking can help to motivate individuals to quit (Morris and Temple, 1985; Parkes et al, 2008). Culturally-relevant counselling services could be also used with Chinese people by applying the methods suggested by some professional organizations (Lung Association, 2008; North American Quitline Consortium, 2011; Ontario Health Technology Assessment, 2012).

While a literature review of the family's role in supporting individuals with COPD was inconclusive about the effectiveness of family-oriented smoking cessation interventions, we found that, in Chinese communities, COPD management, including quitting smoking is a collective decision made by the individual and family caregiver. Support from family members and immediate caregivers at home is crucial to encourage smoking cessation. To develop relevant and useful educational information, family caregivers should be also involved in developing counselling materials and in the learning process and cessation practice.

### Smokers' motivation to quit

In our study over 26% of participants were not ready to quit smoking and break their habitual behavior. Most of current smokers in our study mentioned a connection between smoking and their life patterns. Smoking was perceived to make them relaxed and overcome the stress and anxiety attributed to their COPD. These findings indicate that health professionals should focus on how motivated smokers feel. A Stages of Change model (Hilberink et al, 2006; Coronini-Cronberg et al, 2011) could help to modify some beliefs (e.g., denying the link between smoking and disease progression) during individual counselling services. Previous studies that applied the Stages of Change model among to people who smoked but who did not have COPD (Prochaska and Diclemente, 1984; Dijkstra et al, 1996; de Vries and Mudde, 1998; Christenhusz et al, 2007) have shown that participants significantly cut down smoking and eventually quit compared to those who only received verbal education from their care providers. Overall, those who showed readiness to quit and changed their behaviour reported greater feelings of self-efficacy than others. In contrast, patients who believed their body needed nicotine were less likely to think they would be able to resist smoking in stressful situations, such as feeling angry. These findings suggest that a similar approach could be relevant in helping Chinese people with COPD to change their beliefs and smoking behaviour. Similar findings were identified in our study. Those who were motivated to quit had considered more coping strategies such as asking guests not to smoke. We believe this group should be targeted with strategies to increase self-efficacy and also to help develop action planning skills. Future intervention with a larger number of Chinese people with COPD should be conducted to assess the effectiveness of the Stages of Change model on this population.

### Limitations

The study's limitations are related to the characteristics of a study with a convenience sample. Only 26% of the studied subjects were still smoking, which is substantially lower than the reported prevalence of smoking among people with COPD in general. Also, the study took place only in Metro Vancouver, and therefore, the findings reported here cannot be generalized to everyone with this condition or to all Chinese people in Canada. Although further research is required to explore the relationship between the perceived disadvantages and benefits of continued smoking among Chinese people with COPD, this study has added knowledge about the link between perceptions of risk and health beliefs regarding susceptibility to smoking-related health issues.

### Conclusions

Given the public health significance of smoking and COPD generally and more specifically among Chinese people, it is surprising there is not more evidence for effective smoking cessation interventions in this group. Our study contributes an increased understanding of which interventions could improve smoking cessation rates and highlights some of the beliefs, perceptions, and barriers to quitting reported by Mandarin and Cantonese speaking people with COPD.

Further research is needed to determine if communication regarding tobacco use that is targeted toward the Chinese population in North America improves cessation rates. Such culturally and linguistically relevant interventions should aim to improve people's willingness to break life-long habitual behaviour, empower them with self-efficacy skills, and engage individuals and family caregivers in the design and implementation of the interventions.

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### Conflict of Interest Notification Page

None

### Role of sponsors

The sponsor (Canadian Institutes for Health Research – CIHR) had no role in the design of the study, the collection and analysis of the data, or in the preparation of the manuscript.

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**ADDRESS FOR CORRESPONDENCE**

J. Mark FitzGerald, M.D. FRCPC. The Lung Centre, 7<sup>th</sup> Floor, Gordon and Leslie Diamond Health Care Centre, 2775 Laurel Street, Vancouver, BC V5Z 1M9, email: mark.fitzgerald@vch.ca <http://lungcentre.vch.ca> and <http://www.heartandlung.ca>