

## Perception, Cultural Norm, and Self-Efficacy: Edges of Smoking Habit Triangle among Chinese Adult Smokers

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### Abstract

**Objectives:** We explored cultural and belief contexts for smoking habits within Mandarin and Cantonese speaking communities. The aim was to identify their perceived barriers and facilitators to successful cessation. We attempted to translate existing knowledge and our previous experience in designing a conceptual framework to conduct culturally-based participatory research.

**Methods:** A mixed qualitative and quantitative approach was applied, involving community members, key-informants, and professionals in the design and implementation of the cross-sectional research. Three focus groups were conducted with 16 smokers from the target communities to assess their viewpoints on study framework and measurement tool.

**Results:** Participants were 167 current smokers, (137 males and 30 females) recruited with the help of community agencies and collaborating physicians. We assessed smoking patterns, beliefs, and perceptions and found a majority believed that smoking was harmful on their health. Younger smokers (<35 years of age) were more likely to not mind smoking in front of young children compared to older smokers (≥35 years of age) ( $p < 0.001$ ). People with high school or lower levels of education believed that they would benefit more from smoking than suffering from withdrawal symptoms compared to the higher educated smokers ( $p < 0.05$ ). Mandarin speaking smokers were significantly more likely to encourage others to quit than Cantonese speaking smokers ( $p < 0.05$ ). In addition, many indicated not receiving adequate support from their care providers and lack of access to culturally and linguistically appropriate cessation programs preventing their attempt to quit smoking.

**Conclusion:** Our study highlighted the importance of tobacco control regulations for Mandarin and Cantonese speaking immigrants with limited access to healthcare information and for younger smokers whose attention to health consequences of smoking may be limited as well.

Participants of this study were generally aware of the health risks and were willing to quit. Access to appropriate cessation programs would fulfill their willingness.

**Keywords:** Smoking; Chinese communities; Beliefs; Risk perceptions; Smoking cessation

### Article Summary

#### Strengths and limitations of this study

We undertook a community-based participatory approach, with community key-informants and healthcare providers were heavily involved in all aspects of the study such as design, instrument development, implementation, community outreach, and dissemination. These key-stakeholders are important allies in developing culturally and linguistically appropriate smoking cessation interventions.

Our study provides evidence that attitudes and beliefs of cigarette smoking differ between language, age, and gender groups. The differences with regards to tobacco smoking appear to be related to attitudes or knowledge.

The results build a window of opportunity to promote tailored cessation interventions incorporating cultural beliefs, perceptions, and practices for Chinese immigrant communities.

We used a convenience sampling method, which may not reflect the actual smoking prevalence and patterns of Chinese Mandarin and Cantonese immigrants in the Greater Vancouver Area.

All responses were by self-report and validation of smoking behavior or reasons to quit or continue smoking was not possible with a cross-sectional design.

### Background

Tobacco use remains the leading cause of preventable morbidity and mortality in the world [1-3]. In Canada, its use has been declining slower than expected in spite of increased taxation on cigarettes and more stringent tobacco policies put into place [3]. In order to accomplish the goal of reducing the rate of smokers among Canadian adults, smoking has to be addressed among all sub-populations,

especially those with a higher smoking prevalence than the general population. Global studies have shown that those who stop smoking greatly reduce their risk of developing cardio pulmonary disease and that in general the longer the period of cessation, the greater is the reduction in risk [4,5]. Minority and immigrant communities in Canada may be at greater risk of smoking-related illnesses [6]. Reasons include lack of knowledge and awareness about the link between smoking and lung disease [7]; limited access to smoking cessation programs due to cultural, language, and systemic barriers [8]; and smoking behavior [9,10]. In addition, many immigrants from low-and-middle-income countries have significant exposure to biomass and bio-fuel as well as smoking which further increases their risk [11]. This is particularly true among immigrants from Mandarin and Cantonese speaking communities (the largest immigrant minority groups living in the BC and Canada) [12,13] where smoking rates remains high [9,10]. Such extensive tobacco use among immigrants may be due to the fact that smoking is a largely integrated into the Chinese male culture [14]. Nearly two of every three adult men in China are smokers [15,16]. It is, therefore, empirically relevant to try to understand this immigrant group's smoking knowledge, behavior, and habits and develop culturally appropriate educational and counseling services to improve tobacco prevention attempts and promote cessation. Maximizing tobacco control for newcomers requires a special understanding of smoking pattern and beliefs of new immigrant populations. The purpose of this study was to explore smoking use patterns, including beliefs, attitudes and behavior among Mandarin and Cantonese speaking communities living in the Greater Vancouver Area (GVA). We aimed to specifically identify and differentiate the smoking perspectives between males and females, Mandarin and Cantonese, and between age and education level groups. The identification of tobacco use and other related patterns that would be identified here may help facilitate the development of community-based culturally appropriate interventions targeting tobacco use and would be sensitive for Chinese immigrants in future research.

## Methods

### Project design

This multi-stage mixed methods study employed both qualitative and quantitative components within an over-arching community-based participatory framework. The first stage comprised the development and testing of a measurement instrument for the survey study. The second stage was a quantitative study assessing smokers' knowledge, attitudes, beliefs, and smoking pattern.

The study was conducted between January 2013 and June 2014, allowing for participation and collaboration between members of the Mandarin and Cantonese communities and other key-stakeholders such as professionals and researchers in the research process [17-19]. Connections and networking were built with community key-informants and community agencies (e.g., SUCCESS (United Chinese Community Enrichment Services Society), Vancouver Coastal Health community organizations, etc.) supporting active involvement and contribution in study design, development and implementation. Community collaborators provided assistance with recruitment of Mandarin and Cantonese smokers as well as input and suggestions on the development of focus group and interview questions. They recruited two males and two females who were members of the community, fluent in Mandarin and Cantonese, to work in alliance

with 4 female bilingual Chinese research assistants. All community facilitators and research assistants received necessary training prior the study. The training included approaches on how to best recruit study participants, understanding of the project's aims and objectives, how to conduct focus groups and individual interviews with smokers from their own communities, and ideas on how the team could work together effectively in collection of the best information possible on Chinese smokers' beliefs, attitudes, and perspectives regarding smoking and smoking cessation. The community researchers transcribed and translated focus group and interview discussions and we applied the collected information in the development of a study measurement tool and conceptual framework. In addition, findings from our previous qualitative smoking study (conducted with smokers from the same communities) were used in the development of the study design and measurement tool [20].

### Ethics

Ethics approval was obtained for this study from the University of British Columbia Research Ethics Board. All participants signed a written consent form in their preferred written language (Chinese Simplified, Chinese Traditional, or English) translated by the bilingual researchers which clearly explained study information, aims, and involvement prior to the study.

### Study measurement tool

We initially developed the study measurement tool by determining whether any English or Chinese language questionnaires were currently in use to assess attitudes and beliefs re smoking in Chinese community. A literature search and an informal survey of immigrant-serving community agencies did not find any such instrument. Given the absence of a validated assessment questionnaire in the target languages, a new measurement tool was developed over a 4-month period. Development of the study measurement tool began with information collected from initial focus group sessions (n=3) and individual interviews (n=2), review of relevant literature that addressed knowledge of, attitudes to, and behaviors in relation to tobacco use, and also our previous smoking-related qualitative studies with Mandarin and Cantonese current and ex-smokers [20,21]. Moreover, a professional measurement tool developer (a PhD in the research and evaluation field from University of British Columbia) with expertise in developing mixed open-ended and closed-format questionnaires was involved in the face and content validation and finalization of the measurement tool.

The final questionnaire covered current smoking knowledge, beliefs, and attitudes about cigarettes, and exposure to smoking cessation aids. The tool included 70 questions covering demographics and concepts on smoking onset, smoking characteristics, perceptions, experience in quitting, social relationships, and cultural and environmental influences and were in the format of yes/no, true/false, multiple choice, and open-ended questions (The study measurement tool may be found in the Appendix). The questionnaire was also reviewed by a number of key-informants and health practitioners (n=9) from the target communities who provided feedback and comments re the questionnaire and checked its face and content validity. The bilingual Chinese research assistants translated the study measurement tool to Chinese Simplified and Traditional formats and it was then pilot tested with selected smokers and ex-smokers from the Chinese communities (n=5) to further validate the measurement tool and for cultural relevance and clarification, as well as translation

purposes including understandability, acceptability, and applicability, and suggestions were revised accordingly.

### Participant recruitment

Eligibility criteria for participants were adults ( $\geq 21$  years old) who were current smokers (defined by having smoked at least 5 cigarettes per day during the past 30 days), Chinese descent (either Mandarin or Cantonese speaking) and be immigrants to Canada or children of immigrants. Participants were recruited from within the communities using a variety of outreach methods such as posting flyers and referral applied from previous studies and through network with community agency collaborators [17,22,23]. In total, 16 Chinese smokers participated in initial focus groups and interviews and 167 (137 males and 30 females) were interviewed, from which 93 were Mandarin speaking and 74 were Cantonese speaking. 90 participants were  $< 35$  years of age and 76 were  $\geq 35$  years of age. Our targeted goal and objective was to assess variations in 150 Chinese smokers' knowledge, beliefs, attitudes, and practices related to smoking and experience in smoking cessation and we exceeded this aim.

### Data collection

Data was collected through administration of study questionnaire and individual interviews. Interview sessions were conducted at places and times of convenience for participants: e.g., participants' homes, community centers, and our research Centre. Printed consent forms were explained and signed preceding the interview. Data were collected from May 2013 through April 2014. Modest honoraria were paid to cover time, travel, and parking expenses. Community research assistants conducted the interviews in Mandarin, Cantonese, or English and the participants filled in a self-reported Chinese Simplified, Chinese Traditional, or English questionnaire while the research assistant was available to answer any questions that they would have had. In some instances (e.g., old smokers or low literate people), the research assistants administered the study questionnaire verbally while taking notes throughout the entire interview.

### Data analysis

SPSS v20 was used for all statistical tests. Descriptive statistical tests were used and the results were presented in tables and graphs. Relevant inferential statistics were calculated for the entire sample and stratified according to age, gender, level of education, language of origin, and smoking patterns. The data were not normally distributed, and non-parametric tests were therefore used (chi-square) test for nominal data, Mann-Whitney test for ordinal data with two groups, and Kruskal-Wallis test for more than two groups with ordinal data. Binary logistic regression was used to determine the effects of demographic variables on beliefs, attitudes, knowledge and behavior. All data were examined regarding distributions and trends in the data, and the level of significance was set at the  $P < 0.05$  level.

### Sample size calculation

With a total sample size of 167 subjects for the cross-sectional study, we estimated that we could identify mean differences between different age, gender, language and education level groups and with an effect size of 0.45 with 80% statistical power and a two-sided significance level of  $P < 0.05$ .

## Findings

We recruited and enrolled 167 current smokers in the GVA. Table 1 describes characteristics of the study sample for both Mandarin (55.7%,  $n=93$ ) and Cantonese (44.3%,  $n=74$ ). The participants included predominately males (82%,  $n=137$ ). The median age was 35 and we used this cut off point for younger/older groups, as used previously from our qualitative studies conducted with Chinese community smokers,[20] allowing us to identify these differences in perspective. 90 participants on the study were  $< 35$  years of age and 76 were 35 and older.

	N	%
<b>Gender</b>		
Male	137	82
Female	30	18
<b>Language</b>		
Mandarin	93	55.7
Cantonese	74	44.3
<b>Age</b>		
$< 35$	90	54
$\geq 35$	76	46
<b>Education Level</b>		
High school under	87	52
University degree and above	80	48

Table 1: Participant characteristics.

### Smoking beliefs, perceptions, and attitudes

When asked the question of whether 'most people in my culture smoke', there was a significant difference at  $p < 0.05$  level between male and female participants; more males believed that smoking was a cultural habit in their community than females did. Similar findings were observed between Mandarin and Cantonese at  $p < 0.05$ ; more Mandarin said answered yes to the question. Younger smokers ( $< 35$  years of age) were more likely to mention that they 'did not mind smoking in front of non-smokers' compared to older smokers ( $\geq 35$  years of age). The mean difference was significant at  $p < 0.05$ . When asked whether they minded smoking in front of young children, similarly, younger smokers ( $< 35$  years of age) mentioned that they 'did not mind smoking in front of young children' and the significant difference was at  $p = 0.005$ . When we asked whether 'second and third hand smoke was as harmful as first hand smoke', again, relatively more younger smokers ( $< 35$  years of age) compared to older smokers said no when compared to older smokers ( $\geq 35$  years of age). The difference was significant at  $p < 0.05$ . We also asked whether participants 'had a smoking routine/pattern' and found that people with high school or lower education mentioned they didn't have a routine/pattern compared to people with higher education level at  $p < 0.05$ .

## Feeling when smoking

We asked if 'there is a different feeling when comparing times I smoke and don't smoke', and found a statistically significant difference between male and female participants ( $\chi^2=4.237$ ;  $df=1$ ,  $P<0.05$ ). Significantly more males mentioned experiencing a different feeling when they smoked compared to not smoking. In addition, younger smokers (<35 years of age) as well claimed to have a different feeling when comparing times smoking and not smoking. The differences between younger (<35 years of age) and older ( $\geq 35$  years of age) was statistically significant ( $\chi^2=3.889$ ,  $df=1$ ,  $P<0.05$ ). No significant differences in this regard were identified between Mandarin and Cantonese and highly educated (college/university and above) and lower educated (high school or lower).

## Smoking cessation

More Mandarin speaking smokers answered yes to whether they 'would encourage others to quit', than Cantonese speaking smokers and the difference was significant at  $p<0.05$ . As well, more Mandarin speaking smokers also mentioned that 'living in Canada influenced their smoking habits or desire to quit', compared to Cantonese speaking smokers at  $p<0.05$ .

In addition, more people with high school or lower education agreed with the statement 'I would benefit more from smoking than suffering from withdrawal symptoms due to quitting', compared to the higher educated at  $p<0.05$ . When asked whether they 'tried nicotine replacement therapy to quit smoking', more Mandarin speaking smokers mentioned that they had tried this aid to quit smoking compared to Cantonese speaking smokers and the difference was statistically significant at  $p=0.008$ .

Many older participants mentioned that they had limited exposure to public sources of information on cessation services, developed in their native language. A few older smokers had received advice and information about the health issues attributed to smoking from their physicians. In general, participants indicated that they were not getting adequate support from their community, nor were aware of the resources that could have helped them quit, therefore lacked the decision making tools helping them to succeed their attempt.

## Discussion

The main aim of this study was to gain insight into the psychosocial factors and the perceptions associated with smoking and smoking cessation among Chinese Cantonese and Mandarin speaking current smokers, taking into account culturally specific beliefs and practices. The results have implications for the development of smoking cessation programs and educational interventions for these immigrant groups.

Several participants in this study indicated their desire to quit and attempted to do so many times, many of which did it relying on their own willpower and a few tried to quit due to health related issues, mainly among older smokers. They mentioned that a better communication with primary care providers and ease of access to culturally and linguistically appropriate smoking cessation resources would promote smoking cessation in their communities. Similar findings were reported in many immigrant communities in Canada who tried to quit smoking, as shown in different local studies [24-26]. In addition to elucidating these barriers to smoking cessation and despite continued smoking, participants showed being knowledgeable

in health related and other negative aspects of smoking. Firstly, most participants were not ignorant of the dangers of smoking, with the vast majority recognizing that smoking posed risks to their own health and the health of those around them. This knowledge is much higher than that of Chinese smokers who were surveyed in China back to 2011, where only 36% of participants believed smoking can cause lung cancer and only 4% of whom associated cigarettes with heart disease [27]. Secondly, many of the smokers in our study already accepted limitations on the use of cigarettes in Canada, and many supported restrictions on indoor smoking and also mentioned not smoking at home or where children are present. This practice is extremely important to reduce the risk of second-hand and third-hand smoking and related health issues among young children and other non-smoker family members.

In terms of reasons to continue smoking, perceived advantages of smoking such as 'smoking does make me feel more comfortable' and 'smoking helps me to be stress-free when I have problems' appeared to be more important factors to promote smoking continuation among our study participants than perceived disadvantages around 'health issues' and 'money' which shown to be strong motivators in quitting smoking in some studies [28-30]. For instance, health consequences and costs of smoking were not perceived as strong motivators to quit smoking among young participants. The disadvantages of quitting were perceived to outweigh its advantages were the main motives for continuing to smoke among older smokers, most of which showed low self-efficacy on being able to quit. Some reasons mentioned by older participants were: the addiction aspect of nicotine, being too late to quit, and their body needed nicotine. In other studies among mainstream populations, self-efficacy expectations and advantages of smoking cessation appeared to be the most important associates of quitting smoking among older smokers [31,32]. Therefore, this issue should be revisited in future studies with ethno-cultural communities. The results of this study suggest that understanding health beliefs and perceptions around smoking and improving self-efficacy are useful tools in promoting smoking cessation among smokers in Chinese immigrant communities.

## Limitations

Some limitations need to be considered. First, this study used a convenience sample, so it may not reflect the actual smoking prevalence and patterns among Mandarin and Cantonese immigrants in the GVA. We could not explore the effect of acculturation on smoking habit and pattern. There was no previous data on smoking pattern among Chinese immigrants in Canada, and attempting a community based assessment would have been inherently difficult for an exploratory study. Therefore the findings of this study cannot be generalized to larger Mandarin and Cantonese speaking communities residing in the GVA. The main aim was to explore the links to smoking cessation among Mandarin and Cantonese populations in order to gain insight into the need to adapt smoking cessation programs in these groups. In future research, a longitudinal design in which our results can be tested is recommended. A second limitation is the fact that all responses were by self-report and validation of smoking behavior or reasons to quit or continue smoking was not possible with a cross-sectional design. A third limitation is the absence of a native mainstream (English-speaking) reference group, due to lack of resources. This could be a problem for interpreting the additional 'culturally specific' beliefs, because these were not elicited from mainstream population group. Nevertheless, to assess whether the

beliefs we identified in this study are really 'culturally specific', a cohort study with all significant beliefs for main ethnic groups in the GVA, including mainstream population, might be useful.

## Conclusion

The results of our study suggest that an effective anti-smoking campaign in the Chinese community should go beyond traditional English language efforts, utilize Chinese resources, and build upon existing cultural attitudes (such as the belief that smoking is inappropriate for young people) and knowledge (such as health risks) about smoking. Particular attention should be paid to differences between female and male smokers, an important issue that our sample size was not large enough to address. Also, future interventions can prove the applicability of a risk perception model on smoking cessation among Mandarin and Cantonese speaking smokers. Community key-informants and healthcare providers are important allies in developing culturally and linguistically appropriate smoking cessation promotional programs and reinforcing to their clients the importance of smoking prevention and cessation. Our study provides evidence that attitudes and beliefs of cigarette smoking differ between language, age, and gender groups. The differences with regard to tobacco smoking appear to be related to attitudes or knowledge. The findings build a window of opportunity to promote tailored cessation interventions incorporating cultural beliefs, perceptions, and practices for Chinese immigrant communities.

## Practical Implications

Despite the above mentioned limitations, the study has great significance in attracting the attention to the health disparities those Chinese immigrants in the GVA that have been in terms of higher prevalence of tobacco use in their homeland and diminished access to culturally and linguistically appropriate cessation aids. Interventions should take into consideration the specific profiles that Mandarin and Cantonese immigrants have in terms of the knowledge, attitudes, and beliefs on their smoking habits and patterns. Given the results of this study, we can conduct further research to assess the applicability of a risk perception model to the smoking behavior of routine smokers in the target immigrant communities. The model has been shown effective in terms of modifying risk-taking behaviours, promoting positive perceptions, and improving self-efficacy that have been applied for changing smoking habits/behaviour among participants in different studies [33-36].

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## Competing Interests

We declare that there is no conflict of interest in terms of ownership of shares, consultancy, speaker's honoraria or research grants from commercial companies or professional or governmental organizations

with an interest in the topic of the paper (the ICMJE form for Disclosure of Potential Conflicts of Interest from the Corresponding Author will be sent upon request).

## Contributor Statement

JMF and IP planned the conception and study design. IP prepared the proposal draft to the funding agency and applied for the ethics approval. JS coordinated the study, recruited participants, and facilitated the community involvement. IP analyzed and interpreted the study data. IP and JS drafted the manuscript for important intellectual content.

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