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Smoking and Health Survey in Hong Kong Women

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Currently these members are not working in the School of Nursing, HKU, but we are grateful for their contribution in the different phases of the project.

1. Introduction

Smoking is the most important preventable cause of death and disease, causing six million deaths annually worldwide[1]. Smoking has negative effect on nearly every organ of the body[2]. The annual death toll could rise to more than eight million by 2030 unless urgent action is taken[1].

The current global smoking women population is far less than men[1]. However, while the epidemic tobacco use among men is in slow decline, there is a growing concern about increasing tobacco use among women[3]. It is predicted that 20% of women worldwide will be smokers by 2025 when compared with 12% today[4]. Smoking causes many fatal diseases and presents a large health threat to women[5]. The 2014 Surgeon General's report highlights that the disease risks from smoking in women have risen sharply over the last 50 years and that they are as likely as men to die from many diseases caused by smoking[2]. Some health consequences of smoking are specific to women, such as a higher rate of infertility, premature labour, low birth weight infants, ectopic pregnancy, sudden infant death syndrome, cervical cancer, irregular menstruation cycles, dysmenorrhoea and early menopause[2,5]. As the health consequences of smoking in the population only become fully evident 30-40 years after smoking has reached the peak, the adverse effects of smoking on women's health will only be seen fully after several decades. The number of tobacco-attributable deaths among women will increase globally.

Unlike the traditional Chinese values, many women in the United States and Western countries view smoking as a sign of sophistication and independence[6]. Hong Kong is a former British colony and has been deeply influenced by Western culture and is the most westernized city in China. Moreover, Hong Kong is a highly urbanized and economically developed city with more women having higher education and employment. However, the prevalence of smoking among women in Hong Kong is low in comparison with most Western countries[1]. The overall prevalence of daily cigarette smokers decreased from 23.3% in 1982 to 10.7 % in 2012, which is one of the lowest figures worldwide[7]. The daily smoking prevalence in Hong Kong in 2012 for adult men aged 15 years and older was 19.1% and was 3.1% for adult women[7]. The relatively low prevalence of cigarette smoking in Hong Kong may be generally attributed to the enormous effort of the government and the community on raising tobacco tax, legislation, law enforcement, health promotion, research and the provision of smoking cessation services,etc. over the past 30 years. Hong Kong is the only one city in China which has established a strong cessation programme ahead of the national policy[1].

Despite the low smoking prevalence among women in Hong Kong, the 96,800 daily smokers cannot be overlooked or undervalued[7]. According to the latest Thematic Household Survey Report[7], 46,200 (47.8%) woman smokers in Hong Kong have not attempted and do not want to quit smoking and 38,700 (40.0%) have attempted but failed. Tobacco use decreased in men from 28.5% in 1990 to 19.1% in 2012, whereas the smoking prevalence in women increased slightly from 2.6% in 1990 to 4% in 2005, and decreased slightly to 3.1% in 2012. Although there has been an overall decline in the smoking population, the smoking prevalence in women has remained at a steady level. Most importantly, the tobacco manufacturers are now actively seeking new customers to replace those former customers who have already quit smoking and those who will die prematurely[8]. Particularly, tobacco marketing campaigns have begun to aggressively target at women by promoting smoking as a symbol of emancipation, independence and charisma[9]. There is an imperative need for new strategies in preventing women, especially young people to take up smoking.

Our review of the literature reveals that there is a lack of population-based smoking cessation interventions for woman smokers. Despite the emerging concerns about female smokers, information regarding smoking and its associated factors in adult women, particularly in Chinese populations, is lacking[9]. No study has evaluated the effectiveness of smoking cessation interventions designed specifically for woman smokers in Hong Kong. Data on public awareness of the diseases caused by smoking in Chinese women in Hong Kong and elsewhere are also scarce. Although the reasons for starting to smoke cigarettes and for trying or not trying to give up smoking among woman smokers may be different from those in other populations, there are very few health promotions or provision of smoking cessation services exclusively for women in Hong Kong. Given these issues, it is of paramount importance to design tailor-made interventions to clearly communicate the risks of continued smoking to woman smokers and to motivate them to quit. To support such interventions, it is essential to better understand the reasons for starting to smoke cigarettes and for trying or not trying to give up smoking. In particular, the behaviour, attitudes and experiences related to smoking and smoking cessation should be examined. This study aimed to understand smoking behaviour and attitudes and their associated factors in women in Hong Kong.

The study was conducted from July 2010 to February 2012, using mixed methods approach, including both qualitative and quantitative methods. There were two phases of the study where Phase 1 was a series of qualitative focus group interviews, and Phase 2 was a cross-sectional population-based telephone survey, using mainly random telephone-dialling, and supplemented by street intercept methods.

2. Phase I Study

2.1 Methods

2.1.1 Design

A qualitative research design was used to study a purposive sample of 73 female participants (current smokers: n=24; ex-smokers: n=20; never smokers: n=29) recruited from July to September 2010.

2.1.2 Participants

Purposive sampling was used to maximize the sample variation, allowing us to obtain representative informants for the interviews. The participants were recruited from five community centres in different districts in Hong Kong to increase the generalizability of the findings. They were eligible if they were Hong Kong Chinese residents, aged 15 to 60 years, had smoked weekly in the past six months or had quit smoking or had never smoked and could communicate in Cantonese. We excluded those who were not able to communicate effectively due to psychological or mental health reasons.

The 73 women were segmented by their smoking status (current smokers, ex-smokers and never smokers) and age (15-19, 20-29, 30-39, 40-49 and ≥ 50 years) to form

15 focus groups. Each focus group consisted of four to six participants with similar smoking status and within the same age range.

2.1.3 Procedures

Approval for the study (Phase I & II) was obtained from the Institutional Review Board of the University of Hong Kong/Hospital Authority Hong Kong West Cluster (HKU/HA HKW IRB). The eligible subjects were invited to participate in the study after they were told its purpose. They were given the option of participating or refusing and were told that their participation was voluntary without prejudice. Written consent was obtained from all the participants. Based on their smoking status, we used tailored semi-structured interview guides to guide each focus group. An audiotaped semi-structured in-depth interview was conducted with each group until data saturation was achieved. Each group interview lasted about 90 minutes and data saturation was achieved after 15 group interviews.

2.1.4 Data Analysis

After the interviews were completed, the recordings were fully transcribed verbatim in Cantonese to capture nuances of expression unique to the dialect, and selected quotations relevant to the themes were later translated into English. In the coding process, two researchers were responsible for analyzing the narratives. The analyses began with an intensive examination of the transcriptions to search for general constructs and themes. Special attention was given to constructs that diverged from the major topics as framed by the guiding questions. The transcriptions were first coded using the open coding method. Details in the interview conversations were closely examined to allow a large number of initial categories to emerge. Finally, a complete set of codes was generated to facilitate comparisons and the development of themes and categories.

2.1.5 Results

Demographic characteristics

65.8% of the 73 participants were single, divorced or widowed, 50.7% had children, 90.4% had high school education or above and 28.8% were employed.

Themes

Ten themes were generated from the 15 focus group interviews: T1 smoking behaviour; T2 factors influencing smoking initiation; T3 factors influencing continued tobacco use; T4 reasons for not starting smoking; T5 reasons for quitting; T6 factors for successful quitting; T7 knowledge of the association between smoking and health; T8 perspectives on women smoking; T9 perspectives on smoking cessation promotion; and T10 perspectives on smoke-free legislation.

T1. Smoking behaviour
The majority of the current and ex-smokers reported that they started smoking at a young age, whereas only a few of the participants began smoking as adults.

T2. Factors affecting smoking initiation
The most common factor affecting smoking initiation was peer influence. Parent or sibling smokers appeared to be a strong determinant of the onset of smoking among the participants. Another key factor for the first smoking attempt was curiosity. Some initiated smoking because they thought it would relieve negative moods. Some said that they started smoking because they were rebellious in their adolescence. A few had a misconception that they would not become addicted to smoking.

T3. Factors influencing continued tobacco use
Many of the current smokers continued smoking due to socialization, enhanced friendships and an unwillingness to ‘stand out’ in a crowd if all of their friends smoked. They relied on smoking as a coping strategy to relieve negative emotions and stress. Many current smokers emphasised the societal pressure to be slim and

considered smoking a weight control strategy. Some current smokers were hindered by a fear of gaining weight if they gave up smoking. Some current smokers felt that smoking had become a habit. There were misconceptions regarding stopping smoking: that a loss of concentration would result, that continued smoking would not further affect their health as they had become desensitized to the chemicals in tobacco smoke and that quitting smoking would harm their health.

T4. Reasons for not starting smoking

The results showed that females who grew up in non-smoking environments were less likely to start smoking. Most of the never smokers expressed their concerns about the health hazards of smoking and the poor social image of woman smokers. They perceived a strong opposition to smoking from their family members. They had negative perceptions of the smell of cigarettes and worried that smoking would make them less attractive. Some mentioned that they did not smoke because they were concerned about the adverse effects on the next generation and they wanted to set a good example for their children.

T5. Reasons for quitting

The most common reason for quitting smoking was an awareness of the health hazards of smoking on others, in particular on their babies during pregnancy and breast-feeding. Many endorsed a change in appearance as the key factor for them to quit. Some perceived that woman smoking was generally unacceptable in Chinese society. A few said that they quit because of the increasing tax on cigarettes and that they could not afford to buy a pack of cigarettes a day.

T6. Factors for successful quitting

The ex-smokers suggested that some of the key elements for successful quitting were identifying something to increase their motivation, a smoke-free environment and unavailbility of cigarette, receiving support from their family and friends and taking active action to try to quit.

T7. Knowledge of the association between smoking and health

Most of the current smokers, ex-smokers and never smokers were aware of the harmful effects of smoking on general health. They were able to identify some of the common diseases associated with smoking. However, most of them were not aware of the female-specific health problems induced by smoking.

T8. Perspectives on woman smoking

We observed two very different views of the values and perceived social norms of smoking in the never smokers and current smokers. The never smokers mostly grew up in non-smoking families and had non-smoking friends. With the influence of their family members, teachers and friends, all of them considered woman smoking as socially unacceptable and a violation of Chinese culture and tradition.

Most of the current smokers grew up with smoking family members or friends and they had a high chance of closely observing people smoking. They were more likely to perceive smoking as a social norm and as a tool for communication and connecting with friends.

T9. Perspectives on smoking cessation promotion

Most of the current, ex- and never smokers thought that there were not enough smoking cessation advertisements targeting female smokers. Most current and ex-smokers were aware of the pictorial warning labels on cigarette packs and they felt that these pictures elicited varying degrees of horror and disgust. Some never smokers complained that the publicity for tobacco control was not as strong as that for the prevention of drug abuse.

T10. Perspectives on smoke-free legislation

Some ex-smokers supported raising the tobacco tax and believed that it reduces smokers' tobacco consumption. Some current and never smokers felt that smoking habits would be affected by an increased tobacco tax. Most current smokers also queried how well the smoke-free legislation is implemented and suggested that law

enforcement is insufficient. However, most ex- and never smokers perceived that the smoking ban in places like restaurants and other indoor areas, is effective.

3. Phase II Study

3.1 Methods

3.1.1 Design

Based on the findings of the focus group interviews, we constructed a quantitative study to further explore the smoking behaviour and their associated factors among the current, ex- and never smokers in Hong Kong women, on a population level.

3.1.2 Participants

Participants were primarily recruited via a random telephone-based survey on the general public in Hong Kong. A street intercept survey was introduced towards the end stage of the study for an additional sample of the current smokers.

3.1.3 Procedures

A sample of 3,306 participants (current smokers: n=765; ex-smokers: n=509; never smokers: n=2,032) were recruited from July 2011 to February 2012.

3.1.4 Data Analysis

Descriptive statistics were used to summarize different outcomes. Mann-Whitney U test, logistic regression, chi-square test and one-way ANOVA were conducted to generate inferential statistics for the research questions.

3.1.5 Results

Socio-demographic characteristics

Table 1 shows that the largest proportion of current smokers was in the age range of 30-49 years. More than half of the participants had secondary school education.

There were statistically significant differences in the mean age between the current smokers and ex-smokers and between the current smokers and never smokers, with current smokers being younger than ex-smokers and never smokers. Moreover, there were statistically significant differences in marital status among the three groups, with more ex-smokers and never smokers being married and more current smokers being single. Additionally, there were statistically significant differences in the number of children between the current smokers and ex-smokers and between the current smokers and never smokers, with more current smokers having no children when compared with ex-smokers and never smokers.

Smoking Pattern

Of 765 current smokers, 63.5% (486/765) were where daily smokers and 27.8% daily smokers (135/486) consumed 15 cigarettes or more a day. The mean cigarette consumption for current daily smokers was 10.5 cigarettes. The mean of first smoking attempt for smokers and ex-smokers was 17.0 and 17.3 years respectively. The mean smoking durations for current daily smokers was 19.3 years. 54.3% (264/486), 30.0% (146/486) and 15.6% (76/486) had mild, moderate and severe nicotine dependence, respectively. About 68.7% (334/486) daily smokers had quit attempt before but failed and 28.2% (137/486) reported that they had never tried and did not want to give up smoking.

Table 1 Socio-demographic characteristics of current smokers, ex-smokers and never smokers (N = 3,306)

	Current smoker	Ex-smoker	Never smoker	p-value
	n = 765	n = 509	n = 2,032	
Age, M (SD)				< 0.001[a,b], 0.17[c]
	36.3 (13.4)	44.6 (12.3)	43.3 (15.2)	
	n (%)			
Age group (years)				< 0.001[a,b], 0.41[c]
15 - 29	263 (34.7)	66 (13.2)	451 (22.4)	
30 - 49	358 (47.3)	223 (44.5)	637 (31.7)	
50 - 65	136 (18.0)	212 (42.3)	923 (45.9)	
Marital status				< 0.001[a,b,c]
Married/Partnered	360 (47.4)	342 (68.5)	1,321 (66.0)	
Single	336 (44.3)	117 (23.4)	624 (31.2)	
Others	63 (8.3)	40 (8.0)	57 (2.8)	
Number of children				< 0.001[a,b], 0.55[c]
None	405 (53.4)	146 (29.2)	722 (36.3)	
1 child	163 (21.5)	129 (25.9)	334 (16.8)	
2 children	140 (18.4)	165 (33.1)	647 (32.6)	
3 or more children	51 (6.7)	59 (11.8)	284 (14.3)	
Education attainment				0.37
Primary or below	66 (8.7)	77 (15.3)	359 (17.9)	
Secondary	528 (69.4)	306 (61.0)	1,041 (51.9)	
Tertiary or above	167 (21.9)	119 (23.7)	604 (30.1)	
Employment status				< 0.001[a,b], 0.40[c]
Employed	421 (55.5)	226 (44.9)	855 (42.8)	
Unemployed	337 (44.4)	278 (55.2)	1,145 (57.2)	
Monthly household income				0.11
< $9,999	115 (18.3)	79 (18.3)	334 (20.5)	
$10,000-19,999	162 (25.8)	105 (24.3)	445 (27.4)	
$20,000-29,999	145 (23.1)	97 (22.5)	339 (20.8)	
> $30,000	207 (32.9)	151 (35.0)	509 (31.3)	

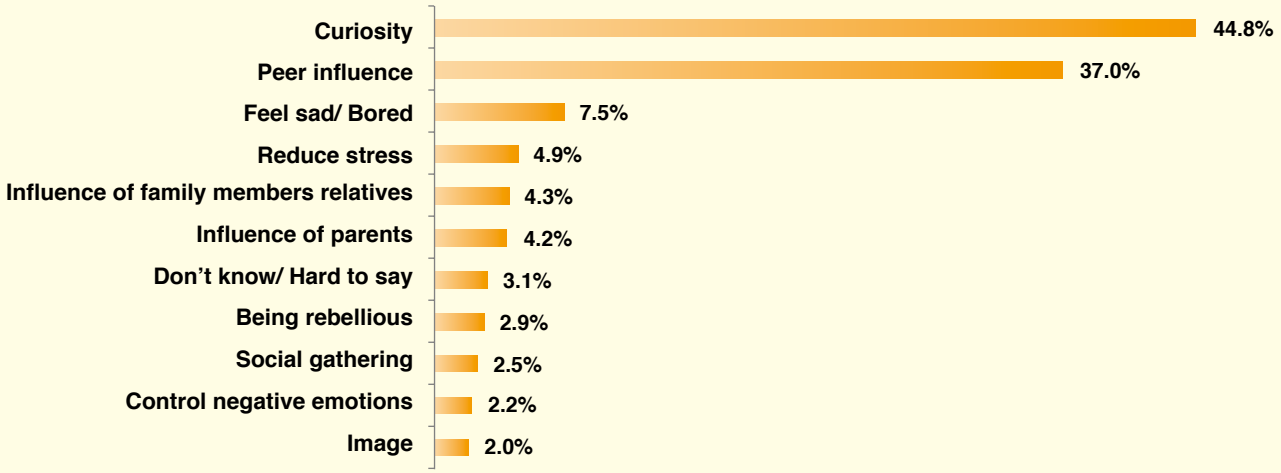
Missing data were excluded in the calculation of percentages/means
a. current smokers vs never smokers; b. current smokers vs ex-smokers; c. never smokers vs ex-smokers

Reasons for smoking initiation, continued smoking, quitting and not smoking

The most frequently reported reason for first attempt of smoking among smokers and ex-smokers (Figure 1) was 'curiosity' (44.8%; 571/1,274), followed by 'peer influence' (37.0%; 471/1,274).

Figure 1

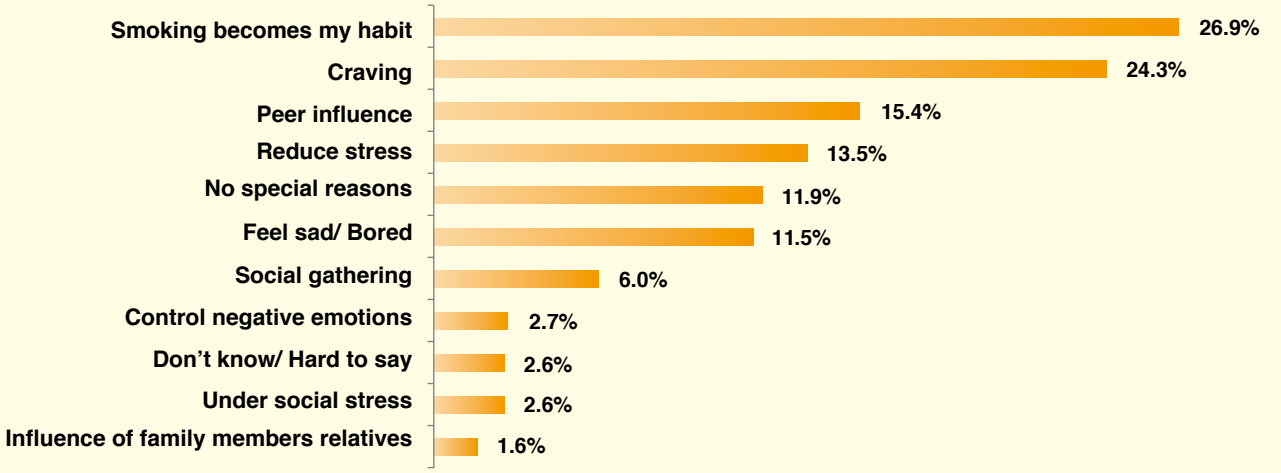
Reasons for smoking initiation among current smokers and ex-smokers (n=1,274)



The most frequently reported reason to continue smoking among smokers (Figure 2) was 'smoking becomes my habit' (26.9%; 206/765), followed by 'craving' (24.3%; 186/765). 'peer influence' (15.4%; 118/765), 'reduce stress' (13.5%; 103/765) and 'feeling sad/bored' (11.5%; 88/765).

Figure 2

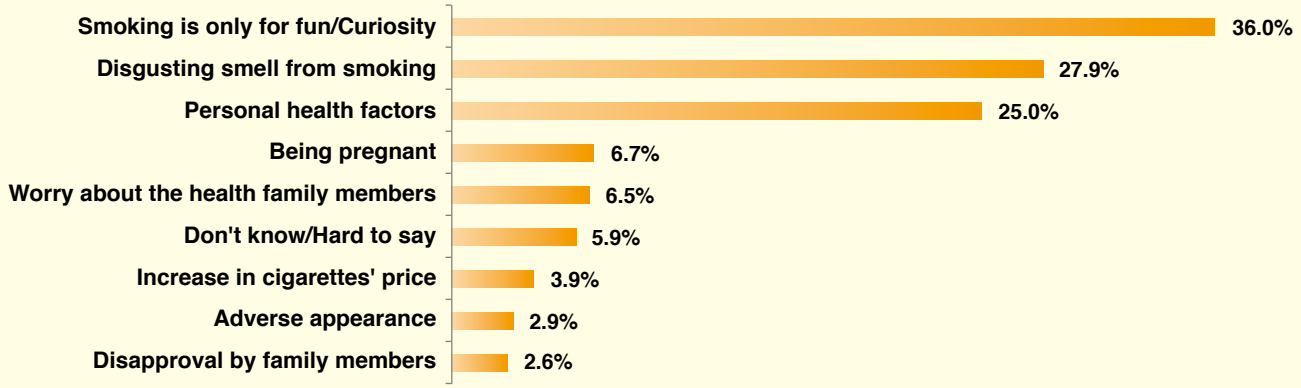
Reasons for continuing tobacco use among current smoker (n=765)



The most frequently reported reason for quitting smoking among ex-smokers (Figure 3) was 'smoking is only for fun or curiosity' (36.0%; 183/509), followed by 'disgusting smell from smoking' (27.9%; 142/509) and 'personal health factors' (25.0%; 127/509).

Figure 3

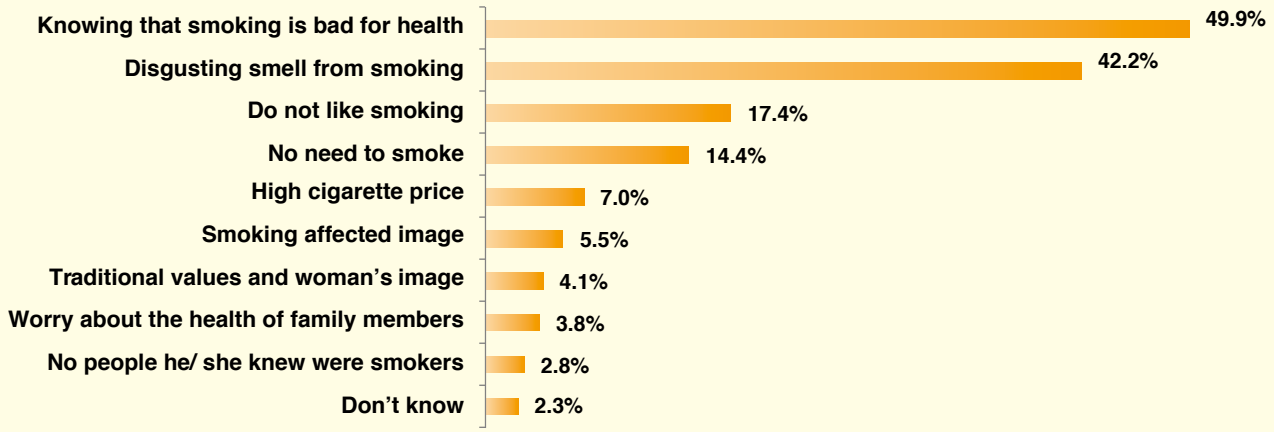
Reasons for quitting smoking among ex-smokers (n=509)



The most frequently reported reason for not smoking among never smokers (Figure 4) was 'knowing that smoking is bad for health' (49.9%; 1,014/2,032), followed by 'disgusting smell' (42.2%; 858/2,032) and 'do not like smoking' (17.4%; 353/2,032).

Figure 4

Reasons for not starting smoking among never smokers (n=2,032)



Factors and health outcomes associated with smoking

In accord with the Phase I study, Figure 3 shows that 'concerns about their own health' (25%; 127/509), 'worry about the health of their family members' (6.5%; 33/509) and 'being pregnant' (6.7%; 34/509) were the important factors for quitting smoking in ex-smokers. Moreover, the findings of Phase II study (Figure 4) concur with Phase I study that over 50% (1,014/2,032) never smokers had concern about the adverse health effects of smoking, especially on the next generation, which prevented them from starting smoking.

Compared with never smokers, current smokers were more likely to report poor health conditions (OR=1.65; 95% CI= 1.09-2.51), cough and sputum (OR=2.23; 95% CI= 1.69-2.95), but less likely to seek medical consultations (OR=0.78; 95% CI= 0.62-0.98), whilst ex-smokers were also more likely to report poor health conditions (OR=1.76; 95% CI= 1.16-2.68) and diagnosed asthma (OR=2.95; 95% CI= 1.42-6.12). Compared with current smokers, ex-smokers were less likely to report cough and sputum (OR=0.39; 95% CI= 0.27-0.58), but more likely to report diagnosed asthma (OR=4.12; 95% CI= 1.52-11.18) and seek medical consultation (OR=1.57; 95% CI= 1.18-2.07).

4. Discussion

The Phase I and II studies investigated, for the first time, the behaviour, attitudes and experiences of Chinese women current smokers, ex-smokers and never smokers towards smoking. The qualitative study (Phase I) provided detailed textual descriptions of the informants' behaviour, attitudes and experiences related to smoking. Additionally, a quantitative study (Phase II) was conducted to further explore the smoking behaviour and their associated factors among current smokers, ex-smokers and never smokers in Hong Kong women, on a population level. The large sample of participants improved the sample's diversity and precision of estimates and helped explore how socio-economic and demographic characteristics influenced the behaviour, attitudes and experience towards smoking. Most importantly, the strength of these two studies was the originality and importance of the research questions addressing an under-researched area, as smoking can cause many diseases and is a health major threat to women.

Both studies (Phase I & II) showed that peer influence and curiosity were the key reasons for smoking initiation among current and ex-smokers. Most current smokers claimed that smoking had become a habit in their daily life, which was a major obstacle against their intention to quit smoking. Craving was another key reason for continuing tobacco use among smokers. Because of nicotine dependency, smokers often experienced a strong desire to smoke and found it very hard to abstain from smoking, in particular when they felt bored or unhappy. Similar to the results of Phase I study, Phase II study indicated that a common reason for quitting smoking among ex-smokers was the awareness of the health hazards of smoking, in particular when they were pregnant. In accord with Phase I study, the Phase II study found that realizing smoking was bad for health was the key reason for not starting smoking among never smokers. In addition, most never smokers reported that they found the smell arising from a smoker's mouth very disgusting.

One interesting finding from both studies was that many female smokers regarded negative emotions and stress were the important factors affecting smoking initiation and influencing continued tobacco use. These factors are particular important for female smokers, but for male smokers, apart from peer influence and curiosity, the most common reason for smoking initiation and continuing tobacco use is the necessity in social functions[7]. Another interesting finding is the majority of current smokers did not realize the name and location of the organizations that provide smoking cessation services. In addition, most of them did not have special methods to aid their quit attempt.

One important finding in Phase I qualitative study was that despite the high level of knowledge on most smoking diseases among current smokers, ex-smokers and never smokers, very few realized the female-specific adverse health consequences of smoking. Another important finding was that smoking was associated with other risk behaviours, such as alcohol consumption, unhealthy diet and physical inactivity. Moreover, Phase II study showed that ex-smokers were more likely to report poor health conditions as compared with never smokers. Similarly, current smokers were more likely to report poor health conditions.

Concerning tobacco control legislations, 23.7% of smokers (181/765) indicated that smoke-free legislation was not enough, and among them, 42.0% (76/181) expressed that there were insufficient tobacco control officers to enforce the legislation, in particular to taking legal action to prosecute those offenders who smoked in the designated no-smoking public places.

Besides, in Phase I qualitative group interviews, many never smokers, some ex-smokers and few current smokers supported the raise of tobacco tax. They believed that through increasing tobacco tax, it would motivate current smokers to quit or reduce tobacco consumption.

4.1 Implications and Recommendations for Clinical Practice

The findings revealed that parents who smoke have a strong negative influence on their children. Healthcare professionals must advise parents that if they do not want their children to smoke, they must set a good example by abstaining from smoking. Health promotion programmes are needed to strengthen people's ability to resist peer influence and curiosity, to prevent smoking initiation by females. Those at high risk of starting to smoke must be made aware of the addictive nature of tobacco and the myths that smoking can regulate mood, help to control weight and that quitting has negative health consequences.

The results revealed that negative emotions and stress were important factors for smoking initiation and continued tobacco use among female smokers. For female smokers with such problems or concerns, it is vital that healthcare professionals should focus on helping them realize the negative health consequences of smoking, and at the same time helping them with some alternative strategies for coping with negative emotions and stress. Most importantly, healthcare professionals should be offered relevant training so as to enhance their self-efficacy and confidence in promoting smoking cessation to female smokers.

4.2 Implications and Recommendations for Public Health Actions

The findings of the studies pointed to the urgent need to take public health actions to prevent the uptake of smoking among young women. A positive image of a healthy non-smoking female should be portrayed through education and publicity campaigns to the younger generation. To tackle the tobacco epidemic in woman, we suggest the continued promotion of the social unacceptance of woman smoking and a tobacco prevention campaign that reinforces the poor image of women smoking and visually demonstrates the health hazards of smoking.

The findings indicated that many participants did not realize the female-specific health consequences of smoking. Campaigns are needed to raise public awareness of female-specific negative consequences of smoking, such as a higher rate of infertility, ectopic pregnancy, premature labour, low birth weight infants, sudden infant death syndrome, menstrual pain, early menopause, osteoporosis, cervical cancer, and the negative effect on the skin and appearance. Campaigns are also needed to increase the public's support for no smoking in women and for avoiding smoking and secondhand smoking exposure for females.

It is important to break the use of tobacco as a tool for social networking. Tailor-made smoking cessation promotion campaigns and advertisements targeting women are needed to help current smokers to quit. We must cultivate a social norm that does not tolerate smoking behaviour, encourages non-smoking family members, friends and the general population to advise smokers to stop smoking in public areas and creates social pressure on and support for smokers to stop smoking. Additionally, more promotion is needed to increase the awareness of the existing smoking cessation services in Hong Kong. More resources should be deployed to help females to quit smoking, such as by setting up a women's quit line in Hong Kong. Design and testing of more effective methods to increase rate in woman smokers are warranted.

To enforce the smoke-free legislation, limiting access to cigarettes by increasing tobacco tax and prohibiting tobacco promotion and display at the points of sale and plain packaging, should be effective. Most importantly, non-smoking people, healthcare professionals and tobacco control advocates should work with government to strengthen the smoke-free legislation and policies and expand the smoking cessation services so as to further reduce the smoking prevalence to single digit and strive for a smoke-free Hong Kong.

5. Conclusions

The two studies (Phase I & II) addressed a gap in the literature by examining the behaviour, attitudes and experiences of Chinese women in Hong Kong related to smoking and smoking cessation, an area of research that has been underrepresented in the literature. The findings can be used in the development of smoking cessation interventions for Chinese female smokers. Additionally, education, public policy, legislation, and research need to be geared towards preventing young girls and women from initiating smoking and continuing smoking.

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