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RESEARCH PAPER

Which smokers use the smoking cessation Quitline in Hong Kong, and how effective is the Quitline?

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Objective: To describe the characteristics of the Chinese subjects who utilised the first telephone smoking cessation service in Hong Kong, and to evaluate its effectiveness.

Methods: The Quitline provided Hong Kong residents with free telephone smoking cessation services which was publicised through a press conference, media reports, pamphlets, and posters at public and private hospitals and clinics. Callers who completed an initial interview from 13 December 2000 to 31 May 2002 were included. Smokers were interviewed using a structured record sheet and provided with stage matched counselling. A follow up interview was carried out after six months. Analysis was conducted by intention-to-treat.

Results: Of the 1120 callers who completed initial assessments, 1047 were current smokers and 872 consented to follow ups. Compared to the general smoking population, the Quitline attracted more of those who were female, younger, single, unemployed, higher educated, smoking more than 20 cigarettes per day, and those with quitting experience. At six months, 12% (95% confidence interval 10% to 15%) of the participants reported that they had not smoked a cigarette for the past seven days. A stepwise logistic regression model showed that the use of nicotine replacement therapy at the present attempt to quit, having made one or more serious attempts to quit in the past, perceiving less difficulties in quitting, and smoking the first cigarette at age 15 years or above were significant predictors of quitting.

Conclusion: This first Quitline in Asia appears to be acceptable to Chinese smokers, with quit rate comparable to those of better funded Quitlines in the West. A low cost Quitline is a promising model for smoking cessation services in the East.

Smoking is the major preventable cause of death in Hong Kong, leading to about 6000 deaths annually and accounting for about one fifth of all deaths.¹ Quitting smoking has significant health benefits,² and effective strategies are available to support quitting.^{3–4} Among the many services that are available to support smoking cessation, Quitline services (telephone based services with smokers' direct access to smoking cessation counsellors) were reported to be effective in the USA,^{5–7} the UK,^{8–9} and Australia.^{10–11} Quitlines can deliver cessation services to those who need help at convenient times and with less resources than other methods. The telephone format encourages people who are reluctant to obtain help from usual services to seek service,^{12–13} as soon as they make decision to seek help. There is evidence that telephone based counselling is helpful to the general smoking population who want to receive direct advice or counselling but try to avoid face-to-face contact.^{3–14} However, a major criticism is that Quitline services rely on callers to be proactive.

The Hong Kong Special Administrative Region (HKSAR), the most westernised and economically advanced city in China, has a population of 6.5 million, 95% of whom are ethnic Chinese. In 1998, there were 0.8 million daily smokers—about 15% of the population aged 15 years or above.¹⁵ Before the Quitline was established in December 2000, no telephone based smoking cessation service was available in Hong Kong or in mainland China.

There is a lack of smoking cessation services in the Asia-Pacific region, particularly in China with more than 300 million smokers. Moreover, information on the predictors of quitting among Quitline callers is lacking around the world. This paper describes the characteristics of the smokers who used the Hong Kong Quitline. We also examined predictors of

smoking cessation among Quitline callers, and compared the service's quit rate with Quitlines in the West.

METHODS

Quitline programme

The Quitline was operated as a pilot programme by the Department of Community Medicine and Nursing Studies of the University of Hong Kong in collaboration with Hong Kong Council on Smoking and Health. The Quitline was publicised, with a small budget, through press conference, media reports, pamphlets, posters at public and private hospitals and clinics, and through the website of the Hong Kong Council on Smoking and Health. Free services were available for 38 hours per week (Monday to Friday from 2 pm to 8 pm and Saturdays from 10 am to 6 pm) by trained bilingual (English and Chinese) counsellors. Smokers were interviewed using a structured record sheet, and were provided with stage matched counselling¹⁶ using a structured protocol with each session lasting for about 20 minutes. Callers who provided mailing addresses also received cessation related materials by post.

Subjects

The potential subjects were current smokers who called the Quitline from 13 December 2000 to 31 May 2002 and completed an initial assessment about their smoking status and intention to quit. In this report we included those smokers who wanted to receive counselling regardless of their intention to quit, and who gave verbal consent and provided a contact telephone number for a follow up (fig 1). Ethical approval for this study was obtained from the ethics committee of the Faculty of Medicine, the University of Hong Kong.

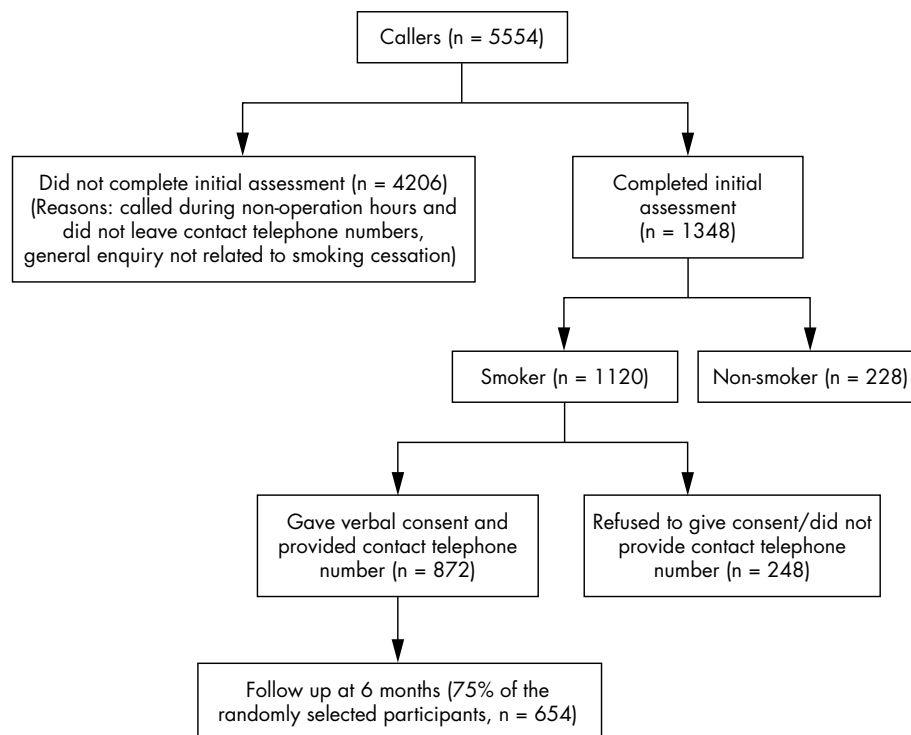


Figure 1 Flowchart for subject recruitment.

Data collection

The record sheet gathered participants' demographic information (sex, age, marital status, educational attainment, occupation, and personal and household monthly income), smoking history (smoking status, other household members' smoking status, the age that the participant started smoking regularly, and the average number of cigarettes smoked per day), nicotine dependence level (using the six question Fagerstrom tolerance questionnaire¹⁷), quitting history (whether the participant had ever seriously tried to stop smoking, the number of serious attempts, and the longest duration of not smoking during the latest attempt), and intention to quit based on the Prochaska's model.¹⁶

To assess respondent's perceived risk of tobacco use, we asked two questions: "Do you think smoking is harmful to health?" and "Do you think second hand smoking is harmful to health?" We also asked whether subjects used any form of nicotine replacement therapy (NRT) in the current quitting attempt. Adherence to stage matched counselling recommendations was assessed by asking: "Did you completely follow the counselling advice as recommended by counselors?" All the response categories above were yes or no.

To compare the characteristics of the Quitline callers with those of the general population, we used data from the 2000 Thematic Household Survey (THS)¹⁸ of the Government Census and Statistics Department, which collected information on cigarette smoking patterns and other social information on the general population aged 15 or above from October to November 2000. Systematic random sampling was used and 11 779 persons were interviewed; of these, 14.4% (1692) were current smokers (daily and occasional smokers). We compared our sample with these current smokers, who should be representative of those in the general population.

Follow up assessment

A follow up interview was carried out at six months for a 75% (654/872) random sample. We could not follow up all participants because of resource limitations. We did not invite those smokers who reported cessation for biochemical

validation, because biochemical tests are considered uninformative in low intensity interventions³ such as this Quitline and we expected very few would turn up for validation.

Analysis

The data were analysed using SPSS for Windows version 11.0. The difference between smokers who called the Quitline and the general smoking population in Hong Kong and the characteristics of quitters and non-quitters were compared by χ^2 tests. The variables that were significant in the univariate analysis were tested by forward stepwise logistic regression to identify predictors for quitting and to estimate adjusted odds ratios and 95% confidence intervals (CI). We used an intention-to-treat analysis (that is, all cases analysis) to assess the quit rate. Follow up variables with missing data were set to their baseline values. We also repeated the analysis on predictors for quitting by including only those whose outcome data were available at follow up. A probability value of $p < 0.05$ (two tailed) was considered significant. Since the results were similar in the two analyses (that is, by intention-to-treat and by including only those with outcome data), we only reported results based on the intention-to-treat analysis.

Smoking cessation was measured by asking subjects whether they had smoked any cigarette during the past seven days at the six month follow up interview (point prevalence quit rate).² Those who answered "no" were defined as quitters without any biochemical validation. All subjects who could not be contacted at follow up were considered to have continued smoking. For comparison with other studies, we reported a number of outcomes (analysed both by intention-to-treat and otherwise), ranging from a 24 hour quit rate to six months continuous quit rate.

RESULTS

Users of Quitline

Of the 5554 calls received by the Quitline over the study period, 3% were repeat calls, 5% were calls enquiring about the nature of the Quitline service, 68% were calls received

Table 1 Demographic and smoking characteristics of current smokers† who completed initial assessments for the Quitline‡ compared to all smokers from the Thematic Household Survey (THS), Hong Kong

	Quitline (%) n = 1047	THS (%) n = 1692
<i>Demographics</i>		
Sex*	n = 1040	n = 1692
Male	77.9	84.1
Female	22.1	15.9
Age*	n = 1047	n = 1692
15–19	4.5	3.1
20–29	25.3	17.0
30–39	28.9	23.1
40–49	22.3	24.0
50–59	12.7	14.9
60+	6.3	18.0
Education attainment*	n = 997	n = 1692
No schooling/primary or below	15.3	30.6
Secondary/matriculation	74.0	60.2
Tertiary or above	10.6	9.2
Marital status*	n = 1003	n = 1692
Never married	38.3	25.8
Married	57.0	67.1
Divorced/separated/widowed	4.7	7.2
Employment status*	n = 984	n = 1663
Employed	71.5	74.5
Unemployed	14.9	6.7
Students	2.5	1.5
Retired persons	6.1	13.3
Homemakers	4.9	4.0
Personal monthly income	n = 981	n = 1677
Less than HK\$9999	47.2	48.7
HK\$10000 or above	52.8	51.3
Household monthly income*	n = 959	n = 1676
Less than HK\$19999	65.5	41.8
HK\$20000 or above	34.5	58.2
<i>Tobacco use related§</i>		
Daily smokers*¶ (%)	99.6	86.1
Daily consumption of cigarettes*	n = 1038	n = 1457
1–10	23.5	44.8
11–20	49.5	45.4
21–30	16.1	6.5
31+	10.9	3.4
Age started smoking regularly*	n = 1039	n = 1457
<10 years old	1.5	3.2
10–19	66.5	62.5
20–29	28.5	30.8
30+	3.5	3.6
Tried to quit smoking in the past*	n = 1043	n = 1457
Yes	76.7	41.8
No	23.3	58.2

Percentage may be greater or less than 100% due to the rounding of figures; US\$1 = HK\$7.8.

*Denotes that the Quitline smokers were significantly different from the smokers in the THS ($p < 0.01$).

†Current smokers were those persons who at the time of enumeration had a smoking habit (disregarding their smoking pattern).

‡To be comparable with the THS sample, smokers aged 14 or below ($n = 13$) were excluded.

§As the THS reported detailed tobacco use related information for daily smokers only, the comparison for tobacco use related variables was based on daily smokers only.

¶Daily smokers were those persons who at the time of enumeration had a daily smoking habit.

during non-operation hours without leaving messages, and 24% ($n = 1348$) were callers who completed initial assessments. Among those who completed initial assessments, 83% were smokers (79% were current smokers and 4% were ex-smokers who had a daily smoking habit for a continuous period of six months or more but had quit smoking for less than 6 months), and the remaining 17% were non-smokers (16% had never smoked and 1% were ex-smokers who had a daily smoking habit for a continuous period of six months or more but had quit smoking for more than six months). Of the callers who completed initial assessment, 19% were in the

pre-contemplation stage, 52% in the contemplation stage, 22% in the preparation stage, and 7% were in the action stage.

Of the 1065 current smokers, 13 were aged 14 or below and five were non-Chinese, and were excluded from this analysis. Compared to the general population, there were significantly more people in our 1047 smokers who were female, younger, never married, unemployed, with lower household income or with secondary or higher education, daily smokers, who consumed more than 20 cigarettes daily or had tried to quit in the past ($p < 0.01$) (table 1).

Of the 1120 smoker callers who completed initial assessment, 248 did not consent to be followed up or did not provide a contact telephone number, leaving a total of 872 smokers of which 75% (654/872) were available for further analysis (fig 1). Of the 654 smokers, 76% were male, 56% were married or co-habiting, and 86% had received secondary school education or above. The 30 day average daily consumption was 20 cigarettes. The mean Fagerstrom score was 4.8 (range 0–10).

Smoking status at six months

Table 2 shows that, of the 384 smokers (59%; 384/654) who were successfully followed up, the point prevalence quit rate at six months was 20% (95% CI 16% to 25%). By using intention-to-treat analysis, the point prevalence quit rate was 12% (95% CI 10% to 15%). The continuous abstinence rate was 7% (95% CI 5% to 10%) among those who were followed up and 4% (95% CI 3% to 6%) by intention-to-treat.

Considering a broader measure of any positive action taken towards quitting (not smoking at follow up, having quit for at least a day, or having reduced cigarette consumption by at least 50%), 73% (95% CI 68% to 77%) had made a positive behavioural change towards smoking cessation at the six month follow up. By using intention-to-treat analysis, 43% (95% CI 39% to 47%) had made a positive behavioural change.

Predictors of quitting

Table 3 shows that eight factors significantly predicted smoking cessation (based on the seven day point prevalence quit rate at six months by intention to treat analysis). Of these significant factors that were tested by stepwise logistic regression, adherence to counselling recommendations, use of NRT at the present attempt to quit, having made one or more serious attempts to quit in the past, smoking 10 or less cigarettes per day, smoking the first cigarette at age 15 or above, and being aged over 50 years were the six significant predictors (table 4).

DISCUSSION

Our results show that this first Quitline in Asia had attracted more of those who were female, younger, single, unemployed, higher educated, daily smokers of more than 20 cigarettes per day, and those with quitting experience, compared to the general smoking population. These findings are comparable with those in other parts of the world where Quitline services are offered, including California,¹³ Massachusetts¹⁹ and Scotland.⁸ In California, 52% of the Quitline callers were female compared with 43% in the general smoking population.¹³ We also found a higher proportion of female callers (22%) to the Hong Kong Quitline than were in the general smoking population (16%). The lower utilisation of the Quitline by men might reflect their reluctance in seeking help. The limited hours of operation could also be a possibility as men were more likely to be at work during our Quitline's operation hours while housewives were able to utilise the service. The lower utilisation by those aged 60 or above and those who were

Table 2 Smoking status using different outcome indicators among participants at the six month follow up interview

Indicators of smoking behaviour	By number of respondents successfully followed up n = 384 (95% CI)	By intention-to-treat analysis n = 654 (95% CI)
<i>Main outcome</i>		
Proportion not smoking in the past 7 days at the follow up interview	20% (16% to 25%)	12% (10% to 15%)
<i>Other outcomes</i>		
Proportion that continuously abstained from tobacco smoking for the period before interview	7% (5% to 10%)	4% (3% to 6%)
Proportion not smoking in the past 24 hours at the follow up points	23% (19% to 28%)	13% (11% to 16%)
Proportion that stopped smoking for at least 24 hours at some point before the interview	61% (56% to 66%)	36% (32% to 40%)
Proportion that had not quit but had reduced smoking by at least 50% from the baseline level	29% (25% to 34%)	17% (14% to 20%)
Proportion that reported any positive behavioural change toward smoking cessation*	73% (68% to 77%)	43% (39% to 47%)

*Positive behavioural change refers to not smoking at follow up or having quit for at least a day or reduced cigarette consumption by at least 50%.
CI, confidence interval.

less educated could be due to their lack of interest in quitting, or because the Quitline information failed to reach them. A lower education level was also associated with not calling in California.¹³ Because we promoted our Quitline with low cost and opportunistic marketing strategies such as media interviews, feature articles, and posters distributed to hospitals or clinics rather than paid television advertisements or other targeted promotional campaigns which are expensive, the lack of awareness among those who had less access to written media materials was expected. Specific promotional campaigns should be designed to promote Quitline's existence and should target the vulnerable groups such as the less educated and elderly smokers. Any new programmes should be systematically evaluated.

We also found that the Quitline smokers were more addicted than smokers in the general population, as indicated by their higher daily cigarette consumption.²⁰ Furthermore, more than three quarters of the Quitline smokers had seriously tried to stop smoking at least once in the past as compared to only about half in the general population. These findings are in line with those of the California Smokers' Helpline.¹³ This suggests that addicted smokers who have unsuccessfully tried to quit in the past understand the difficulties of quitting without any professional help and are more eager to receive support when available. As heavy smokers are less likely to be successful in quitting without pharmacological help, provision for pharmacological support should be considered in future Quitline programmes to enhance counselling.²¹ Special efforts are also needed to encourage more of the light and less addicted smokers to utilise the Quitline.

We were not able to reach about 68% of the callers to the Quitline, because they called during non-operation hours and did not leave a message with contact information. A small proportion of them might have called back again during operation hours. This probably indicates that a substantial proportion of the public was seeking smoking cessation services during both morning and late hours and on Sundays. The future operation of the Quitline should revise hours of operation to better suit the needs of the callers. Furthermore, only 24% of the callers in our Quitline completed the initial assessment, which is lower than that reported in the Massachusetts Quitline (40%).¹⁹ This might be due to the larger volume of calls that we received during non-operation hours.

Our findings indicate that the Quitline concept, which had been effective for US,⁵⁻⁷ British,⁸⁻⁹ and Australian¹⁰⁻¹¹ smokers, is also effective for Chinese smokers. However, there are difficulties in comparing the quit rates among studies due to the differences in the definitions of quit rate, the target

populations, and follow up periods (see appendix, table A1 (to view the appendix please visit the *Tobacco Control* website—<http://www.tobaccocontrol.com/supplemental>)). Although the US Clinical Practice Guidelines use the seven day point prevalence abstinence rate or continuous abstinence rate, calculated by intention-to-treat analysis with or without validation at five or more months follow up, as the main outcome measure in smoking cessation,¹² only the Quitlines of Western New York State⁶ and California⁵ and two other targeted Hotlines for young mothers²² and African Americans²³ used such a definition. Moreover, the Western New York State and the California Quitlines included only motivated callers in the study and the targeted Hotlines recruited smokers through extensive media campaigns, thus limiting their comparability to other Quitlines. The Australian Quitline¹¹ reported the continuous abstinence rate at six months (7.8%) without using intention-to-treat analysis. All other Quitlines targeted at the general smoking population⁵⁻¹¹ or specific population groups²²⁻²⁴ reported 24 hour point prevalence quit rates or other quit rates (for example, one month or three month point prevalence quit rates). Only the Western New York State Quitline⁶ reported biochemically validated quit rates. Therefore, our Quitline is the first to report a quit rate (12%) for all callers (regardless of their readiness to quit) based on intention-to-treat. While different measures could be used to meet local needs and targets, the main outcome should be reported following a standard definition for international comparison.

Although the Western New York State Quitline⁶ included motivated smokers, its seven day point prevalence quit rate (12%) at six month follow up is identical to ours. The continuous abstinence rate at six months (12.8%) in California⁵ was higher than the continuous abstinence rate (4% by intention-to-treat) in our Quitline. This is probably due to the differences in the intensity of the counselling session provided in California (seven sessions versus one session in our Quitline) and the inclusion of motivated callers only. Note that California is also the state with the most successful and best funded tobacco control measures in the USA. In Australia, the continuous abstinence rate (8% without intention-to-treat) at a six month follow up was also comparable to our six month continuous abstinence rate (7% without intention-to-treat). Therefore, our result is comparable to or even better than some similar programmes abroad.

We found only six independent predictors of quitting by including all cases in the analysis, which were adhering to counselling recommendations, using NRT at the present attempt to quit, having one or more serious attempts to quit in the past, smoking 10 or less cigarettes daily, smoking the

Table 3 Demographics, lifestyle, and quitting related factors among quitters and non-quitters (n = 654)

	Non-quitter (n = 576)	Quitter (n = 78)	p Value for χ^2 tests
Characteristics	n (Row %)	n (Row %)	
Demographics			
Sex			
Male	432 (87)	65 (13)	0.12
Female	142 (92)	13 (8)	
Marital status			
Single	233 (91)	24 (9)	0.18
Married/cohabiting	308 (86)	51 (14)	
Widowed/separated/divorced	26 (90)	3 (10)	
Occupational status			
Housewife	31 (89)	4 (11)	0.15
Full time student/retired/unemployed	130 (83)	26 (17)	
Currently employed	400 (89)	48 (11)	
Age (years)			
30 or below	215 (90)	25 (10)	<0.01
31–40	161 (93)	12 (7)	
41–50	115 (86)	19 (14)	
51 or above	71 (77)	21 (23)	
Educational attainment			
Primary school (grade 6) or below	79 (87)	12 (13)	0.83
Secondary school (grade 7–11)	375 (88)	53 (12)	
Matriculation (grade 12) or above	109 (89)	13 (11)	
Monthly personal income			
HK\$0–9999	275 (88)	39 (12)	0.85
HK\$10000 or more	281 (88)	38 (12)	
Monthly household income			
HK\$0–19999	351 (88)	47 (12)	0.75
HK\$20000 or more	193 (87)	28 (13)	
Tobacco use related			
Daily cigarette consumption			
≤ 10	137 (82)	31 (18)	<0.01
≥ 11	432 (90)	47 (10)	
Nicotine dependency level†			
Low	169 (86)	27 (14)	0.71
Moderate	151 (88)	20 (12)	
Severe	243 (89)	31 (11)	
Number of smokers in the household			
Nil	369 (89)	47 (11)	0.46
1 or more	203 (87)	31 (13)	
Age started smoking the first cigarette			
14 or below	159 (94)	10 (6)	<0.01
15 or above	411 (86)	68 (14)	
Age started smoking cigarette regularly			
14 or below	122 (94)	8 (6)	<0.05
15 or above	448 (87)	70 (13)	
Quitting history			
Number of previous quitting attempt(s)			
None	130 (96)	5 (4)	<0.01
One or more	440 (86)	73 (14)	
Length of abstinence in the last attempt to quit			
Less than a day or not at all	49 (89)	6 (11)	0.45
≥ 1 day	390 (85)	67 (15)	
Perception of smoking			
Perceive smoking as harmful to health			
Yes	560 (88)	75 (12)	0.27
No	11 (79)	3 (21)	
Perceive second hand smoking as harmful to health			
Yes	530 (89)	68 (11)	0.08
No	41 (80)	10 (20)	
Quitting smoking related‡			
Adherence to stage matched counselling recommendations			
Yes	171 (77)	52 (23)	<0.001
No	405 (94)	26 (6)	
Joined other smoking cessation programmes			
Yes	24 (65)	13 (35)	<0.001
No	552 (90)	65 (10)	
Used NRT at the present quitting attempt			
Yes	25 (58)	18 (42)	<0.001
No	551 (90)	60 (10)	

A maximum of 5% data were missing for some items; US\$1 = HK\$7.8.

†The nicotine dependence level was measured by the Fagerstrom scale, which is divided into 3 levels: low (score 0–3), moderate (score 4–5), and severe (score = 6–10).

‡This information was collected at the 6 month follow up interview.

NRT, nicotine replacement therapy.

Table 4 Summary of logistic regression model (forward stepwise) to predict quitting at 6 month follow up

Independent variables	Including all cases (by intention-to-treat)	
	OR (95% CI)	p Value
Adherence to counselling recommendations	3.90 (2.28 to 6.69)	<0.001
Used NRT at the present quitting attempt	5.86 (2.75 to 12.48)	<0.001
Had one or more previous quitting attempts	3.44 (1.31 to 9.05)	<0.05
Smoked 10 or less cigarettes per day	2.50 (1.41 to 4.42)	<0.01
Started smoking the first cigarette at age 15 or above	2.33 (1.12 to 4.87)	<0.05
Age (referent = 30 years or under)		<0.01
31–40 years	0.54 (0.25 to 1.19)	0.11
41–50 years	1.31 (0.63 to 2.72)	0.51
51 years or over	2.37 (1.15 to 4.89)	<0.05

CI, confidence interval; NRT, nicotine replacement therapy; OR, odds ratio.

first cigarette at age 15 or above, and being aged above 50 years. Other significant predictors in univariate analysis could have been excluded from the stepwise modelling because they were strongly associated with the predictors in the final model. Because different lists of predictors were examined in different studies, the significant predictors from stepwise modelling would not be identical. In addition to those that we identified, some studies^{7–8, 25} reported other predictors of successful quitting, such as the age at which regular smoking began, joining other smoking cessation programmes, quitting for at least a day in the latest attempt to quit, nicotine dependency level, and educational attainment. We also found that the former two predictors were significant in univariate analysis. Although NRT was not given in this study, some of the smokers used NRT to support their attempt to quit. The higher success rate among those who used NRT supports the established effectiveness of NRT.²⁶

Although interventions following Prochaska's stages of change model¹⁶ have been reported to be effective in supporting quitting, a recent review reported ineffectiveness.²⁷ However, we found no previous studies which examined or reported adherence to stage based interventions in relation to quitting outcome among Chinese smokers. We found that adherence to stage based smoking cessation intervention was a significant predictor of smoking cessation. This suggests that measures to improve adherence to counselling recommendations could improve quit rates. As most previous adherence studies in relation to smoking cessation intervention focused on adherence to pharmacological products with little emphasis on behavioural components, there is a need for randomised controlled trials to test what interventions would be effective in increasing adherence to behavioural interventions such as the "stage based intervention" used in the present study.

Study limitations

This study has several limitations. First, the data that we collected from the Quitline were based on the proactive calls of smokers who were less likely than the general populace to under-report their smoking related information. In contrast, the Thematic Household survey was based on household interviews, and smokers could have under-reported or misreported their smoking related information. Therefore, the comparison should be interpreted cautiously. Second, three trained nurse counsellors provided the stage based counselling which was manageable to ensure coherence in the coordination and the delivery of counselling. However,

What this paper adds

Prior research has reported the effectiveness of a smoking cessation Quitline among populations in the West. However very little information on this smoking cessation service was available in the literature from the East, especially from China with more than 300 million smokers. To the best of our knowledge, this is the first article that reports a smoking cessation Quitline from the East.

The findings of this study suggest that the smoking cessation Quitline is acceptable to Chinese smokers and the quit rate achieved by very low running and publicity costs is comparable to those of better funded Quitlines in the West. A low cost Quitline is a promising model for smoking cessation services in the East.

we are uncertain whether similar benefits could be achieved in a larger service with more counsellors and less opportunities for staff to compare and coordinate activity. Third, the reported quit rate was based on self reporting. However, the misreported rate for self reporting is relatively low (< 5%),²⁸ and self reporting has been used extensively as an outcome measure for studies on smoking cessation and exposure.^{28–29} Fourth, we conservatively used intention-to-treat analysis to determine the quit rate. It is possible that some smokers who were not available at follow up might have quit smoking and were unwilling to be followed up. Fifth, 41% of the subjects were lost to follow up. It was possible that those who continued with the follow up were different from those who were not. However, we have found no significant differences in the baseline demographic or smoking characteristics of the two groups.

In conclusion, the Quitline appears to be a useful and acceptable smoking cessation service for the Chinese in Hong Kong, which suggests the need for more Quitlines in other Chinese or Asian cities.

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To view the appendix (table A1) please visit the Tobacco Control website—<http://www.tobaccocontrol.com/supplemental>

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ECHO

How much downside? Quantifying the relative harm from tobacco taxation

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Please visit the Tobacco Control website [www.tobaccocontrol.com] for a link to the full text of this article.

Objective: To estimate the loss of life expectancy attributable to tobacco taxation (via financial hardship and flow-on health effect) in New Zealand.

Design: Data were used on the gradients in life expectancy and smoking by neighbourhood socioeconomic deprivation and survey data on tobacco expenditure. Three estimates were modelled of the percentage of the crude association of neighbourhood deprivation with life expectancy that might be mediated via financial hardship: 100%, 50%, and 25% (best estimate). From this information the impact of tobacco taxation on life expectancy was estimated.

Main results: For the total population, the estimated loss of life expectancy due to tobacco tax ranged from 0.005 years to 0.027 years. For people living in the most deprived 30% of neighbourhoods, the range was 0.009 to 0.044 years (that is, 3 to 16 days of lost life expectancy). For the total population the loss of life expectancy attributable to tobacco tax ranged from 119 to 460 times less than that attributable to deprivation. The loss of life expectancy attributable to tobacco tax was 42 to 257 times less than that attributable to smoking.

Conclusions: The estimated harm to life expectancy from tobacco taxation (via financial hardship) is orders of magnitude smaller than the harm from smoking. Although the analyses involve a number of simplistic assumptions, this conclusion is likely to be robust. Policy makers should be reassured that tobacco taxation is likely to be achieving far more benefit than harm in the general population and in socioeconomically deprived populations.

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