THE HONG KONG POLYTECHNIC UNIVERSITY
SCHOOL OF NURSING

TELEPHONE-BASED PROACTIVE SMOKING CESSATION INTERVENTION FOR PARENTS OF YOUNG CHILDREN: A RANDOMIZED CONTROLLED TRIAL

YIM WAH MAK

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

UNDER THE SUPERVISION OF DR. ALICE YUEN LOKE
& PROFESSOR T H LAM

OCTOBER, 2004

CERTIFICATE OF ORIGINALITY

I hereby declare that this thesis entitled "Telephone-based proactive smoking cessation intervention for parents of young children: a randomized controlled trial" is my own work and that, to the best of my knowledge and belief, it reproduces no material previously published or written, nor material that has been accepted for the award of any other degree or diploma, except where due acknowledgements and details of external collaboration have been made in the text.

Signed _____

Mak Yim-wah

Acknowledgements

I am most indebted to my supervisors Dr. Alice Yuen Loke and Professor T. H. Lam for giving me encouraging and constructive feedback throughout the entire study period. I also thank them for the valuable time devoted to providing me with invaluable suggestions for enhancing the quality and clarity of this dissertation. Special and heartfelt thanks must go to Dr. Loke for her patient listening to my ideas and concerns, for her reassuring ear, for offering me her expert guidance and support throughout the entire study period, for allowing me the freedom to try my best and for offering me so many opportunities for all round development.

My study has benefited from the wisdom of my co-supervisor, Prof. T. H. Lam, Head of the Department of Community Medicine at the University of Hong Kong, who provided the original idea for this study. I would like to thank Dr. A. S. M. Abdullah, co-ordinator of the smoking cessation program in this cohort study, for his inspiration and advice.

I would also like to extend my thanks to the Department of Health for its approval of the conduct of the pilot study in a maternal and childcare clinic. I am grateful to the Hospital Authority for providing the free printed self-help booklets for the participating parents.

I would like to express my sincere gratitude to Professor S. K. Lo for his helpful advice in designing the measurement on psychometric properties of the instrument. Deepest thanks go to Ms. Carrie Yam for her vital assistance in cleaning the baseline datasets for analysis. I am grateful to Ms. Lai Chin Wong, Ms. Patsy Chau YK and Dr. Tong Chan for their helpful advice in analyzing data, and thanks are also due to Ms. Andrea Loke, Ms. Liz Li and Mr. Ho Yin Chow for their assistance in data entry and management.

I am especially grateful to Ms. Chui Sim Poon and Ms. Cecily Leung for their enthusiasm, their concern for family health, and their excellent work both in the interviews and the smoking cessation counseling. Their persistence was critical to the achievement of the high response and adherence rates of this study. My appreciation goes to all the participating families for their valuable time and their attempts to quit

smoking. Their enthusiasm reassured me that my efforts to help them quit smoking were worthwhile.

I appreciate my fellow students and staff in the School of Nursing at the Hong Kong Polytechnic University and the Department of Community Medicine at the University of Hong Kong for their support in many different ways.

Thanks should also go to my mother, who died while I was writing my master's degree dissertation 5 years ago. She suffered from multi system atrophy and had struggled for years. In her eyes and deep in her heart, medical professionals, and especially nurses, are many things: caregivers, compassionate nurturers and advocates. Many nurses in the hospital where she stayed had helped her recover or make peace with her illness and disability. I was grateful to be able to help as her daughter, with my nursing knowledge providing her with the needed physical and emotional support during her last journey. I am proud of my decision to enter the nursing profession. This experience is the origin of the force that is now behind my aspiration to give what I have learnt to the entire community. It also seeded the strong drive in me to take up this endeavor to further my study for a PhD, for the betterment of my professional knowledge.

Last, but not least, I would like to thank my children, Ho Hin and Yin Yi, for their physical and psychological support during my study, and for the comfort and support they gave to their mother through a nice massage and a warm drink after long evenings of counseling on the phone. My eternal gratitude goes to my husband, Michael, for his love, support and understanding, and for his good care of our children, which made my study possible.

Details of External Collaboration

This study is a follow-up of the 1997 Birth Cohort Study available in the Department of Community Medicine at the University of Hong Kong. The Birth Cohort Study was in collaboration with the Family Health Services (FHS) of the Department of Health. The cohort included 8,327 parent-infant pairs of infants born in April and May 1997, accounting for 88% of all births in Hong Kong in the two months of the recruitment period. All the parents in the birth cohort were re-contacted at intervals when the babies were 3 months, 9 months and 18 months of age.

Part of this research was supported by the Health Care Promotion Fund, project no. 212918 (Dr. A.S.M. Abdullah is the grant holder of this project). Part of this thesis has been presented at various international conferences, (included in books of abstracts) during the course of PhD study. (Please refer to the part “abstracts or manuscripts already published or under review” for more details.)

Abstracts or manuscripts already published or under review

Refereed Journal Articles:

1. Mak, Y.W., Loke, A.Y., Lam, T.H. & Abdullah, A.S.M. (2005). Validity of self reports and reliability of spousal proxy reports on the smoking behavior of Chinese parents with young children, Addictive behaviors, 30, 841-845.

2. Mak, Y.W., Loke, A.Y., Lam, T.H. & Abdullah, A.S.M. The predictors of participation in a randomized controlled trial of a proactive telephone-based smoking cessation program among Chinese smoking parents with young children (sent for editorial review: Preventive Medicine, Sept, 2004).

3. ASM Abdullah, Mak, Y.W., Loke, A.Y., Lam, T.H. Smoking cessation intervention in Chinese parents of young children: a randomized controlled trial (sent for editorial review: Addiction, October 2004).

4. Mak YW, Loke AY, Lam TH, Abdullah ASM. The household smoking hygiene of smoking parents with young children and the predictors of poor household smoking hygiene practices. Tobacco Control (submitted for publication review, April 2005)

Conference Presentations and Publications:

1. Mak YW, Loke AY, Lam TH, Abdullah ASM. Community Health Project: Protecting Young Age Children from Parental Smoking at Home, 27th Conference of the International Association for Human Caring, Reflection and Action: Promoting Harmony in Caring Environments, June 15-18, 2005, North Lake Tahoe Conference Center, King's Beach, California, USA (Abstract accepted, Jan 2005)

2. ASM Abdullah, Mak, Y.W., Loke, A.Y., Lam, T.H. (2004). Smoking cessation intervention in Chinese parents of young children: a randomized controlled trial. Proceedings: The 7th Asia Pacific Conference on Tobacco or Health, 15-18 September 2004, Korea, p.161.

3. Mak, Y.W., Loke, A.Y., Lam, T.H. & Abdullah, A.S.M (2004). Hong Kong Smoking Parents' Household Smoking Hygiene. Proceedings: The 7th Asia Pacific Conference on Tobacco or Health, 15-18 September 2004, Korea, p151.

4. Mak, Y.W., Loke, A.Y., Lam, T.H. & Abdullah, A.S.M. (2004). The predictors of participation in a randomized controlled trial of a proactive telephone-based smoking cessation program among Chinese smoking parents with young children. Book of Abstracts: The 7th East Asian Forum of Nursing Scholars (EAFONS), 18-19 March, 2004, A35.

5. Mak, Y.W., Loke, A.Y., Lam, T.H. & Abdullah, A.S.M. (2003) Smoking Cessation in Parents of Young Children – a preliminary report of a randomized controlled trial. Book of Abstracts: The 6th East Asian Forum of Nursing Scholars (EAFONS), 7-8 March, 2003.

6. Mak, Y.W., Abdullah, A.S.M., Loke, A.Y. & Lam, T.H. (2001) Smoking Cessation in Parents of Young children – a pilot study. Conference Abstract: 6th Asia Pacific Conference on Tobacco or Health, 26-29 October 2001.

Others:

1. Mak, Y.W., (2004). Telephone-based Proactive Smoking Cessation Intervention for Parents of Young Children: A Randomized Controlled Trial, Dissertation, The Hong Kong Polytechnic University.

2. Abdullah ASM, Lam TH, Mak YW & Loke AY. (2004) Smoking cessation intervention in parents of young children: A randomized control trial.' The Health Services Research Committee/Health Care Promotion Fund Report, Government of the Hong Kong SAR (HSRC/HCPF #212918).

Abstract of thesis entitled 'Telephone-based proactive smoking cessation intervention for parents of young children: a randomized controlled trial'
submitted by Yim Wah MAK
for the degree of Doctor of Philosophy
at The Hong Kong Polytechnic University in October, 2004

Abstract

This was a randomized controlled trial (RCT) to compare the effectiveness of a proactive telephone-based counseling program based on Prochaska's transtheoretical model of behavior change together with educational materials to help smoking parents of young children to quit.

Smoking parents of young children were randomized into two groups: intervention group received printed self-help materials and three-session telephone-based smoking cessation counseling delivered by trained counselors; control group received printed self-help materials only. The smoking cessation telephone interview guidelines and counseling protocol were developed and used as a reference for the counselors as the empirical and theoretical basis of the interviews and smoking cessation counseling.

A set of structured questionnaire was developed and validated for data collection at baseline and at 1, 3 and 6 month follow up. The overall psychometric properties of the questionnaires were good, with content validity index of 0.94, internal consistency from 0.60-0.86 and test-retest reliability, intra class correlation coefficient at 0.69-1.0. Significant agreement of self-reported smoking status with expired CO concentration (kappa at 0.70) and spousal validation were found.

Of the 1,420 eligible parents contacted, 1,149 parents (80.9%) completed the proactive telephone interview. A total of 952 smoking parents agreed to take part in the trial, with 467 parents were randomized in the intervention group and 485 in the control group.

The majority of the smoking parents were daily smokers (n=880, 92.4%), and 808 (85.9%) of them smoked at home. The mean number of cigarettes smoked per day was 14.5. At the baseline measure, most parents (67.9%) were at the 'pre-contemplation' stage based on Prochaska's model of behavior change. By the end of the 6-month intervention period, 87.8% adhered to the trial.

Using analysis by the 'intention to treat' principle, the 7-day point prevalence quit rate at the 6-month follow-up was statistically significantly higher in the intervention group (17.6%, 82/467) than the control group (10.5%, 51/485) ($p<0.005$). The absolute risk reduction was 7.1% (95% CI: 2.7-11.5%). The number needed to treat to get one additional smoker to quit was 14 (95% CI: 9 to 37). The odds ratio of quitting was 1.8 (95% CI: 1.2-2.6), adjusted for age, number of years smoked, alcohol dependency and marital locus of control. A stepwise logistic regression model identified the significant predictors of quitting as being randomized to the intervention

group, being at the ‘action stage’ at baseline, smoking 10 or fewer cigarettes daily in the previous month, having the index child with frequent morning cough, and having confidence in one’s ability to quit.

In this study, a counseling protocol that is essential for counselors in smoking cessation was developed, the psychometric properties of the questionnaires was established, as well as the validity of the spousal proxy reports and biochemical validations of smoking status. The findings show that this proactive telephone counseling has been accepted and effective in helping smoking parents of young children to quit in Hong Kong.

TABLE OF CONTENTS

METHOD

RESULTS

DISCUSSION, LIMITATIONS, IMPLICATIONS AND RECOMMENDATIONS

LIST OF TABLES

LIST OF FIGURES

LIST OF BOXES

LIST OF APPENDICES

Appendices

*English and Chinese versions included

INTRODUCTION AND BACKGROUND

Chapter 1
Introduction

1.1 Introduction
1.2 Health consequences of active and passive smoking
1.3 Adverse effects of parental smoking on young children
1.4 Smoking habits of children with smoking parents
1.5 Benefits of smoking cessation by parents with young children
1.6 Summary
1.7 Thesis outline

1.1 Introduction

This chapter describes the adverse health effects of active smoking for parents as adult smokers and the effects of passive smoking on young children. The benefits of smoking cessation among parents with young children are also briefly discussed. The thesis outline was highlighted at the end of this chapter.

1.2 Health consequences of active and passive smoking

The health risks of active smoking are well documented. Early in the last decade, an estimation of causes of death in 44 developed countries revealed that cigarette smoking is the largest single cause of premature death among adults in developed countries. (Peto, Lopez, Boreham, Thun, & Heath, 1992). It was further reported that smoking causes about 24% of all male and 7% of all female deaths among middle-aged adults (35-69) (Peto et al., 1996). The average loss of life for cigarette smokers compared to non-smokers was reported to be about 8 years in 1996 (Peto et al., 1996), and about 10 years in 2004 (Doll, Peto, Boreham, & Sutherland, 2004). The World Health Organisation has reported that the mortality and burden of disease attributable to tobacco use in 14 sub-regions of the Global Burden of Disease study are 2.1 million and 5.9 million respectively (Ezzati, Lopez, Rodgers, Vander Hoorn, & Murray, 2002). About 8.8% and 4.1% of the world total mortality and disability adjusted life years were caused by tobacco use respectively.

A landmark cohort study of 34,439 British male doctors for 50 years concluded that the relative risk of smoking related mortality of persistent smokers was three times more than that of non-smokers (Doll, Peto, Boreham, & Sutherland, 2004).

The evidence from this prospective study confirms that smoking causes various fatal diseases, including heart diseases, stroke, obstructive airway diseases and cancer of the mouth, oesophagus, pharynx, larynx, lungs, pancreas and bladder. The most recent Surgeon General's Report (US Department of Health and Human Services, 2004) expands the list of diseases caused by smoking to include also abdominal aortic aneurysm, acute myeloid leukemia, cataract, pneumonia, periodontitis and cancer of the cervix, kidney and stomach.

A study on smoking and mortality conducted in Hong Kong estimates that smoking caused about 33% of all male and 5% of all female deaths among all registered deaths between the ages of 35-69 years in 1998 (Lam, Ho, Hedley, Mak, & Peto, 2001). For those over 70, smoking caused about 15% of all deaths. Further findings from the study also showed that there were excessive risk ratios of 1.9 for all deaths, 2.2 for neoplastic deaths, 2.6 for respiratory deaths and 1.7 for vascular deaths when comparing smokers with non-smokers.

The adverse health effects of smoking do not just affect smokers but also non-smokers who come to contact with smokers. 'Passive smoking' refers to non-smokers' inhalation of tobacco smoke from nearby smokers. The term "environmental tobacco smoke" (ETS) is used to refer to the mixture of side stream smoke (SS) diffused by the burning of tobacco products and mainstream smoke exhaled by smokers (US Department of Health and Human Services, 1985). ETS contains more than 4000 chemicals, of which more than 40 are carcinogenic (Repace & Lowrey, 1985). These compounds are known to produce lung cancer, nasal sinus cancer and heart disease in adults, and other

respiratory complications in adults and children (Celermajer et al., 1996; Hackshaw, Law, & Wald, 1997; Repace & Lowrey, 1990).

1.3 Adverse effects of parental smoking on young children

Children are particularly vulnerable to passive smoking. Special consideration should be given to the health hazards posed to young children who are exposed to their parents' smoking. An American population-based study on children aged two months to 11 years who are exposed to environmental tobacco smoke revealed that the serum cotinine levels of these children were higher than those of adults with similar ETS exposure (Pirkle et al., 1996). This result indicates that young children are particularly vulnerable to ETS and are at risk of adverse effects when they spend most of their time at home with their smoking parents.

A tremendous body of research focuses on the relationship between ETS exposure and the respiratory health of children. Significant evidence from these previous studies indicates and supports the causal association between ETS exposure and respiratory symptoms during childhood (Colley, Holland, & Corkhill, 1974; Lewis, Richards, Bynner, Butler, & Britton, 1995). More evidence has been accumulated by a more recent review which confirms ETS exposure as the major cause of lower respiratory tract infections among young children, including bronchitis and pneumonia, symptoms of upper respiratory tract irritation, and a small but significant reduction in lung function (DiFranza, Aligne, & Weitzman, 2004).

A systematic meta-analysis of articles published from 1965 to 1992 on passive smoking and children was performed with a calculation of the pooled risk ratio (RR) of pediatric diseases associated with the use of tobacco products by surrounding people (DiFranza & Lew, 1996). The results show that among children who had chronic ETS exposure, the RR ranged from 1.05-1.35 for the occurrence of otitis media among pre-school aged children, RR 1.46 for lower respiratory tract infection among children younger than 5 years old, and RR 1.63 for exacerbations of existing asthma among children up to the age of 14 years.

Another meta-analysis of over 89 relevant studies appearing on Embrace or Medline up to 1998 by also concluded that parental smoking was associated with the increased prevalence of asthma and respiratory symptoms of young children and, among children who had already developed asthma, with more severe diseases that increased the incidence of life-threatening attacks and emergency visits to hospitals (Cook and Strachan, (1999). It has been estimated that an annual 284 to 360 deaths among children from English-speaking countries occurred because of lower respiratory tract illnesses (DiFranza & Lew, 1996).

A study conducted in Hong Kong reported a positive dose-effect between the numbers of smokers at home and the respiratory symptoms of children living in the same household. It has been reported that about 16% of respiratory symptoms in children are attributed to passive smoking at home. The risk of respiratory symptoms among children is at OR=1.19 (95% CI: 1.01-1.47) for one smoker in the same household, OR=1.38 (95% CI: 1.07-1.79) for two smokers,

and OR=1.85 (95% CI: 1.19-2.85) for three smokers in the same household (Lam, Chung, Betson, Wong, & Hedley, 1998).

Other health problems such as fluid in the middle ear, middle ear disease, and sudden infant death syndrome are also related to passive smoking by young children (Cook & Strachan, 1999; Etzel et al., 1997; Leuenberger et al., 1994). It has been estimated that odds ratios of 1.02-1.85 of operation to replace the tympanostomy tubes and about 1.46 to 1.75 excessive chance of tonsillectomy and adenoidectomy are associated to ETS exposure (DiFranza & Lew, 1996).

There are other adverse effects of passive smoking besides those on health: more than 300 fire-related injuries initiated by smoking materials have been reported to be attributable to passive smoking (DiFranza & Lew, 1996). School age children who are exposed to ETS have also been found to have a higher number of school absences and to use medical services more frequently due to symptoms related to exposure (Charlton, 1994; Charlton, 1996). A recent study in Hong Kong has reported that in comparison with children in the same household who do not have smokers smoking within 3 meters distance, children with smokers who smoke near them are more likely to be admitted to hospital (OR 1.28) in their first year of life (Leung, Ho, & Lam, 2004).

1.4 Smoking habits of children with smoking parents

Another adverse consequence of parental smoking is the launching of a “family circle” phenomenon passing from smoking parents to their children (Charlton, 1996). Studies have revealed that 3.2% of the adolescents (age 15-17) with

parents who have never smoked will become smokers, compared with 13.2% of those with one smoking parent (Farkas, Distefan, Choi, Gilpin, & Pierce, 1999; Bailey, Ennett, & Ringwalt, 1993). A recent study also shows that children of whom both parents are current smokers are four times more likely to take up smoking than children with parents who have never smoked (Blokland, Engels, Hale, Meeus, & Willemsen, 2004).

In Hong Kong, where nearly half (43%) of primary school children live in the same household as at least one smoker, about one third of the boys and one fifth of the girls are expected to take up the habit (Peters, Hedley, Lam, Betson, & Wong, 1997).

There is an increasing trend towards experiential smoking among young children in Hong Kong. It is reported that the prevalence of smoking among adolescents aged 15-19 ranged from 4% to 8% for males and 0.4% to 2.3% for females from 1982-2003 (Census and Statistics Department, 2003). A study among Hong Kong primary school children reported that the number of boys who had ever tried smoking rose from 18% at the age of 12 or younger to 61% at 16 or above. The corresponding prevalence in girls was 17% and 48% respectively (Lam, Chung, Wong, Hedley, & Betson, 1994). The early establishment of the smoking habit is a warning signal as once young children start smoking, it is usually difficult for them to quit, and the adverse health effects start to accumulate at this young age (Charlton, 1996).

1.5 Benefits of smoking cessation by parents with young children

Smoking cessation benefits both the smoking parents and their young children. Smoking cessation substantially reduces the risk of various diseases due to active and passive smoking, and eventually returns ex-smokers to the same risk levels as nonsmokers (US Department of Health and Human Services, 1990). It is noted that the benefits from smoking cessation start as soon as smoking stops (Haustein, Krause, Haustein, Rasmussen, & Cort, 2002; Frank, 1993; Woolf, 1999). The effect of smoking on blood pressure, heart rate, blood oxygen and carbon monoxide will ease after smoking is stopped for 24 hours. The senses of smell and taste and breathing become easier after two to three days of stopping. Coughing, shortness of breath and wheezing will improve within the first year of stopping. The chances of heart attack and lung cancer will be reduced by about half for a smoker after stopping for five and ten years respectively.

Among children whose parents have quit smoking, a study has also demonstrated that the younger the age of the children when their parents stopped smoking, the less likely they are to take up smoking during adolescence (Blokland, Engels, Hale, Meeus, & Willemsen, 2004). The evidence clearly indicates that the smoking habits of parents are influential on their young children and that if these smoking parents could quit smoking, the impact will be a reduction in youth smoking. It is concluded that there are far-reaching benefits for both smoking parents and their young children if the parents can stop smoking.

1.6 Summary

Despite the adverse health consequences of smoking, an average of 15.3% of all Hong Kong people aged 15 or above are current smokers (Census and Statistics Department, 2003). About two thirds of these daily smokers started smoking before the age of 20. However, nicotine is highly addictive, so most smokers have been unable to quit even after several attempts once they have taken up the habit (Irvine et al., 1999; West & Gossop, 1994; West & Shiffman, 2001).

The smoking habits of parents not only put their children at risk of smoking-related morbidity but also make them more likely to take up the smoking habit in the future. If the smoking father or mother can quit smoking, these children's risks of smoking-related morbidity and mortality due to passive smoking at home will be reduced.

The exposure of children to their parents' smoking is a public health issue that deserves attention. Health professionals should help smokers to quit before they reach middle age and stop young people from taking up smoking at a young age. An effective smoking cessation program for smoking parents has a major beneficial impact on the smoking parent's health as well as the health of their young children.

1.7 Thesis Outline

This thesis is organized into eleven chapters in four parts that sequentially through the steps in the research process of (1) introduction and background, (2) method, (3) results and (4) discussion, limitations, implications and

recommendations. The contents of this thesis included the introduction of the significance of parental smoking cessation (chapter 1), a review literature on telephone-based smoking cessation intervention targeted on parents with children (chapter 2), study design (chapter 3), counseling protocol and counseling reliability (chapter 4), pilot study (chapter 5), results in a cross-sectional baseline study (chapter 6), results on smoking parents entering the randomized controlled trial, and attrition (chapter 7), primary outcome results at 6-month follow-up (chapter 8), secondary outcome results comparing baseline and 6-month follow-up (chapter 9), discussion, limitations (chapter 10) and implications and recommendations (chapter 11).

Chapter 2

Literature Review

2.1 Introduction

2.2 Literature search for studies on smoking control trials targeted at smoking parents

2.3 Proactive versus reactive telephone-based counseling

2.4 Telephone-based approach targeted smoking parents

2.5 Recruitment strategies: proactive vs. reactive approach

2.5.1 Efforts to recruit smokers into smoking cessation programs

2.5.2 Effectiveness of using proactive approach as a recruitment strategy

2.6 Prochaska's stages of change as assessment strategy

2.7 Stage-matched intervention strategies

2.8 Motivational interviewing

2.9 Summary: A model smoking cessation intervention for parents with young children

2.1 Introduction

This chapter starts with identifying and examining the literature regarding clinical trials involving a telephone-based intervention for parental smoking control, and describes the effectiveness of these interventions. There follows an overview of the literature on the effectiveness of the recruitment strategies used in these smoking cessation programs, and a comparison is made between the proactive and reactive approaches to recruiting smokers into intervention programs. Prochaska's model of behavioral change as an assessment strategy and the stage-matched intervention strategy are discussed. A framework of this study is formulated at the end of the chapter.

2.2 Literature search for studies on smoking control trials targeted at smoking parents

A literature search was done using Medline Express 1966 – July 2004, CINAHL from 1990 – 2004, the Tobacco Addiction Group Specialized Register of trials involving environmental tobacco smoke pollution and child health, and the Cochrane Central Register of Controlled Trials for studies referring to families or children in relation to smoking cessation or smoking prevention. The search was further extended through the ISI of the software of a computer search engine (Reference Manager Version 10).

Search terms including environmental pollution / environmental tobacco smoke; passive smoke / smoking, or second hand smoke / ETS / tobacco smoke pollution yielded 8009 citations. Combining this search with one limited to randomized controlled trial(s) / random allocation / controlled clinical trial /

clinical trial or exp clinical trial, treatment outcome / intervention study / intervention studies, or follow up study / studies, the search yielded 187 citations. Articles excluded from further review included descriptive studies focusing on the adverse health effects of ETS exposure and all the intervention studies without control groups. The remaining literature is reviewed and discussed below.

2.3 Proactive versus reactive telephone-based counseling

Telephone-based counseling has been established as a cost-effective intervention for smoking cessation (Lichtenstein, Glasgow, Lando, OssipKlein, & Boles, 1996). It has become a popular and accessible mode for providing smoking cessation counseling to different population groups (Curry, McBride, Grothaus, Louie, & Wagner, 1995; Hennrikus et al., 2002; Lichtenstein, Glasgow, Lando, OssipKlein, & Boles, 1996; Zhu et al., 1996; US Department of Health and Human Services, 1990), but none was found to have been carried out specifically among smoking parents.

The approach of telephone counseling can be reactive or proactive in nature. Reactive telephone counseling in a smoking cessation program usually involves a smoker initiating a call to a smoking cessation helpline or hotline. Proactive telephone counseling involves trained smoking cessation clinicians initiating the intervention to reach the smoker.

Both proactive (Britt, Curry, Mcbride, Grothaus, & Louie, 1994; Zhu et al., 1996) and reactive approaches (Borland, Segan, Livingston, & Owen, 2001; Ossip-

Klein et al., 1991) have been shown in several studies to be an effective way of promoting smoking cessation treatment to a large number of smokers. Proactive telephone smoking cessation intervention has been demonstrated to be effective as an adjunct to multi-component hospital-initiated programs (Ockene et al., 1992; Stevens, Glasgow, Hollis, Lichtenstein, & Vogt, 1993). There were reports of increased quit rates among hospitalized patients, ranging from 20-21% to 27-31%. Lichtenstein and colleagues (1996) found that most randomized trials of proactive telephone counseling showed significant short-term (3 to 6 months) effects, and some resulted in long-term abstinence (Stevens, Glasgow, Hollis, Lichtenstein, & Vogt, 1993; Zhu et al., 1996).

2.4 Telephone-based approach targeted at smoking parents

Having further limited the search to studies including parent / parents or child / children / baby and to those published in English, relevant citations in the reference lists of the articles were then chased; it yielded finally total of 24 citations of related studies. All those 24 intervention studies targeted at smoking parents of young children in order to reduce parental smoking or protect their children from environmental tobacco smoke were published between 1987 and 2004. Table 2-1 shows the 24 studies included for further review and some of their characteristics.

Place of Origin

The vast majority of the studies were conducted in the United States, two in Australia and two in China, including one in Hong Kong. There was one each

from Italy, Canada, Norway and the United Kingdom. One of these was a cross-cultural study of interventions in Norway and Italy.

Target Subject

Of the 24 studies, 10 targeted only the smoking mothers for intervention (Chilmonczyk, Palomaki, Knight, Williams, & Haddow, 1992; Curry et al., 2003b; Davis, Cummings, Rimer, Sciandra, & Stone, 1992; Greenberg et al., 1994; Groner, Ahijevych, Grossman, & Rich, 2000; Hovell et al., 2000b; Mcintosh, Clark, & Howatt, 1994; Severson, Andrews, Lichtenstein, Wall, & Akers, 1997; Vineis et al., 1993; Woodward, Owen, Grgurinovich, Griffith, & Linke, 1987), one targeted non-smoking mothers with smoking husbands (Chan & Lam, 2003), one targeted both smoking fathers and school principals (Zhang & Qiu, 1993), and 11 targeted families with at least one smoking parent. There were two studies that targeted only one parent if both parents smoked in a family (Hughes, Mcleod, Garner, & Goldbloom, 1991; Wakefield et al., 2002).

Recruitment Settings

Three of these 24 studies recruited smoking mothers in postnatal settings (Greenberg et al., 1994; Severson, Andrews, Lichtenstein, Wall, & Akers, 1997; Woodward, Owen, Grgurinovich, Griffith, & Linke, 1987), 12 recruited smoking parents in pediatric settings where their children were hospitalized (Chan & Lam, 2003; Curry et al., 2003b; Groner, Ahijevych, Grossman, & Rich, 2000; Hovell et al., 1994; Hovell et al., 2002; Hughes, Mcleod, Garner, & Goldbloom, 1991; Irvine et al., 1999; Mcintosh, Clark, & Howatt, 1994; Wahlgren, Hovell, Meltzer, Hofstetter, & Zakarian, 1997; Wakefield et al., 2002; Wilson et al., 2001;

Winickoff, Hillis, Palfrey, Perrin, & Rigotti, 2003). Four recruited parents from well health clinics (Chilmonczyk, Palomaki, Knight, Williams, & Haddow, 1992; Eriksen, Sorum, & Bruusgaard, 1996; Hovell et al., 2000b; Vineis et al., 1993), five from community settings (Borrelli et al., 2002; Curry et al., 2003b; Davis, Cummings, Rimer, Sciandra, & Stone, 1992; Elder et al., 1996; Zhang & Qiu, 1993) and one from multiple sources including postnatal wards, community health centers, and referrals from health care providers (Emmons et al., 2001).

Aims of Interventions

The aim of these intervention studies targeted at control of ETS exposure among children can be broadly divided into smoking control and smoking cessation. The interventions in the smoking control studies involved helping smoking parents to reduce the number of cigarettes smoked or restrict their smoking at home, while the smoking cessation interventions involved helping smoking parents to stop smoking completely.

Effects of Interventions

Of the 24 studies, four reported significant effects in reducing ETS exposure among children with smoking parents; where effects were evidenced by smoking parents' quit rate (Curry et al., 2003a; Hovell et al., 2000b; Stanton, Lowe, Moffatt, & Del Mar, 2004; Zhang & Qiu, 1993). Nine studies reported other outcome measures including reduction of cigarettes consumption (Emmons et al., 2001; Greenberg et al., 1994; Hovell et al., 1994; Hovell et al., 2002; Severson, Andrews, Lichtenstein, Wall, & Akers, 1997; Wahlgren, Hovell, Meltzer,

Hofstetter, & Zakarian, 1997), refrained from smoking at home (Groner, Ahijevych, Grossman, & Rich, 2000), reduced number of smokers at home (Chan, Lam, & Betson, 1999), and less school absenteeism as well as improvement of asthma condition (Hughes, Mcleod, Garner, & Goldbloom, 1991). Other eleven studies failed to detect any intervention effect on ETS outcomes.

The four studies with significant intervention effects

In the study by Curry (2003), more mothers in the intervention group reported smoke cessation at 3 months (OR: 2.1, 95% CI: 1.1 – 4.4) and at 12 months (OR: 2.42, 95% CI: 1.2-49) after receiving smoking cessation intervention. The components of the intervention included a brief motivational message from their child's physicians, a guidebook on smoke quitting, followed by 10 minute personal interview and three monthly telephone counseling follow ups by nurses.

Hovell (2000b) compared the effects of an intensive individual behavioral counseling (7 sessions over 3 months) and the usual brief advice about the hazard of parental smoking among low income mothers. The study found that the children's urinary cotinine levels of the mothers who received intensive counseling were reduced (0.46 ng/ml), whereas the children in the control group actually had an increased of 8.04 ng/ml at 12 months (p=0.008).

In Stanton's study (2004), the smoking partners of pregnant women were invited to view a video on the health risks of passive smoking for the newborns, then they received a free one-week supply of nicotine replacement patches with

supporting information on the usage of nicotine replacement, tips for quitting and motivating stickers. The results showed that there were significantly more smoking partners in the intervention group reported smoking cessation than the smoking partners in the control group (16.5% vs. 9.3%, p=0.01).

In a school-based effort targeted primary school students to encourage their smoking fathers to quit smoking study (Zhang(1993), the proportion of smoking fathers in the intervention group was significantly decreased (68.8% at baseline and 60.7% at 8 months), compared with the unchanged proportion of smoking fathers for those who received the usual curriculum.

Table 2-1 Review of literature: the twenty-four identified intervention studies targeted at smoking parents of young children

Reference	Population target	Study purpose: Participation RCT / Retention rate	Intervention conditions	Main Outcome measures	Outcomes	Notes
(Chan & Lam, 2003) Pediatric wards / OPD of four acute hospitals Hong Kong	1483 Non-smoking mothers of sick children with smoking husbands Children aged 0 - 16 +	To evaluate the effectiveness of a health education intervention provided by nurses to prevent second-hand smoke exposure in sick children and help their fathers to quit smoking P=Not reported R=1273/1483 (85.8%)	(1) Intervention: (i) Effects of ETS and its prevention to non-smoking mothers, (ii) one telephone reminder by nurse, and (iii) printed educational materials on effects of ETS and its prevention (2) Control: conventional care	Mothers' reports: child's ETS exposure and husband's quitting at 3m, 6m and 12m after baseline	Child's ETS exposure from any smoker at home: (Intervention group vs. control group) 3 m : 63.2% vs. 57.4% (p=0.02) 6 m : 48.7% vs. 46.8% (p=0.48) 12 m : 47.9% vs. 42.3% (p=0.09) At 12 m : Significant fewer smokers (other than smoking fathers) living with the child in the intervention group 89.3% vs. 87.1% (p=0.049) No difference in number of smokers smoked at home (p=0.07)	55% children exposed to ETS at home (810/1483) children exposed to ETS at home were reported more symptoms
(Chilmonczyk, Palomaki, Knight, Williams, & Haddow, 1992) physicians' office (pediatrians and family practitioners) Portland USA	103 mothers reported smoking 10 cigs/day with infants attended an initial well-child visit	To test the effectiveness of a low-intensity physician's office-based intervention strategy using infant urine cotinine measurements in reducing infant exposure to environmental tobacco smoke. P=30 pediatricians, family physicians and two hospital based clinics (81%) P= Not reported (smoking mothers) R=55 %	(1) Intervention: telephone feedback from physicians on infants' level of urinary cotinine; and individual letter to mothers for changing household smoking habits: (i) not smoking in the same room with the child; (ii) wash hands after smoking before contact the child (iii) Prevent children for other possible ETS exposure e.g. Day care centre, smoking friends. (2) Control: assessment only	Self reports and urinary Cotinine on infants	Urine sample obtained: I: 27/ 52 (52%) C: 29/51 (57%) No difference in infant Urinary cotinine level P=0.26 I: 2.05 C:2.17	Groups randomly assigned by computer Use standardized intervention protocol Project coordinator monitored the physicians' participation
(Curry et al., 2003a) Paediatric clinics Seattle , Wash USA	303 Low income women whose children receiving care in Pediatric clinics	To evaluate a smoking cessation intervention for women. R at 3 months: 80%; 12 months: 81%	(1) Intervention; (i) brief motivational messages from child's clinician (4As steps and suggested script) (ii) a guide to quit smoking (iii) 10 minute in-person motivational interview by a nurse (iv) 3 outreach telephone counseling calls in 3 months by nurse	Self reported 7 day point prevalence General health, smoking pattern, quitting history, children's health, household composition, smoking status, body weight, alcohol consumption, depressive symptoms	At 3 months I : C = 7.7% : 3.4% (p<0.05) OR : 2.1 95% CI : 1.10-4.36 At 12 months I : C = 13.5% : 6.9% (p<0.05) OR : 2.42 95% CI : 1.21-4.90)	Verifying contact information at 1, 6 and 9 months Meaningful (amt not mentioned) incentives and vouchers for public transportation to the clinic sites were given to those who had completed the interview.

Reference	Population target	Study purpose: Participation RCT / Retention rate	Intervention conditions	Main Outcome measures	Outcomes	Notes
(Curry et al., 2003b) Health maintenance organizations Seattle ,Portland USA	4026 families of Parent and child aged (10-12) 3522 for regular follow up 504 for assessment cohort	To evaluate a smoking prevention intervention package for parents and children provided through their managed care organization. P: 75% (4026/5360) R: 88%	Regular cohort (1) intervention for parent: Mailed parental smoking prevention kit (video + viewing guide) Outreach follow up telephone calls by health educator Parent newsletter (2) intervention for child: materials remind physician to deliver prevention messages	At 20 months follow up: Parent-child interaction Prevent youth smoking Susceptibility to smoking Experimentation with smoking child smoking in the past 30 days at 20 month follow up	No difference in any primary outcomes Parent-child discussion on smoking related topic increased	Introductory letter to inform for forthcoming telephone call
(Davis, Cummings, Rimer, Sciandra, & Stone, 1992) New York, Pennsylvannia, Southern New Jersey, Delaware, USA	Smoking mothers Child aged < 6 Population-based telephone smoking cessation helpline (National Cancer Institute's Cancer Information Service)	To test the effectiveness of a self-help guide tailored specifically for women with young children (Smoking cessation) R=72% 630/873	Compare 3 self help guides: 1.specifically written for the target audience, 2.from the American Lung Association, 3.Developed by the National Cancer Institute. Callers to the line received individual stage based counseling and were sent the guide by mail.	6 months later the participant was called and interviewed for 10 mins about the use of guide, opinion of the guide, quit attempts and strategies to stop and current smoking.	Attempts: G1 121/198(61%) G2 122/204 (60%) G3 147/229 (64%) Abstinence (ns) 1. 28/128 (14%) 2. 24/204 (12%) 3. 27/22 (12%)	Focus groups to study beliefs and attitudes of smoking and cessation for self help material design prior the main study Randomized by day of week (ns), but counselors blinded to the guide being used.
(Emmons et al., 2001) Proactive recruited from hospital labor and delivery logs; community health centers and health-care providers; self-referral Family homes USA	291 Smoking parents or grandparents living with a child (92% mothers) Child aged < 3 years,	To determine whether a motivational intervention for smoking parents of young children will lead to reduced household passive smoke exposure Cessation and reduction P=43% (291/685) R=84.9% (247/291)	(1)Intervention: (i) a 30-45 min. motivational interview to smoking parents (ii) 4 follow-up telephones counseling calls (approx. 10min each), aiming to reduce household ETS exposure and increase the smoker's level of readiness for change. (iii) Feedback was provided of baseline household air nicotine, parent's carbon monoxide level and smoking-related respiratory symptoms. (iv)Self-help materials targeting ETS reduction and smoking cessation were also provided. (2)Control: Self-help materials only; cessation manual, ETS reduction tip sheet, resource guide	Quitting and cigs/ day by parental self reports ETS exposure measured by air monitors at baseline and 6 months.	No difference in cessation rates I: 7.5% C:10.1% No difference in cpd 6m nicotine levels were significantly lower in intervention group Kitchen/TV room air nicotine: P<0.05 I :3.7 & 3.1 → 2.6 & 2.3 C: 3.0 & 3.5 → 6.9 &3.5	Self report changes supported by biochemical validation results

Reference	Population target	Study purpose: Participation RCT / Retention rate	Intervention conditions	Main Outcome measures	Outcomes	Notes
(Eriksen, Sorum, & Bruusgaard, 1996) 6 Child health centers Oslo, Norway	443 Families with at least one smoking parent brought children to centers for well-child visits child aged 6w-4y	To test the effectivness of an intervention program in preventing passive smoking by children during well-child visits P=not reported R=82% 363/443	(1) intervention (i) received 3 brochures 15 min education session in the health centre (ii) harmful effects of passive smoking, action that parents can take to prevent it. (iii) a list of cessation course in the area (iv) self help manual for cessation (2) control only receive the information session in the centre	Self reported smoking status and indoor smoking behavior at baseline and one month after	No difference between groups in changing of parental smoking behavior	
(Greenberg et al., 1994) Recruited at maternity 3 hospitals in 2 countries of North Carolina, USA	New mothers and infants pair, smokers and non-smokers (n=933 for full data) (n=158 for reduced data) intervention in family home RCT R: computer generalized numbers, replace drop out by new randomized cases	To determine whether a home-based intervention program could reduce infant passive smoking and lower respiratory illness (Cessation and Reduction) P:1091/2332 = 47% R=71% Full data for 659/933 Reduced data: no report on the retention rate	Full data A(1) Intervention: (n=493) (i) Four home visits (45 min each) from a study nurse over 6 months; (ii) self-help materials A(2) Control: (n=440) Assessment only (18 days of age, 7 and 12 months of age) Reduced data (i) intervention: As A1 minus the baseline home visit (ii)control: As A2 minus the baseline home visit	Mother report and urinary cotinine 993 mothers (141 who smoked of newborn babies 'Full' subgroup was surveyed and urine collected at baseline Data was collected again in homes when infants were 7 & 12 months old. Data on lower respiratory symptoms was collected by telephone survey every 2 weeks, in full subgroup	At 12 months: significant reduction in the amount of cigarettes smoked by the smoking mother per day: I: 12.5 at baseline reduced to 7.7. C: 12.3 at baseline increased to13.3. No difference (i) in the infant's urinary cotinine level (ii) between full data set and the reduced data set (iii) in maternal smoking cessation	subjects divided into 2 sets (4 groups) one set for full data one set for reduced data
(Groner, Ahijevych, Grossman, & Rich, 2000) Hospital Ohio,USA	479 smoking mothers accompanying a child under 12 years to a hospital	To determine if mothers receiving a smoking cessation intervention emphasizing health risks of environmental tobacco smoke (ETS) for their children have a higher quit rate than (1) mothers receiving routine smoking cessation advice or (2) a control group. (cessation) Retention: 232/479 (48%)	(1)Intervention: (i) A brief (10-15 min) counseling session given by a trained nurse while waiting to see a doctor. (ii) Standard self helps manuals and materials specific to their group allocation. (iii) Reminder postcards at 2 weeks and 4 months post intervention encouraging them to quit. (2) Control: Usual care with no additional advice about smoking.	Maternal smoking status; stage of change; CPD; smoking location; knowledge of ETS effects at 6m. Assessment by telephone at 1 and 6m post intervention, blinded assessor, or mailed questionnaire.	No effect: Mother Health Group 7/153 Child Health Group 4/164 C: 7/162 Cpd: reduced in all group Stopped smoking at home: Mother Health Group 24 p<0.05 Child Health Group 12 C:13	Health belief model Not significant related

Reference	Population target	Study purpose: Participation RCT / Retention rate	Intervention conditions	Main Outcome measures	Outcomes	Notes
(Hovell et al., 1994) 4 allergy clinics San Diego, USA	Families with at least 1 smoking parent with asthmatic child (6-17 y)	To test a behavioral medicine program designed to reduce asthmatic children's exposure to environmental tobacco smoke (ETS) in the home (Reduction) Not reported/ Not reported	(1) Intervention: (i) 6 month series of counseling sessions monitored smoking (ii) monitored children's ETS exposure (iii) monitored children's asthma symptoms (2) monitoring control: As (1) with no counseling (3) usual control: assessment only	Parents' reported daily number cigarettes exposed to children (one week prior to interview) Nicotine air monitor Child's self monitoring	At 12 months Decrease in children's ETS exposure in (1) vs. (2) vs. (3) = 51% vs. 18% vs. 15%. Significant more self reported ETS reduction: 79% vs. 42% vs. 34% No differences in air nicotine levels	
(Hovell et al., 2000b) Recruited from special supplemental program for women infants and child Low income homes San Diego, USA	Smoking mothers smoked > 2 CPD N=108 Mothers' aged 28-29y Child aged < 4 years (mean:14 months) using a supplemental nutrition program	To test the efficacy of behavioural counselling for smoking mothers in reducing young children's exposure to environmental tobacco smoke (Reduction) P: = 67% 108/162 R: 89% 96/108	(1) Intervention: Mothers given 7 individualized counseling sessions over 3 months (3 in person, 4 by telephone) (2) Control: Usual cares nutritional and brief advice about smoking and child ETS exposure.	Child urine cotinine, reported exposure, parental smoking Mothers were surveyed at 3, 6 and 12m, collected at baseline, 6 & 12m. Others: maternal reports on smoking and child exposure Maternal salivary cotinine Children's' urinary cotinine Nicotine monitor (3 spots/home)	baseline: 3m: 12m Cpd at home (p=0.002): I : 27.3→4.47→3.66 C:24.56→12.08→8.38 Children's urinary cotinine result at 12m in ng/ml (p=0.008) I:10.93→10.47 C:9.43→17.47 ETS exposures: (ns) I:41.2% C:45.7%	Financial incentives ($60-$90) for participation The self report reduction and cessation is inconsistent with child's urinary cotinine results Excluded breast feeders and who did not have telephone
(Hovell et al., 2002) San Diego,USA.	204 families of Latino children (ages 3-17 years) with asthma	To test the efficacy of coaching to reduce environmental tobacco smoke (ETS) exposure among asthmatic Latino children (ETS reduction)	(1) Intervention: 1.5 hours asthma education 7 coaching sessions (45 mins. each) (2) Control: 1.5 hours asthma education only	Reported ETS exposure and children's urine cotinine	At 4 months Cpd: Intervention < control Prevalence of ETS exposure: I:52% C:69% Mean urine cotinine level: I:54%→40% C:43%→49% No difference in urine cotinine level at 13 months FU	

Reference	Population target	Study purpose: Participation RCT / Retention rate	Intervention conditions	Main Outcome measures	Outcomes	Notes
(Hughes, Mcleod, Garner, & Goldbloom, 1991) Nova Scotia Canada	Hospital and home, asthma management program. 95 Parents of children admitted to hospital in the previous 5 years with asthma (6-16 y) N=95	To test the impact of a comprehensive home and ambulatory program for pediatric asthma management using objective outcome measures (Cessation and reduction) P=64% 95/149 R=93% 89/95	(1)Intervention: (i) Cared for by a pediatric respiratory physician through the 12m study period. (ii) Patient's home visited at least 3 times by a nurse coordinator. (management of asthma and encourage to quit smoking) (2)Control: Patients managed by their usual primary care physicians and reviewed by the study physician at intervals.	At 12 months: Exposure to ETS at home.	Study subjects: Less school absenteeism (p=0.04) Better small airway function Better metered aerosol technique Fewer days of hospital admission More asthmatic child took responsibility of asthma management No difference between groups on ETS exposure/reduction I=60%→52%(47 homes) C:57%(48 homes) →51%	RCT: coin toss Not all smokers for targeted parents Primary study outcomes were related to asthma management
(Irvine et al., 1999) Home Scotland UK	501 smoking parents of children with asthma	To investigate whether parents of asthmatic children would stop smoking or alter their smoking habits to protect their children from environmental tobacco smoke. (Cessation and reduction) P=501/704, 71.2% Retention: 435/501 (87%)	(1) Intervention: (i) Brief advice from a nurse visiting the family home (ii) Given two leaflets at baseline-one commercially available and the other to reinforce the brief advice by mail at 4 and 8m after baseline. (iii) A letter encouraging them to stop smoking. (2) Control - Participants received the commercial leaflet at baseline but nil else.	At 12 months: Child saliva cotinine; Mother's saliva cotinine Self reported quit attempts	No effect on mean decrease in child salivary cotinine level: I : 3.1 C:1.8 SR quit attempts (non-smoker) I :101/213 C:97/222	ns
(Mcintosh, Clark, & Howatt, 1994) Four pediatric pulmonary Clinic at University of Michigan Medical Centre USA	92 smoking parents of children with asthma children ages 6-17; recruited from asthma clinics	To evaluate a minimal-contact intervention aimed at modifying parents' smoking behavior in their homes (Cessation + Restriction) (smoke outside home) Not reported/ Retention: 72/92 (78%)	(1) Intervention: Usual care plus written feedback about child's cotinine level (2) Usual care: ETS reduction education and advice to quit smoking indoors	Maternal self report of indoor smoking Child urinary cotinine level	No difference in indoor smoking No difference in child's cotinine level Smokers moved outside (ns) I : 7/30 C: 4/30 Child urinary cotinine (ns) I : 4/6→10.0 C: 3/3→12.2-21.5	Manual for parent based on behavioural modification model RCT by a coin toss method

Reference	Population target	Study purpose: Participation RCT / Retention rate	Intervention conditions	Main Outcome measures	Outcomes	Notes
(Severson, Andrews, Lichtenstein, Wall, & Akers, 1997) Hospital & Well Baby Clinics Oregon, USA	Mothers with newborns who were currently smoke (1875) or had quit for pregnancy (1026)	To test whether a pediatric office-based intervention can significantly affect smoking and relapse prevention for mothers of newborns. (Cessation) P= 90.5% (2901/3204) R=69% (2003/2901) 1-tailed T test	In the first 1 to 3 days after birth in hospital, mothers received a packet containing a brochure and a letter from the pediatrician about the health affects of passive smoking, and a no-smoking sign (1)Intervention: Mothers received further materials and 4 brief oral counseling from the pediatrician at the well baby visits at age 2 weeks and 2, 4, and 6 months. (2) Control: Received the hospital packet only.	Assessment at 6 & 12 months by mailed questionnaire: Quit rates (sustained at 6 & 12m, and point prevalence at 12m) CPD, readiness to quit, likelihood of quit attempt. Secondary outcomes: knowledge of and attitudes towards ETS	6 month ：($p<0.05$) I :2.8% C:1.2% 12 month : I: 5.5% C:4.7% N.. Relapse Prevention 6 month : ($p<0.05$) I :33% C:26% 12 month: I :43% C:39% Adjusted result: on smokers Significant changes: cpd, stages and knowledge	RCT, randomization by practice *
(Stanton, Lowe, Moffatt, & Del Mar, 2004) Brisbane, Australia	Public antenatal clinic 561 blue collar men nominated by their pregnant partners and enrolled	To test whether a smoking cessation program can reduce smoking rates in healthy men from lower socioeconomic classes by using a significant life event (approaching birth of a child) (Cessation)	Intervention: (i) video: passive smoking health risks for the newborns (ii) free NRT patches for one week (iii) newsletter for supporting materials usage of NRT patches tips for quitting motivating stickers	Self reported quit rate at 6 month follow up CO test for validation of Self reported cessation	Quit rates at 6 month follow up ($p=0.011$): I: 16.5%; C: 9.3% OR=0.52 95% CI: 0.31-0.86 Predictors for cessation: Skilled occupation ($p=0.04$) Number of quit attempt ($p=0.04$) Delayed first cigarette ($p=0.006$)	Expired CO For self reported quitting NNT=13~14
(Vineis et al., 1993) Immunization Clinic Rivoli, Italy	1015 smoking mothers attending clinic for routine three month vaccination of infants	To evaluate the efficacy of an intervention aimed at preventing exposure of young children to parental tobacco smoke (cessation) R=74% (747/1015)	(1) Intervention: Counseled for 15 min by a nurse on the health effects of active smoking and ETS, 3 booklets, one of which was about the health effects of ETS on children. (2) Control: Did not receive counseling or booklets.	At 2 & 4 years: self reported cessation	Smoking cessation for mothers: I: 12/74 OR=1.4(ns) C: 10/84 Smoking cessation x father: I: 18/173 vs C: 26/244 OR:1.0 (ns)	Non random assignment (all mothers including non-smokers recruited) trend of intervention benefits seen but its not statistically significant

Reference	Population target	Study purpose: Participation RCT / Retention rate	Intervention conditions	Main Outcome measures	Outcomes	Notes
(Wahlgren, Hovell, Meltzer, Hofstetter, & Zakarian, 1997) Pediatric allergy medical clinics San Diego, USA	91 families with children with asthma RCT	To examine the long-term maintenance of a behavioral counseling intervention to reduce asthmatic children's exposure to ETS Not reported	(1)Intervention: Intensive counseling sessions over 6 months designed to reduce child exposure to parent smoking. (2)Monitoring Control: Used the same monitoring methods but did not receive counseling. (3)Usual Care Control: Attended the same frequency of clinics but did not maintain records nor receive counseling.	At 6 months from end of intervention: Parent self report of cigs smoked in presence of child. Air nicotine in room with heaviest child exposure measured by environmental monitor 2 years later, after debriefing about the study, the two comparison groups achieved similar reductions in parent reported rates of child exposure and the intervention parent reported child exposure rate was similarly maintained.	Cpd in presence of child: (p<0.001) I :5.8→3.4→1.2 C:8.0→5.7→4.6 No difference on environmental monitor of air nicotine: I :1.7→1.9 C:2.3→1.4	No validation in outcome measures
(Wakefield et al., 2002) Pediatric outpatient clinics Adelaide, Australia	292 smoking parents of children aged 1-11 with asthma	To evaluate the effect of intervention of helping parents to reduce their children's exposure to ETS is to ban smoking in the home (Restriction at home) P= 77.2% (292/378) R= 90.4% (264/292)	(1)Intervention: (i) Parents sent a letter signed by the study coordinator explaining their child's baseline cotinine-to-creatinine ratio, and encouraging banning smoking at home. (ii) Booklets enclosed: 1 explained the effects of ETS on children and gave advice to parents on its restriction; the other concerned quitting. (iii) Telephone one week and one month later for advice and encouragement contacted the index parent. (2)Control: Usual advice about smoking from doctors and nurses.	At baseline urine analyzed for cotinine: creatinine ratio. At 6 months: smoking bans at home: Secondary study outcomes: parent reports of bans on smoking in car; CPD child urinary cotinine; parent reported cessation Others: social support, perceived stress	Stopped home smoking : (ns) I :41%→49% C:40%→42% Stopped car smoking: (ns) I :33%→52% C:37%→48% Cessation :(ns) → Child urinary cotinine: (p=0.40) I :22.8 nmol/min 01→21.0 C:25.7→21.0	CCT: alternation by week of attendance at clinic * Harm minimization approach based on previous literature's findings

Reference	Population target	Study purpose: Participation RCT / Retention rate	Intervention conditions	Main Outcome measures	Outcomes	Notes
(Wilson et al., 2001) Pulmonary service centers in a pediatric hospital California, USA	87 parents of children age 3-12 with asthma RCT	To determine the effectiveness of a cotinine-feedback, behaviorally based education intervention in reducing environmental tobacco smoke (ETS) exposure and health-care utilization of children with asthma (Child ETS exposure reduction)	(1)Intervention: (i) Caregiver received 3 nurse-led sessions over a 5 week period, employing behavior-changed strategies and (ii) Basic asthma and ETS education, along with (iii) Repeated feedback on the child's urinary cotinine level (measured each session). (2)Control: Caregivers received basic asthma advice by a nurse, along with the statement that ETS is to be avoided. Mothers who requested the cotinine result were told whether or not cotinine had been detected.	At 12 months: Urinary cotinine, acute asthma episodes secondary study outcomes were hospitalization, prohibition of smoking in the home; CPD; parent reported exposure of children and asthma control	Maternal caregivers smoked at baseline: I: 61 %: C:42% Follow up cotinine data obtained in 51/87 (59%) Urinary cotinine: Creatinine ratio: I :1.82ng/mg→1.27; C:2.34→1.93 Adj diff:-0.38; Adj p=0.26 Acute asthmatic visit/yr I :50→29.6; OR=0.32→46.3; C:37.2→46.5OR=0.32 p=0.03 No different in hospitalization, QR, stopped smoking at home	*
(Winickoff, Hillis, Palfrey, Perrin, & Rigotti, 2003)	71 Smoking parents who had a child who was admitted to hospital for a respiratory illness between Jan and April 2000	To evaluate the feasibility of implementing a smoking cessation intervention for parents at the time of child hospitalization for respiratory illness. P=56% (71/126) R= (80%) 56% accepted free NRT at the time of enrolment	Initial motivational interview written materials Nicotine replacement therapy Telephone counseling Fax referral to parent's primary clinician	2 month follow up outcomes: quit attempts cessation NRT use Primary care visits Household smoking prohibition Satisfaction	At the 2-month follow-up, 71 initial enrollees, 49% reported having made a quit attempt that lasted at last 24hour, 21% reported not smoking a cigarette in the last 7 days 27% reported having used NRT 38% had had a visit with their own primary clinician	

Reference	Population target	Study purpose: Participation RCT / Retention rate	Intervention conditions	Main Outcome measures	Outcomes	Notes
(Woodward, Owen, Grgurinovich, Griffith, & Linke, 1987) Maternity hospital Adelaide; Australia	184 smoking mothers of newborn babies	Cessation and Reduction P=95% R= 85% 157/184	(1) Intervention: Self-help materials (bringing up baby smoke-free); one telephone counseling follow-up call (2) Minimal contact control: Baseline and 3-month assessment (3) Follow-up only: 3-month assessment	At 3 months: Infant urine cotinine levels Maternal quitting, maternal cotinine	· No differences in parental reports on infants' ETS exposure · No differences in infant cotinine levels; I:11.0mega/L · No differences in maternal smoking status (p=0.25), I=6%, C=2.2%	CT: allocation by month of delivery Not significant related
(Zhang & Qiu, 1993) 44 primary schools China	20382 smoking fathers of children in primary schools CT; schools in one district received intervention, compared with schools in a second district	School based strategies to encourage students to help smoking fathers for Cessation	(1) Intervention schools: (i) A tobacco prevention curriculum was introduced comprising social and health consequences of tobacco use, training in refusal skills. (ii) Smoking control policies for schools were encouraged. (iii) Children in intervention schools wrote letters to their fathers asking them to quit smoking, and monitored their smoking behavior (2) Control schools: Usual curriculum.	At 8 months: Self report of smoking cessation by smoking fathers, at interview with health educator.	Smoking fathers' proportion I : 68.8%→60.7% C: 65.5%→same 180 day abstinence: I : 11.7% C: 0.2%	68.8% of Intervention and 65.5% of Control fathers smoked at baseline

Denote:

Shaded area: six studies utilized the telephone approach for smoking control intervention

P=participation rate: number of parents participated in RCT / number of parents approached

R=retention rate: number of parents remained at the end of the study / number of parents at the baseline

* Trend of intervention benefits seen but its not statistically significant

Of the 24 studies that targeted parents of young children for smoking control, six studies (published between 1992 and 2003) utilized the telephone approach for smoking control intervention (Table 2-1 shaded area) (Curry et al., 2003a; Curry et al., 2003b; Davis, Cummings, Rimer, Sciandra, & Stone, 1992; Emmons et al., 2001; Hovell et al., 2000b; Wakefield et al., 2002).

The first attempt to provide a smoking cessation intervention through a telephone helpline for reactive smoking parents was by Davis et al. (1992). The primary goal of the study was to compare the effectiveness of three different smoking cessation guidebooks, and the telephone helpline was provided to all subjects regardless of group assignment, thus the effect of telephone counseling could not be evaluated (Davis, Cummings, Rimer, Sciandra, & Stone, 1992). The study also failed to identify differences in the attempts to quit or smoking cessation among the three groups that received the three different booklets.

The second study that adopted the telephone counseling approach to smoking reduction was by (Hovell et al., 2000b). The study targeted 108 smoking mothers recruited from the Women, Infant and Child Program (WIC). The mothers in the intervention group were given seven individual smoking cessation counseling sessions over a 3-month period, of which three were face-to-face counseling and four by telephone, while mothers in the control group received only brief advice about the adverse effects of smoking and their children's exposure to ETS. The study found that mothers in the intervention group had significantly reduced their cigarette consumption in the presence of their

children at 12 months. However, this self-reported smoking reduction and cessation was inconsistent with the urinary cotinine results of their children.

The third study evaluated the effectiveness of a motivational interviewing intervention in reducing ETS exposure among 291 low income families with children under 3 years old, recruited from postnatal or community settings (Emmons et al., 2001). All parents were given the results of their household air nicotine level and their exhaled carbon monoxide measures to increase their awareness of their children's exposure to ETS. The parents in the intervention group were given five motivational interviewing sessions in addition to a self-help manual, whereas the control group only received the manual. The initial interview session was conducted in the participants' home and the four follow-up interviews were conducted by telephone. Results showed that there were no significant differences between the groups in the self-reported smoking cessation and daily cigarette consumption. However, in the homes of the parents in the intervention group, there was a significant decrease in the household air nicotine level over the areas where their children were commonly present.

The fourth study, conducted by Wakefield and his colleagues (2002), targeted 292 smoking parents of asthmatic children attending a pediatric outpatient clinic. The study aimed to restrict household smoking: parents in the intervention group received two telephone calls after being given their children's urine cotinine level and a booklet on home smoking restriction, whereas the control group only received some simple advice on smoking restriction. The results of the study

show that there were no differences between the two groups in terms of home smoking restriction as an outcome measure.

The fifth study involved a smoking cessation intervention for 303 self identified smoking mothers with sick children (Curry et al., 2003a). An initial motivational interview was provided by the children's attending nurse and followed by three telephone counseling calls over a period of 3 months. The study results show that there were more parents in the intervention group who reported smoking cessation for at least 7 days at the 3-month and 12-month follow-ups. However, this study did not conduct any validation of the self-reported smoking status.

The sixth study was the only one that targeted the family as a unit for parental smoking counseling. Both smoking parents and their children (aged 10-12) were the targets of this intervention study (Curry et al., 2003a). The families received in the mail a video and booklet on smoking prevention, aimed at reducing children's experimentation with smoking. The study results showed that there was an increase of parent-child discussion on smoking-related topics; however, there were no significant differences in primary outcome measures at 20 months with regard to the prevention of smoking uptake among these children.

Of these six telephone-based intervention studies, only two demonstrated any effects on the parents in the intervention group in comparison to the control groups (Curry et al., 2003b; Hovell et al., 2000b), and none of the results were validated with biochemical measures.

Four of these six studies targeted the smoking mothers of young children, while only one targeted the smoking fathers in the family (Wakefield et al., 2002), and one adopted the family-as-unit approach for intervention (Curry et al., 2003b). Targeting predominantly the smoking mothers of young children for smoking control is to grossly overlook the fact that in most countries, including in Hong Kong, there are more men than women who smoke cigarettes. Smoking cessation strategies aimed at ETS control among young children should target both the smoking mothers and fathers of young children.

None of the six randomized controlled trials targeting smoking parents adopted a proactive telephone-based approach as an opportunity to recruit smoking parents for smoking cessation counseling.

This background sheds light on the motivation of the present study to examine the effectiveness of a proactive telephone-based smoking cessation intervention targeting smoking parents.

2.5 Recruitment strategies: proactive vs reactive approach

Reports of intervention studies among smokers have focused mainly on the effects of interventions on those who participated in the intervention studies. Although many of these reports specify the rates of participation in their programs, not many have examined the factors that motivate smokers to participate or refuse to participate in such programs.

The few studies that have reported on the characteristics of the participants and non-participants in smoking cessation programs have been conducted in workplaces (Cummings, Hellmann, & Emont, 1988) and among secondary school students (Hublet, Maes, & Csincsak, 2002). Predictors of non-participation in smoking cessation programs indicate those who have a lower level of literacy, do not regularly utilize health care services, and who belong to a lower income group (Ahluwalia et al., 2002). Men in full-time employment and those with relatively high annual household incomes are also less likely to take part in smoking cessation programs (Kviz, Crittenden, & Warnecke, 1992). A study on the cessation of smoking conducted among low-income women in a community primary care setting identified a higher intention to quit and lower self-efficacy in doing so as contributing factors of participation (Pohl, Martinelli, & Antonakos, 1998).

A well-designed smoking cessation intervention is of limited use if it cannot capture the interest of the target audience and attract them to participate in the cessation program. Researchers and clinicians alike have faced difficulties in their attempts to reach out and help smokers who choose not to take part in smoking cessation programs. As a matter of fact, smoking cessation intervention studies often only reach those smokers who are “ready” to participate in such programs or are at the “contemplation” or “action” stage of quitting (Orleans et al., 1998; Zhu et al., 1996).

Effective strategies to recruit smoking parents into smoking cessation programs are ensuring that the programs appeal to them, cater to their needs and are receptive to their concerns. Understanding the characteristics of non-participating smoking parents and their reasons for not taking part in smoking cessation programs will be helpful in the planning of recruitment strategies to increase participation rates in such programs.

2.5.1 Efforts to recruit smokers into smoking cessation programs

Genuine efforts to recruit those who refuse or are not ready to take part in intervention studies are imperative if clinicians are to reach these smoking parents who might otherwise be excluded from such studies. Knowledge about the characteristics of smoking parents and the predictors of their participation in smoking cessation interventions would provide clinicians with the information they need to develop strategies to recruit smokers to participate in interventions or to re-design interventions so that they will be acceptable to the target population. It is expected that information on non-participating smoking parents will further strengthen the generality of the results of this study, the feasibility of interventions, and the external validity of the recruiting and sample selection processes as well as of the interventions themselves (Glasgow, Mccaul, & Fisher, 1993; Wilson, 1990).

2.5.2 Effectiveness of using proactive approach as a recruitment strategy

A study that analyzed 40 population-based smoking cessation intervention studies revealed that most programs have been able to recruit less than 2% of the targeted smokers (McDonald, 1999). This study estimated the odds ratios for the

successful rate of recruiting smokers into smoking cessation programs using various communication channels. In comparisons, telephone-based recruitment was 44.6, 66.6, 5.2, 23.3 and 12.1 times more effective on average than media, mail, interpersonal, media combined with interpersonal, and media with mail respectively. Thus, it is concluded that the major factor that affects the external validity of the studies is the method of recruitment adopted.

African American families found proactive telephone recruitment to be the most effective recruitment strategies (Fitzgibbon et al., 1998). Prochaska and colleagues also found proactive recruitment to result in the enrollment of 80% of eligible smokers of the targeted population (Prochaska, Velicer, Fava, Rossi, & Tsoh, 2001). In contrast, another smoking cessation intervention for African American smokers found the those recruited proactively were five times less likely to return for randomization (Ahluwalia et al., 2002).

A double-blind, randomized trial that evaluated bupropion for smoking cessation was conducted among 600 adult African Americans who smoked 10 or more cigarettes a day in the midwestern United States (Harris et al., 2003). Both proactive and reactive recruitment strategies were adopted in the study to recruit subjects into the program. The study intended to compare the effectiveness, efficiency, and cost-effectiveness of smoking cessation interventions using proactive and reactive approaches. In this study, proactive recruitment was done by in-person appeals by study staff and health care providers through the health centers, while the reactive recruitment strategy was carried out by inviting smokers who used the quitting hotline. Both methods were implemented

sequentially in an alternate fashion over 16 months. More smokers were recruited in the reactive phase (n=534, 74.6%) than in the proactive phase (n=66, 37.8%). Those recruited using the reactive approach were more likely to be eligible (OR=4.8) and more likely to participate (OR=4.2) than those recruited using the proactive approach. The major reasons for ineligibility were excessive alcohol use, medical contraindication, used other forms of tobacco in the last month, smoked less than 10 cigarettes per day or no contact telephone available. Also, the study reported that the proactive recruitment approach was calculated to be seven times more expensive than the reactive approach. However, it is not possible to embark upon this important public health issue based on studies using the reactive approach which could only reach small group of smokers (Mcfall et al., 1993; Orleans et al., 1991).

Strategies to maximize the participation of smoking parents using “proactive” interventions need to be designed in order to reach smoking parents who are inactive in seeking help to quit. This study for smoking parents adopted a telephone-based proactive intervention in an attempt to reach those who otherwise would not have presented themselves to clinics or health settings to quit smoking.

2.6 Prochaska’s stages of behavioral change as assessment strategy

An effective smoking cessation intervention should rely on understanding the process of the behavioral changes of smokers. Changes in smoking behavior are a complex phenomenon including cognitive, physiological and psychosocial

influences based on several fundamental principles of health behavior change (US Department of Health and Human Services, 1990). Three strategies considered for the design of the intervention program for smoking parents were the recruitment strategies, the assessment of the parents' readiness to quit and the intervention strategies to be used.

Prochaska and his colleagues proposed the Transtheoretical Model of Change (TTM), which integrates the strengths of the Health Belief Model and Social Learning Theory (Prochaska & Goldstein, 1991). This model is an empirically based stage of change, with a special focus on the observable behavior of change. According to TTM, behavioral change does not follow a linear progression through the stages. Pre-contemplation, contemplation, preparation, action and maintenance are the five stages of change in the transtheoretical model of change. Most smokers actually move through the stages of change in sequences of cycling and re-cycling. Smokers may progress towards the maintenance stage, but they may also relapse.

The Prochaska model has also been applied in various clinical settings to assess the stages of behavioral change. Areas of application include diet (Prochaska et al., 1994), exercise (Callaghan, Eves, Norman, Chang, & Lung, 2002; Reed, Velicer, Prochaska, Rossi, & Marcus, 1997), mammogram utilization (Rakowski et al., 1998; Rakowski et al., 2003), cervical screening (Kelaher et al., 1999) and medication compliance (Cook & Perri, 2004). It has also been widely used in smoking cessation studies in predicting the successfulness of quitting

(DiClemente, Prochaska, & Gibertini, 1985; Prochaska & DiClemente, 1983; Woodby, Windsor, Snyder, Kohler, & DiClemente, 1999). However, stages of readiness to quit have rarely been studied in non-reactive smokers.

2.7 Stage-matched interventions

Self-efficacy, decisional balance variables (including health beliefs) and cognitive-behavioral self-change processes mediate progress through the stages of behavior change. Self-efficacy increases linearly across the stages of change; decisional balance and health belief variables appear most important in shifts from one stage to the other before actually taking action (from pre-contemplation to preparation). However, the ability to identify triggers and coping skills is the most important strategy in the action and maintenance stages, and subjects in these stages will probably respond well to encouragement and advice. However, smokers in the contemplation stage may not be receptive to advice only. These smokers need an intervention especially useful for negotiating ambivalence, such as motivational interviewing. This also suggests that different interventions for smokers in different stages are needed (Prochaska & Goldstein, 1991).

There is evidence showing that stage-matched interventions result in higher levels of behavior change than non-matched interventions. Prochaska found that individualized self-help intervention materials developed according to the subject's stage of readiness to change doubled the rate of smoking cessation when compared with non-matched self-help manuals (Prochaska, DiClemente, Velicer, & Rossi, 1993). This study found that the point prevalence of smoking cessation of four groups by following the subject for 18 months was the highest

among the group receiving stage-matched self-help materials and interactive computer feedback, followed by individualized stage-matched manuals, and personalized counselor calls. The group receiving non-matched self-help materials benefited the least among the groups. All three stage-matched interventions had significantly better outcomes than the traditional standardized self-help manual group.

Campbell compared the effect of a tailored individualized nutrition education program for low-income women with a computer-based intervention consisting of a soap opera story of risk information regarding a high fat diet and its effect (Campbell, Honess-Morreale, Farrell, Carbone, & Brasure, 1999). The participants in the intervention group had significantly improved knowledge, stage of change and eating behaviors with regard to fat intake. In Calfas' study on promoting physical activity among sedentary patients in contemplation, significantly greater improvements in both stages of change for physical activity and walk per minutes were found in the intervention group that received stage-matched counseling by a physician or nurse practitioner (Calfas et al., 1996).

However, there are also reports of studies of stage-matched interventions that reveal no difference when compared with using non stage-matched interventions. Naylor found that subjects receiving stage-matched exercise materials showed no significant difference in their level of exercise at the 6-month follow-up compared with those receiving non stage-matched materials (Naylor, Simmonds, Riddoch, Velleman, & Turton, 1999). In a study on the promotion of nutritional behavior in terms of fish and fruit/vegetables intake among a population with a

low educational level and high risk for development of cardiovascular disease, additional individually stage-matched letters did not result in superior results to those of group nutrition education alone (Siero, Broer, Bemelmans, & Meyboom-de Jong, 2000). A cluster randomized controlled trial of an expert system based on the transtheoretical model (stage of change) for smoking prevention and cessation among teenagers in schools found the use of stage-matched computer sessions or class lessons ineffective when compared with no intervention (Aveyard et al., 1999).

2.8 Motivational interviewing counseling

Motivational interviewing (MI) is a skill aimed at building smoking parents' commitment and eventually making a decision to change. It is a client-centered counseling which uses a combination of self-perception theory, social learning theory and the social psychology of directive persuasion to resolve the smoker's ambivalence (Miller & Rollnick, 1991).

Many MI skills were adopted from client-centered therapy (Rogers, 1951). The emphases of such therapy include empathy, reflective listening, eliciting core values, and responding to resistance in a non-confrontational manner. MI is particularly focused on motivation, with the assumption that behavioral change is relatively straightforward when ambivalence and resistance are resolved (Cullari, Allyn, & Bacon, 2001; Miller & Rollnick, 1991). Based on a combination of these theories, the principles of motivational interviewing focus on the importance of eliciting smokers to talk about quitting smoking, and responding to their resistance.

Motivational interviewing also emphasizes the interpersonal contact between the smokers and counselors. The counselor's style is a powerful determinant of smoker resistance and change. An empathetic style is more likely to bring out self-motivational responses and less resistance from the smoker. With the application of motivational interviewing, each person has powerful potential for change. The major role of the counselor is to release that potential and facilitate the natural change process of the individual smoking parent.

The motivational interviewing technique also borrows from the social psychological area of self-perception theory (Petty, 1972), which emphasizes support of smoking parents' reasons for quitting. This approach also incorporates the elements of trying to understand why smokers resist change. The reactance theory holds that a threat to a freedom evokes a motivation to restore that freedom (Brehm, 1989). Reactance is likely to be increased in situations where smoking parents believe they can quit at any time if they want. When using motivational interviews, an emphasis on increasing the parents' awareness of their desire to quit can minimize their reactance, and they are more likely to change if they endorse the idea and believe it to be their own, rather than one proposed by others.

Motivational interviewing also adopts social learning theory by emphasizing the belief in the parents' ability to quit smoking. Self-efficacy or the ability to change has consistently proved to be a predictive factor of behavioral change (Bandura, 1986; Bandura, 1989; Condiotte & Lichtenstein, 1981). Therefore, the core feature of the motivational interview is its focus on enhancing smoking

parents' confidence in their ability to quit. In order to motivate their intention to quit, support should be given by exploring their concerns and worries and stressing their ability to handle these difficult situations. The interviewer should reinforce what the parents have already achieved by assisting them in identifying the most difficult situations and exploring how they handle each situation without smoking.

2.9 Summary: A model smoking cessation intervention for parents with young children

The Health Belief Model (Rosenstock, Strecher, & Becker, 1988) proposes that, before taking action, a smoker must consider smoking as a serious health problem, and perceive the health benefits of smoking cessation to be more important than the barriers to cessation. The Social Learning Theory integrates the cognitive, behavioral, physiological and social-environmental determinants of smoking behavior change (Bandura, 1986). The extension of Bandura's proposal of self-efficacy is particularly important and has proven to be a critical mediator of smoking behavior change and maintenance (Burke, Dunbar-Jacob, & Hill, 1997; Cinciripini et al., 2003).

The parents' demographic, cognitive, smoking and quitting and other factors were the determinants of interest. Education was to increase their knowledge or understanding of the hazards of exposure to ETS and thus affect their smoking behavior at home or persuade them to initiate smoking cessation. Socioeconomic status was thought to be related to exposure, based on earlier studies (Pukkala,

Teppo, Hakulinen, & Rimpela, 1983; Whitlock et al., 1998), although in some, socioeconomic status was still found not to be associated with ETS exposure (Jaakkola, Ruotsalainen, & Jaakkola, 1994). Employment status has also been considered as a potential predictive factor of successful quitting (Rosen, Wall, Hanning, Lindberg, & Nystrom, 1987; Rosen, Hanning, & Wall, 1990).

Smokers have been found to be more motivated to quit as illness increases their awareness of their vulnerability to the health hazards of tobacco (Rigotti et al., 2000). Knowledge of its impact on children's health was thought to affect parents' smoking behavior. Previous literature considered child's sex, age and reported history of allergic disease and current asthma to be indicators of parental smoking behaviors (Jaakkola, Ruotsalainen, & Jaakkola, 1994; Rosen, Wall, Hanning, Lindberg, & Nystrom, 1987; Rosen, Hanning, & Wall, 1990). Smoking-related factors, such as level of nicotine dependency, quit attempts, and stages of readiness to quit smoking are also potential predictors of smoking behaviors (Rigotti et al., 1997) and smoking cessation (Glasgow, Hollis, Ary, & Boles, 1993; Irvine et al., 1997; Olsen, 1993; Rigotti et al., 1997). Level of alcohol use has also been found to be an obstacle to successful smoking cessation (VanderArk, DiNardo, & Oliver, 1997). Social support, particularly that of smokers' spouses, has been found to be an enhancing factor in smoking behavioral improvement (Brook, Whiteman, Czeisler, Shapiro, & Cohen, 1997; Eriksen, Sandvik, & Bruusgaard, 1997).

Figure 2-1 shows a model of the smoking cessation intervention for parents with young children, with the incorporation of the concepts or theories explored in this chapter.

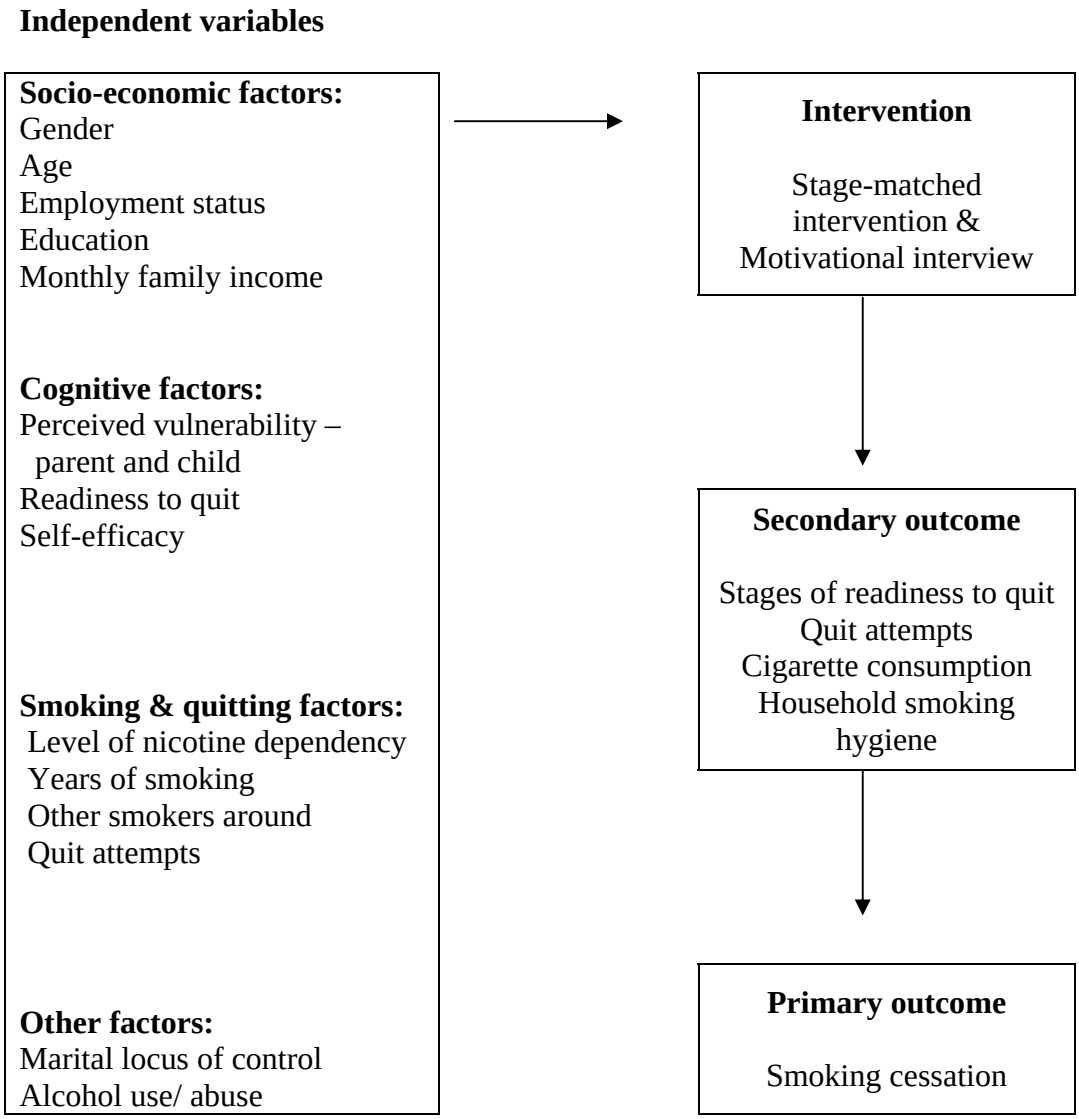


Fig. 2-1: Hypothetical model of smoking cessation intervention for parents with young children

METHOD

Chapter 3

Study Design

3.1 Introduction

The focus of this chapter is on the study design. The aim and specific objectives of the study are described, followed by the operational definitions of the key terms or variables adopted. The study method, source of subjects and eligibility criteria are presented with a randomization flowchart, and the sample size calculation is justified.

The sources of the measuring instruments and intervention components are described, together with the ethical considerations. The outcome measures are specified, with descriptions of the data management and statistical methods given at the end of the chapter.

3.2 Aim and objectives

The study aimed to examine whether proactive telephone counseling based on Prochaska's transtheoretical model of behavior change together with educational materials could help the smoking parents of young children to quit.

The specific objectives were:

1. to develop a smoking cessation counseling protocol for the smoking parents of young children, based on Prochaska's stages of readiness to quit,
2. to examine the psychometric properties of questionnaires in assessing parental smoking behavior, and the validity of spouses' proxy reports on smoking information,
3. to investigate the feasibility and acceptability of the telephone-based smoking cessation counseling program among smoking parents,

4. to describe the baseline characteristics of smoking parents and the predictive factors of their participation in a proactive smoking cessation counseling program,
5. to examine the effectiveness of telephone-based smoking cessation counseling in helping smoking parents with young children to quit.

3.3 Operational definitions

Smoking parents: Smoking parents refers to the parents in the 1997 Birth Cohort Study who were identified as smokers. The smoking parents included in this study were regular smokers who had continued to smoke within the previous 6 months, or smokers who claimed to have quit smoking but for less than 6 months at the baseline interview.

Smoking cessation rate: Smoking cessation rate is defined as the self-reported status of 'have not smoked' during the 7 days preceding the 6-month follow-up telephone interview.

Perceived health status: This refers to the self-perceived health status of parents (smokers and non-smokers), and the parents' (usually the mothers') perceptions of the health status of their children in the previous 6 months, based on a 4-point Likert scale with the options 'very good', 'good', 'poor' or 'very poor'.

Frequent respiratory symptoms: Frequent respiratory symptoms are defined as the occurrence of the various symptoms three times or more per week in the

previous 6 months. Types of symptoms observed include sore or itchy throat, cough, phlegm, wheezing and nasal symptoms.

The smoking behavior of parents: The smoking behavior of parents is defined as the parents' smoking status and daily cigarette consumption in general, at home and within 3 meters of the child, in the previous 6 months.

The smoke quitting behavior of parents: The smoke quitting behavior of parents is defined as having made a prior attempt to quit smoking and having succeeded for more than 24 hours but resumed smoking at the baseline interview and during the intervention at the 6-month follow-up. Details of quitting experiences include the difficulties encountered, coping strategies used to overcome the difficulties, and the stages of readiness to quit smoking according to Prochaska's definition.

Absolute risk reduction (ARR): This is the reduced risk calculation to compare the incidence of success at quitting in the intervention group vs. that in the control group, to determine the difference in quitting success.

Odds ratio for the outcome measures: Odds ratios are used to describe the relative frequency of the occurrence of an event. The odds ratio is the odds of exposure in the group that has quit divided by the odds of exposure in the group that has continued to smoke. For example, if the odds ratio=2, the chance of the symptoms occurring is two times greater.

Number Needed to Treat: Number Needed to Treat is an alternative analytic approach introduced by Laupacis et al. to summarize the effect of treatment (Laupacis, Sackett, & Roberts, 1988). In application, it is an expression of the number of smoking parents needed to be treated to achieve one successful case of smoking cessation.

3.4 Study methods

3.4.1 Design

This study was divided into two stages as illustrated in the 'Study design and subject randomization flow diagram' (Figure 3-1).

The first stage was a cross-sectional baseline telephone interview of eligible smoking parents from the 1997 Birth Cohort Study in Hong Kong. The baseline interviews were conducted by using a set of structured questions to determine the baseline characteristics of these smoking parents. The characteristics included: demographic information, perceived health status, smoking history and previous attempts to quit, respiratory symptoms, Fagerstrom's level of nicotine dependency, Prochaska's stages of readiness to quit, alcohol use and marital locus of control. Analysis and comparison was made between those parents who consented to take part in the smoking cessation program and those who refused the offer, and between the parents who smoked at home and those who did not.

The second stage of the study was a randomized controlled trial (RCT). Upon completion of the baseline interview, all eligible and consenting parents were randomized into intervention and control groups. This RCT was to examine the

effects of a proactive telephone counseling program based on Prochaska's transtheoretical model of behavior change together with educational materials to help the smoking parents of young children to quit.

The randomized controlled trial (RCT), as an experimental study in comparing the effectiveness of an intervention between intervention and control groups, has been used extensively in medical research and is considered the "gold standard" for treatment efficacy research (Last, 1986). The RCT has the advantage of eliminating self-selection bias in intervention studies (Altman & Bland, 1999b).

Consenting smoking parents randomly allocated into the intervention group received the self-help printed materials and three sessions of telephone smoking cessation counseling offered at the initial baseline contact and at 1 month and 3 months after the baseline interview. A hotline number was given to these smoking parents in case they had further queries or required help in their smoking cessation efforts, whereas the control group received only the printed self-help materials.

All smoking parents in both groups were re-contacted and interviewed 6 months after the initial interview. This interview was designed to obtain the self-reports and the spousal proxy reports of the smoking parents' smoking and quitting status. Those who self-reported as quitters at this follow-up interview were invited to a final assessment session where biochemical tests were performed to assess their smoking status. The self-reported quitters could choose to attend the final assessment session at one of three available sites (Ruttonjee Hospital, the

University of Hong Kong or The Hong Kong Polytechnic University) at times convenient to them. The two biochemical methods utilized to validate the self-reported quitting included a simple breath test using the “Bedfont Micro II smokerlizer” to detect the carbon monoxide levels in the participants’ exhaled air (Javis, Belcher, Vesey & Hutchison 1986), and urine testing for cotinine.

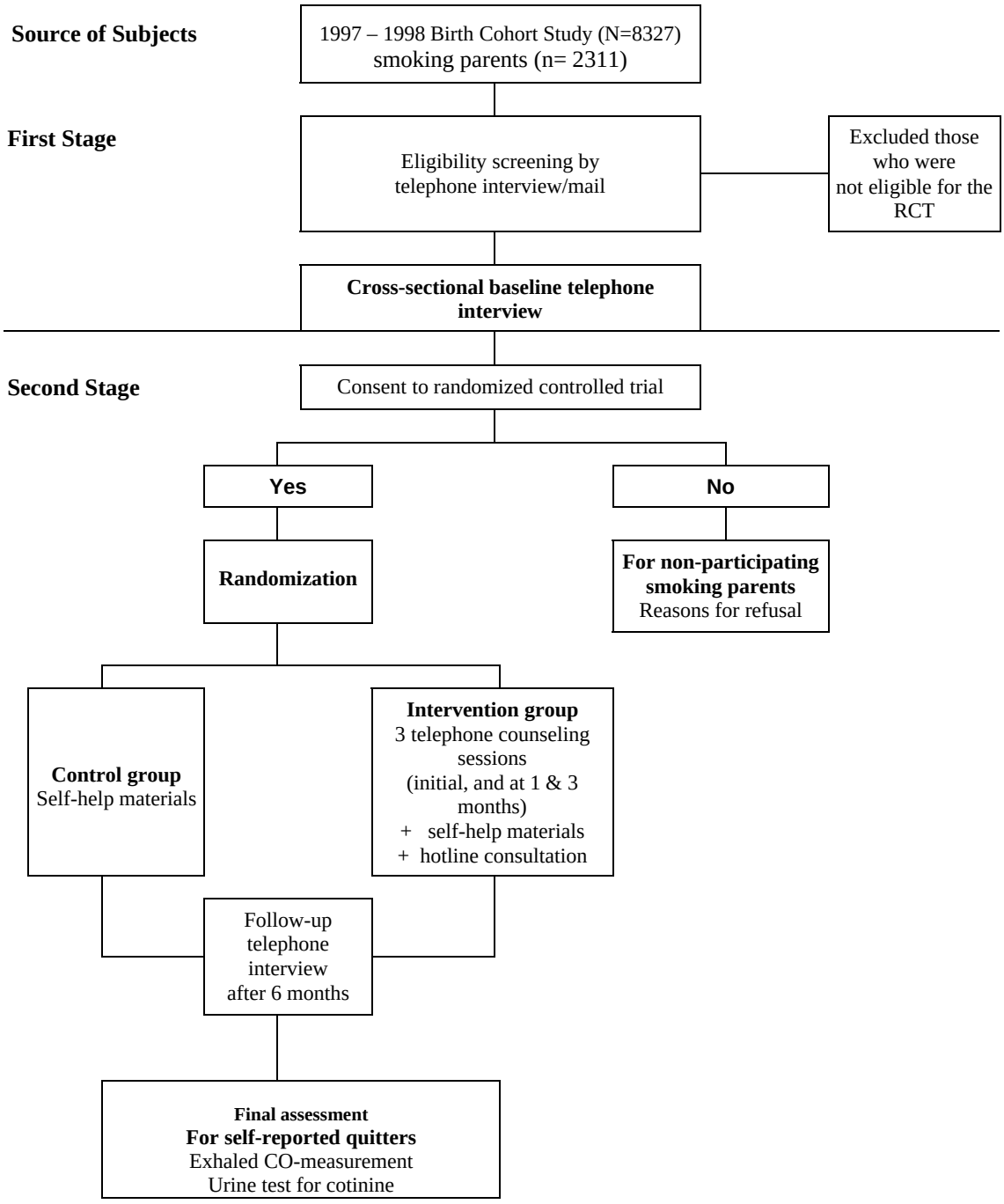


Fig. 3-1 Study design and subject randomization flow diagram

3.4.2 Subjects and sample size justification

Potential subjects were recruited from a pool of smoking parents in the "1997 Birth Cohort Study" available in the Department of Community Medicine at the University of Hong Kong. The cohort included 8,327 parent-infant pairs of infants born in April and May 1997, accounting for 88% of all births in Hong Kong in the two months of the recruitment period. The Birth Cohort Study gathered information about the parents' smoking history from the mothers of newborn babies, and from this information 2733 smoking fathers and 230 smoking mothers were identified at the initial contact (Lam, Leung, & Ho, 2001). All the parents in the birth cohort were re-contacted at intervals when the babies were 3 months, 9 months and 18 months of age. At the beginning of this RCT, 2311 smoking parents remained in the pool of this birth cohort.

Before the initiation of this study in March and April 2001, all 2311 smoking parents were sent an invitation letter concerning the forthcoming baseline telephone interview. The letter also included a reply slip with a prepaid addressed envelope asking the parents to re-confirm their phone number and the recent smoking status of both parents (Appendix 3-1 Invitation Letter).

Telephone calls were made to the smoking parents who replied to the invitation letter with updated contact details to complete the baseline telephone interview. Parents who did not reply by mail were also contacted by phone for eligibility screening, and invited to take part in the study if eligible.

Those parents who continued smoking or who had recently quit for less than six months were considered eligible for inclusion in a randomized controlled trial of telephone-based counseling on smoking cessation. Other criteria were that the smoking parents must live in Hong Kong and with their children for no fewer than five days a week. Verbal informed consent was granted in the telephone interview.

Sample size justifications

Sample size determination was done using the difference in proportion of subjects who had quit smoking between the two groups as the main outcome measure. Reference was made using Western study results. Based on the benchmark studies in the West (Zhu, Stretch, Balabanis, Rosbrook, Sadler, & Pierce, 1996 and Humerfelt, Eide, Kvale, Aaro, & Gulsvik, 1998), it was estimated that about 5% of smokers would quit smoking without any obvious intervention, and the percentage of smokers who would quit with multiple counseling sessions was estimated to be about 10%.

In this study, the total sample size required would then be 804 (402 in each group), based on a significance level of 5% and a power of 90% based on the calculations of the Epi Info 2002 software (Dean et al., 2002).

According to Britt, Curry, McBride, Grothaus, & Louie's (1994) study, about 40% of smokers will accept the invitation to participate in a proactive smoking cessation program. Therefore, a total of 2010 subjects were required, the number

of subjects available in the 1997 birth cohort pool was considered adequate for the number of subjects required.

3.4.3 Randomization procedure

Randomization was done only upon completion of the baseline telephone interview and after consent was obtained from the smoking parents (Altman & Schulz, 2001). Eligible smoking parents who met the inclusion criteria were randomized into either the control or intervention group, with no intention to make assignments by any particular characteristic (Altman & Bland, 1999b). In this study, parents were randomized by the counselors by opening sealed opaque envelopes with a slip pre-marking the group assignment. These slips were then attached to the parents' files, indicating group assignment as a quality check.

Block randomization of six was adopted. This avoided long strings of assignments to either group while ensuring that the assignment of any parent was not predictable from the preceding assignments (Altman & Bland, 1999a). The sets of assignment envelopes were prepared by a clerical worker who was not involved in any process of the data collection in this trial.

The 'family' as one unit was used for randomization; this means that if both parents in a family smoked, the two parents were to be put together into the same group. Randomization was done only upon completion of the baseline telephone interview and after verbal consent had been obtained from the smoking parents (Altman & Schulz, 2001).

3.4.4 Interventions

Types of intervention were given to the smokers according to the group into which they were randomized. Smoking parents in the intervention group received three sessions of telephone smoking cessation counseling offered at the initial baseline contact and at 1 and 3 months after the baseline interview, as well as a set of printed self-help education materials. They were also given a smoking cessation telephone hotline to call if they had any concerns or questions or required assistance during their quitting attempts. By contrast, the parents allocated to the control group received only the printed self-help materials by mail.

Telephone counseling

Based on the results of the initial baseline interview, which was used to assess the smoking status of the smoking parents and their stage of behavioral change according to Prochaska's model, stage-specific smoking cessation telephone counseling was then delineated and provided.

Each of the counseling sessions would last for about 10-15 minutes and typically included information such as the health consequences of smoking and the benefits of quitting, encouraging the smoking parents to quit. Counselors also helped the smoking parents to identify the barriers they encountered in their quitting attempts, and then worked out an achievable plan. The smoking parents were also introduced to problem-solving skills related to handling nicotine cravings and withdrawal symptoms.

A telephone interview guideline and counseling protocol was developed to guide the intervention process. The counseling protocol developed was stage-matched according to Prochaska's stages of behavioral change, to motivate the smokers to move along the stages of change and to develop effective coping strategies to overcome the urge to smoke. Details of the content and development of this interview guide and counseling protocol will be further discussed in Chapter 4.

Printed self-help materials

Both the control and intervention groups received the printed self-help materials by mail. The printed materials were mailed to smokers immediately within one week of the baseline interview. The self-help education materials for smoking parents used in this study were developed by the Hospital Authority of Hong Kong (Appendix 3-2). There are three booklets targeting smokers at different stages of behavioral change based on Prochaska's transtheoretical model: the 'pre-contemplation', 'contemplation' and 'preparation/action' stages.

The booklet targeted at smokers in the pre-contemplation stage focuses on arousing their awareness of the need to quit, including the negative effects of smoking. The booklet targeted at smokers in the pre-contemplation stage further explains the various smoking-related health problems. Ambivalence related to smoking and quitting is discussed. The booklet targeted at smoking parents in the preparation and/or action stage assists them in moving from the preparation stage to the action stage by reviewing their smoking habit, the smoking triggers, setting a quit date, and listing behavioral skills or information for overcoming craving and withdrawal symptoms.

3.4.5 Instruments

The instruments used in this study include an Eligibility Screening Checklist, the baseline interview questionnaires, and the follow-up questionnaires.

Eligibility Screening Checklist

An Eligibility Screening Checklist (Appendix 3-3) was developed to screen for subject eligibility based on the inclusion criteria. The eligibility criteria included: parents who continued smoking or had recently quit for less than six months, and lived in Hong Kong with their children for not less than five days a week. Smoking parents who were considered eligible for the trial after this screening were invited to complete the baseline interview questionnaire.

Baseline interview questionnaires

There were two structured Baseline Questionnaires, one developed specifically for the smokers (usually the fathers) (appendix 3-4), and the other for the non-smokers (usually the mothers) (appendix 3-5). If both parents smoked, both were to complete the questionnaire for smokers.

The Baseline Questionnaire for interviewing the smoking parents consisted of six parts/constructs. The six parts included (1) smokers' self-perceived health status; (2) experience of upper and lower respiratory symptoms; (3) smoking behavior, household smoking hygiene, and the Fagerstrom Test for Nicotine Dependence (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991); (4) previous quitting behavior, Prochaska's stages of behavioral change to assess

readiness to quit, smoking cessation self-efficacy, alcohol use and dependency; (5) self-evaluated marital locus of control; and (6) demographic information.

The health-related questions in Parts 1 & 2 and those related to smoking and quitting behaviors in Parts 3 & 4 were adopted mainly from the questionnaire used in the Hong Kong Police Survey by Hedley, Lam, Fielding, Wong, McGhee, Adab, Aharonson-Daniel & Lam (2000). Other sources included the Fagerstrom test for level of nicotine dependency in Part 3 (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991), the Prochaska transtheoretical model of change for assessing readiness to quit smoking (Prochaska & Goldstein, 1991), the CAGE questionnaire for screening alcohol abuse in Part 4 (Ewing, 1984), and the marital locus of control used in Part 5 (Bandura, 1976).

The Baseline Questionnaire for interviewing the non-smoking parents consisted of three parts: (1) the non-smoking parents' self-perceived health status, (2) their reports on the upper and lower respiratory symptoms and medical services utilization of their children, and (3) the proxy validation on the spouse's smoking status and cigarette consumption.

The parental reports with regard to the children's health were usually completed by the mothers, as it was assumed that mothers usually know more about the state of their children's health and the details of their medical services utilization. A pilot study was done to test the psychometric properties of the two questionnaires, and the details are presented in Chapter 5.

The following are the constructs adopted for use in the questionnaires:

i. Health-related questions

The questions on self-perceived health status and respiratory symptoms, used in the Hong Kong Police Survey, originated from the British Medical Research Council Respiratory Health Questionnaire (Florey & Leeder, 1992). It was translated into Chinese and used in the studies by Peters, Hedley, Lam, Betson & Wong (1997); Hedley, Lam, Fielding, Wong, McGhee, Adab, Aharonson-Daniel & Lam (1997) and Lam et al. (2000). The questions on respiratory symptoms included throat, cough, phlegm, wheezing, asthma and nose. The validity of these questions was established from the consistency found in the excess risks of the occurrence of the respiratory symptoms among active smokers (Peters, Hedley, Lam, Betson, & Wong, 1997) and the ETS exposure of people who have never smoked (Lam et al., 2000). These questions were shown to be reliable to use as indicated, with the high agreement between the parental and children's reports (Peters, Hedley, Lam, Betson, & Wong, 1997).

ii. Fagestrom Test for Nicotine Dependence (FTND)

The Fagerstrom Test for Nicotine Dependence (FTND) was adopted in this study to evaluate the smoking parents' level of nicotine dependency (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991).

The six items used to measure smokers' nicotine dependence were: (1) how soon after you wake up do you smoke your first cigarette? (Scoring: 60^{+} mins = 0; 31-60 mins = 1; 6-30 mins = 2 and within 5 mins = 3) (2) Do you find it difficult to refrain from smoking in places where it is forbidden? (Scoring: no = 0; yes =

1) (3) Which cigarette would you hate to give up? (Scoring: any other = 0; the first one in the morning = 1) (4) How many cigarettes per day do you smoke? (Scoring: 10 or less = 0; 11-20 = 1; 21-30 = 2; and 31^{+} = 3) (5) Do you smoke more frequently during the first hours after waking than during the rest of the day? (Scoring: no = 0; yes = 1) (6) Do you smoke if you are so ill that you are in bed most of the day? (Scoring: no = 0; yes = 1) The total score of the FTND ranges from 0 to 10 points, and is classified into 3 levels: the low (score 0-3), moderate (score 4-5), and severe (score 6-10) levels of dependency.

The Fagerstrom Test for Nicotine Dependence (FTND) was validated using biochemical (Heatherton et al., 1991; Kozlowski, Porter, Pope, & Heatherton, 1994; Payne, Smith, McCracken, McSherry, & Antony, 1994) and psychological indices (Etter, Vu Duc, & Perneger, 1999; Dijkstra & Debbie, 2002). Niu et al. (2000) translated the instrument into Chinese and the Chinese version was used in a community-based cross-sectional study among residents in Anqing, China (Niu et al., 2000). The concurrent validity of the FNTD compared with the older version of the Fagerstrom Tolerance Questionnaire was 0.84 ($p < 0.0001$). Another recent study, conducted in Wuhan, validated Chinese subjects' self-reports of smoking information according to the FTND using saliva cotinine. The instrument was found valid and reliable (Cronbach's alpha = 0.67) (Chen et al., 2002).

iii. Prochaska's Transtheoretical Model (TTM)

Prochaska's Transtheoretical Model of behavior change was developed by Prochaska & Diclemente in 1983. The model proposes that behavior changes by progression through a series of five stages. The parental stages of readiness to

quit smoking were identified in the five stages: ***Pre-contemplation*** referred to current smokers who were not seriously considering quitting within the next 6 months. ***Contemplation*** referred to current smokers who were seriously considering quitting within the next 6 months, but were not considering quitting within the next 30 days and had not made a 24-hour quit attempt in the year prior to the interview. ***Preparation*** referred to current smokers who were seriously considering quitting within the next 30 days and had made a 24-hour quit attempt in the year prior to the interview. ***Action*** referred to ex-smokers who had successfully stopped smoking for a period from 1 day to 6 months preceding the interview. ***Maintenance*** referred to ex-smokers who had successfully abstained from smoking for 6 months or more preceding the interview. This model also suggests that the experience of change may not be in a linear progression, meaning that people may start with any stage and stay in the same stage or move to other stages (Prochaska & Velicer, 1997).

A review of 148 articles, including 54 validation studies, 73 population studies, and 37 interventions, found that the overall evidence supported the validity of the TTM constructs (Spencer, Pagell, Hallion, & Adams, 2002). A quasi-simplex model was used to test the stability of the TTM (stages of change) model with 261 smokers with a very good measure of an adjusted goodness-of-fit index of 0.98 (Morera et al., 1998). A Chinese population-based study that used the instrument to assess the stages of readiness to quit smoking also demonstrated its validity (Lam, Chan, Ho, & Chan, 2004). Significantly increasing trends of association of reporting never smoking were found, starting from pre-

contemplation to maintenance (adjusted odds ratio = 0.62; 95% CI = 0.49–0.80, $p<0.001$).

iv. Smoking cessation self-efficacy

Self-efficacy originates from Bandura's social cognitive theory (Bandura, 1986). Applying this theory to the intention of quitting, it refers to the smoker's perceived confidence with regard to quitting smoking (Prochaska & Velicer, 1997). Self-efficacy has been found to be one of the factors predicting successful quitting (DiClemente, 1999; Lichtenstein & Glasgow, 1992; Woodby, Windsor, Snyder, Kohler, & DiClemente, 1999). Three questions were asked about the smokers' self-efficacy related to smoking cessation: (1) How important is it for you to give up smoking altogether this time? Score on a scale of "0" to "100", 0 being not at all important and 100 being extremely important; (2) How difficult is it to quit smoking? (0 being not at all difficult and 100 being extremely difficult) and (3) how much confidence do you have that you will be able to quit smoking permanently (0 being not at all confident and 100 being extremely confident). These questions were modified from Martinelli's study of college students, which looked at the factors influencing smoking behavior (1999). These questions were also found reliable, with a Cronbach's alpha of 0.82. The scoring of the scale was modified to a wording that was sensitive to the culture of the Hong Kong Chinese participants.

v. Alcohol use and screening for abuse

Drinking alcohol is considered as a co-behavior of tobacco use (Janghorbani, Ho, Lam, & Janus, 2003). It hinders the success of smoking cessation. Variables of alcohol use were measured to control for the possible confounder of the outcome measures. Four items asked about the parent's history of alcohol use, and an additional four items used by the CAGE questionnaire in screening for abuse were also used (Ewing, 1984). The questions included: (1) Have you ever felt the need to cut down on your drinking? (2) Have you ever felt guilty or unhappy because of your drinking?, (3) Have you ever been annoyed by other people's criticism of your drinking?, and (4) Have you ever needed to drink to calm your nerves in the morning? Parents were considered alcohol-dependent if they answered "yes" to any two of the above questions. The CAGE questionnaire has been established as having good sensitivity (80%) and specificity (85%) in identifying alcohol dependence (King, 1986).

vi. Marital locus of control scale (MLOC)

The marital locus of control scale measures the loci of control for marital satisfaction (Miller, Lefcourt, Holmes, Ware, & Saleh, 1986; Miller, Lefcourt, & Ware, 1983). The foundation of this scale was used to measure perceived control over marriage. A short version of 8 items was extracted to represent each of four attribute subsets reflecting ability, effort, chance or luck, and uncontrollable contextual characteristics as explanations for positive and negative marital experiences. The scoring range was on a 4-point Likert scale, with the score of 1 indicating the minimum and the score of 4 indicating the maximum score. The

total scores of 8 items were used to recognize individuals who are internal for marital satisfaction, meaning that they have expectations that marital outcomes, whether positive or negative, are the result of their own efforts and abilities, and individuals who are external for marital satisfaction, i.e. taking little personal responsibility for marital outcomes. The parents who perceived themselves as having less control over their marriage were hypothesized to be less motivated to quit smoking.

Follow-up questionnaires

i. Follow-up questionnaires for intervention group smokers at 1 and 3 months

In order to assess the progress of parental quitting or attempts to quit, the counselors conducted interviews to assess changes in smoking behaviors at the 1- and 3-month follow-ups, before the counseling sessions for the smoking parents in the intervention group. The questionnaires used for both the 1- and 3-month follow-up interviews were identical, and included items to assess changes in smoking behavior, if any, quitting attempts, difficulties encountered, and withdrawal symptoms experienced since the last counseling session. Questions were worded identically to those in the Baseline Questionnaires (appendix 3-6 & 3-7).

ii. The 6-months follow-up questionnaires

The smoking status of all subjects in both the intervention and control groups were re-assessed by telephone interview 6 months after the initial telephone interview using two follow-up questionnaires, one developed for the smokers

(appendix 3-8) and the other for their non-smoking spouses (appendix 3-9). If both parents smoked, both were asked to complete the questionnaire for smokers.

This 6-month follow-up questionnaire for interviewing the smoking parents included all the questions that were included in the initial questionnaire. In addition, this questionnaire also included questions on the reasons of parents who had attempted to quit smoking, their withdrawal symptoms, and their level of satisfaction with the program components provided.

The purpose of the 6-month follow-up questionnaire for interviewing the non-smoking spouses was to proxy validate their smoking spouses' self-reported smoking and quitting information provided in the intervention period at 6 months. The questions included their spouse's current smoking status, cigarette consumption, quitting attempts and length of abstinence: these questions were identical to the items in the smoking parents' self-reports.

3.5 Outcome measures

The outcome measures of this RCT were assessed in the 6-month follow-up interview. The 1- and 3-month assessments were for intervention purposes only and were not included in the outcome measures. The main outcome measure was the self-reported 7-day point prevalence of smoke quitting at the 6-month follow-up (defined as not smoking during the 7 days preceding the 6-month follow-up) of this RCT.

The use of a 7-day point prevalence for evaluating the smoking cessation rate was recommended by the National Interagency Council on Smoking and Health (1974). A recent study by Velicer and Prochaska (2004) compares the correlation of four differences between? point prevalence and prolonged abstinence of self-reported smoking cessation outcomes. The study found that the measures 24-hour point prevalence, 7-day point prevalence, and 30 days' prolonged abstinence were correlated with each other, with alpha at 0.98 and above with exception of the 6 month prolonged abstinence report. Among the three measures, 7-day point prevalence had the highest correlation with the other measures.

According to Prochaska's stages of change model, smoking cessation does not follow a discrete dichotomous movement from smoking to non-smoking. Based on this model, some additional indicators of behavioral change are also examined for a comprehensive measure of the study outcomes. These other primary outcome measures are also included: (1) 24-hour point prevalence quit rate preceding the 6-month follow-up without validation, (2) 180 days' prolonged abstinence, (3) smoking reduction rate at 6-month follow-up as reported by at least 50% from the baseline, (4) parental home smoking hygiene as indicated by restricted smoking at home or not smoking within 3 meters of their child, and (5) the number of quit attempts made by the smoking parents.

3.6 Validation of self-reported smoking cessation

Misclassification of smoking status has the potential to bias estimates of the effectiveness of a smoking cessation intervention (Murray, Connett, Lauger, &

Voelker, 1993). However, it is estimated that about 4-10% underestimation of smoking prevalence results from the self-reporting of smoking status (Wagenknecht, Burke, Haley & Friedman, 1992; Bauman, Koch, Bryan, Haley, Downton, & Orlandi, 1989). This problem has led to consideration of an objective validation of the self-reports on smoking status. Therefore, in the present study, self-reported cessation was validated by using multiple indices: spousal proxy reports, exhaled carbon monoxide tests and urine cotinine tests using the NicAlert test.

3.6.1 Spousal validation

Western studies have demonstrated that through telephone interviews, proxy reports by women of their husband's smoking status and information are one of the most accurate and reliable methods of validation (Passaro, Noss, Savitz, & Little, 1997; Gilpin et al., 1994). For the spousal proxy report of smoking status, either the husband or wife was asked to report their smoking spouse's smoking status in a separate telephone interview.

3.6.2 Biochemical validation

The use of biochemical measures can also serve as a validation for self-reported smoking status. These include thiocyanate, carboxyhaemoglobin, carbon monoxide (CO), nicotine and cotinine (Benowitz, 1983; Bliss & O'Connell, 1984; Pechacek, Fok, Murray, & Leupker, 1984). Among these biomarkers, cotinine is considered the most accurate and suitable marker for assessing smoking behavior during the previous few days before the specimen is obtained

(Poswillo & Aiberman, 1992; Mendersohn, Mohr, & Peeters, 1998). Cotinine is a metabolite of nicotine and is structurally very similar to nicotine. However, it has a much longer half-life than nicotine (18-20 hours versus 2 hours). Cotinine is very stable in serum saliva and urine samples, and resists degradation at room temperature, making it easier to handle. Nicotine, on the other hand, has to be measured in carefully controlled conditions. Unlike thiocyanate, it is relatively specific in measuring smoking status. There is no known plant or food that contains cotinine, and it is not affected by environmental factors as carbon monoxide would be.

Urine cotinine test

In measuring cotinine, urine sample collection is desirable as it is a relatively cheap method and is acceptable to most participants. The sensitivity and specificity of the test strips are 87% and 100% respectively (info@accutest.net). The measure for cotinine is not affected by other substances in the urine, such as glucose, ascorbic acid, albumin and hemoglobin.

In this study, urine samples were collected from all self-reported quitters at the final assessment session. The urine samples were collected in 100ml vials with screw caps. Each vial was labeled with the name and serial number of the parent. The urine sample was then placed in a cool box with silicon cool packs and transferred to a medical laboratory at The Hong Kong Polytechnic University. Each sample was then transferred into two plastic test tubes labeled by serial number and stored in a refrigerator maintained at -70 degrees Celsius. One of the urine samples was used for analysis and the other for backup.

When all samples were collected, the stored samples were taken out of the refrigerator for natural warming at room temperature before testing. All cotinine analysis was carried out using NicAlert strips. The testing procedure involved dipping the test strip into the sample as instructed. The procedure of urine analysis strictly followed the instructions from Accutest NicAlert (info@accutest.net). The urine cotinine was tested by two nurse counselors who were blinded to the group assignments of the parents to minimize bias. In addition, the specimens were labeled with numbers only.

Each urine cotinine result was interpreted by the two counselors independently. Testing was repeated if there was a discrepancy between the interpreted results. Cotinine values are expressed in 7 levels as nanograms per milliliter (ng/ml), with detection range levels from “0” (1-10 ng/ml) to “6” (>2000 ng/ml). A result of level 3 (100-200ng/ml) or higher indicates use of tobacco products.

Exhaled carbon monoxide test

Self-reported quitters were invited to take an exhaled carbon monoxide test using the Bedfont Micro II Smokerlizer, which is accepted as being accurate for distinguishing smokers from nonsmokers (Jarvis, Tunstallpedoe, Feyerabend, Vesey, & Saloojee, 1987). This method is a considerably cheaper and simpler way to measure carbon monoxide levels, and involves having self-reported quitters take a deep breath and hold it for 15 seconds before exhaling into a carbon monoxide detector. In this study, parents with exhaled CO levels of 9 ppm or above were considered current smokers.

3.7 Data management and analysis

All data were entered into a computer database using the Epi Info software (Dean et al., 2002) and analyzed using SPSS version 10/11 (SPSS, Inc. Chicago IL, USA). The advantages of using Epi Info for the initial stage of data entering and management were that this software can provide a logic check system and is more effective in handling skip or filter questions. The accuracy of data entry was highly improved. SPSS is powerful computer software that can manage all the statistical analysis procedures used in this study.

The data analysis was divided into four types: (1) descriptive statistics on the cross-sectional study of the parental smoking and quitting characteristics, (2) three runs of preliminary analyses were conducted before the final outcome analyses to examine whether attrition had an effect on the demographic characteristics or key baseline study variables, (3) the effectiveness of the intervention, and (4) the predictors of cessation outcome.

3.7.1 Analysis of the cross-sectional baseline study

Descriptive statistics of proportions and means were used to describe the characteristics of the participating smoking parents at baseline. Information on health, smoking, quitting, readiness to quit smoking and demographics were used as presented, and reveal the prevalence of smoking behavior among the parents. This information was also used as potential covariates in the bivariate level of analysis.

To analyze the cross-sectional comparison between the parents who smoked at home and those who did not, the chi-square test for testing associations between two nominal variables when the expected frequencies are at least 5, or the t-test were used for comparing the means of two interval variables. Fisher's Exact Test was used to compare differences between categories when the assumptions for the chi-square test were not fulfilled. Potential covariates that were related to parental household smoking hygiene at the bivariate level were examined by chi-square tests. Linear by linear association trends by chi-square tests were performed to find the relationships between the covariates and the level of household smoking hygiene.

Two other separate rounds of chi-square tests were performed to identify two preliminary sets of predictor variables in the same manner. First, a comparison was made between the correlates of parents who smoked at home (partial restriction and no restriction) and those who did not smoke at home (complete restriction). Second, among those parents who smoked at home, a comparison was made between parents who practiced partial restriction and those who practiced no restriction at all. Finally, two separate sets of binary logistic forward stepwise regressions were used to determine which set of correlates best predicts poor household smoking hygiene (no restriction / smoked < 3 meters away from their children) by calculating odds ratios (OR) with 95% confidence intervals (CI), adjusted for the children's characteristics at birth.

3.7.2 Preliminary analyses

The preliminary analyses compared the characteristics of the participants by the attrition at three time points. Both bivariate and multivariate analyses were used. The first attrition comparison examined the characteristics of the smoking parents with young children who chose or did not chose to participate in the telephone-based smoking cessation program. The second attrition comparison investigated the differences between two randomly assigned groups. The third attrition comparison was made between the parents who adhered and those who did not adhere to the program. The same set of potential covariates and manner of analysis was used as for the comparison between the parents who smoked at home and those who did not.

3.7.3 Analysis of intervention effectiveness

The effectiveness of the smoking cessation intervention was examined by using chi-square tests to compare outcome measures, both primary and secondary, in the intervention and control groups at the 6-month follow-up. The two approaches used in the group comparison included (1) the intention to treat basis and (2) the total number of participants remaining at the 6-month follow-up interview. The analysis based on the “intention to treat” (Lee, Ellenberg, Hirtz, & Nelson, 1991) method involved including all recruited parents from the baseline, regardless of their compliance with the trial protocol, in the analysis of results. For parents who did not complete the intervention (withdrawn / could not be contacted) it was considered that their parameters remained unchanged from the baseline. By contrast, the second approach excluded the lost parents from analysis at the 6-month follow-up interview.

3.7.4 Predictors of cessation outcome

To identify the predictive factors associated with successful quitting at the 6-month follow-up based on 7-day point prevalence, different potential predictors were examined. These potential predictors included the same set of baseline variables as those used in the cross-sectional analysis.

Logistic regression was performed first by the "forced entry method" to examine all the significant variables identified in the univariate analysis ($p<0.05$) as potential predictive variables. A multiple logistic regression analysis by forward stepwise method was then analyzed to investigate the final model, and adjustment for other factors was performed. The variables that remained in the final model were identified as the predictive variables associated with successful quitting based on 7-day point prevalence.

3.8 Ethical considerations

The benefits derived from parents quitting smoking are well documented (Doll, Peto, Wheatley, Gray, & Sutherland, 1994). Nevertheless, attempts to help smoking parents quit had not been conducted in Hong Kong. Therefore an intervention to help parents to stop smoking was urgently required. This study used an RCT, as this is the best research method for testing the effectiveness of an intervention before it is widely implemented.

As a result, concerns may arise with regard to the ethical problem of giving no counseling to the smoking parents allocated into the control group. In fact, every contacted parent received the education booklets and had a chance to talk about

smoking cessation through the last follow-up interview. This is in fact a type of proactive approach that is not a routine health care service provided in our community. Furthermore, this research did not withhold services that the parents would have received in other situations.

This study did not involve any invasive procedures, treatments or exposure to biological, radiation or chemical hazards. Participation in this study was totally voluntary. Parents also had the right to withdraw at any time, even after they had agreed to participate. It was clearly stated that their decision to participate would not affect the care received in the Maternal and Child Care Center. Confidentiality was ensured. Details of the verbal consent given over the phone can be examined in appendix 3-10. Ethical approval was obtained from the Hong Kong Polytechnic University Ethics Committee before this study proceeded.

3.9 Summary

This chapter describes the aims and objectives of the study, and the operational definition of the key variables. The study was divided into two stages: the cross-sectional survey and the randomized controlled trial. The origins of the samples and justifications of the sample size were discussed in this chapter, and an introduction to the origins and content of the instruments was presented.

Chapter 4

Counseling Protocol and Counseling Reliability

4.1 Introduction

A set of smoking cessation telephone interview guidelines and counseling protocol were specifically designed for this randomized controlled trial. This was to serve as a guide to counselors in the smoking cessation assessment interviews and counseling intervention. This chapter starts with a description of the specific guidelines for the telephone interviews to assess smoking status and readiness to quit smoking, and of the stage-specific strategies for smoking cessation counseling to facilitate behavioral change based on the 5As smoking cessation intervention principles and the relevant theoretical models. Based on these theoretical foundations, strategies for stage-specific intervention are then suggested. The chapter concludes with an explanation of the methods of quality control of the counseling provided, and establishes the reliability of the intervention.

4.2 The significance of protocol development

The counselors involved in the intervention program of this randomized controlled trial played dual roles as interviewers and smoking cessation counselors. To ensure the quality of the interviewing process and counseling interventions, well-structured guidelines on the telephone interview and a protocol for the counseling intervention were essential to equip the counselors with the necessary interviewing techniques and counseling skills.

Two smoking cessation guidelines were referenced in developing the guidelines and protocol in this study, one being the smoking cessation guidelines for health professionals delineated by the Cochrane Tobacco Addiction Review Group in

the United Kingdom (Raw, McNeill, & West, 1999), and the other being the Guideline for Smoking Cessation compiled by the Agency on Health Care Policy and Research (AHCPR) in USA (Cromwell, Bartosch, Fiore, Hasselblad, & Baker, 1997b; Fiore et al., 2000).

The Cochrane Group reviewed the evidence and made conclusions based on meta-analyses and systematic reviews of randomized clinical trials. The AHCPR guideline was developed based on more than 6,000 research studies published between 1975 and 1999, by a panel of 18 recognized experts. It provides recommendations regarding effective smoking cessation interventions for primary care clinicians, tobacco cessation specialists, health care administrators, and insurers. The guidelines, however, do not include any description of the effective interviewing techniques required for their successful implementation.

There was no readily available smoking cessation counseling or protocol available and used in Hong Kong, nor was there a comprehensive model of smoking cessation counseling. These newly established interview guidelines and protocol were intended to provide the detailed steps of the telephone interviewing and counseling processes targeted at the smoking parents, and to serve as a standard and a guide to counselors in the smoking cessation telephone assessment interviews and counseling intervention in this study.

The first draft of this interview guide and the protocol were validated by three experts in randomized trial and substance abuse intervention. The validated

interview guidelines and protocol were then tested by four smoking cessation counselors for clarity and coverage before a final version of the protocol was adopted.

The following section details the guidelines for conducting the telephone interview to assess smoking status and 'readiness' to quit smoking, and stage-specific counseling strategies to facilitate behavioral change, i.e. smoking cessation.

4.3 The 5As principle of the smoking cessation intervention

The 5As principle (ask, assess, advise, assist and arrange) proposed by Glynn and Manley (1989) was adopted to guide the logistical flow of the interview and counseling stages of the smoking cessation intervention in this study.

During the interviewing stage, the principles "Ask" and "Assess" aimed at establishing a rapport with the parents and assessing their readiness to quit smoking. In the counseling stage, the principles "Advise", "Assist" and "Arrange" were used. These principles provided counselors with a direction for structuring the interviewing and counseling processes and with a tailor-made, individualized, stage-specific intervention for smoking parents. Box 4-1 shows the details of the 5As principle as applied to the smoking cessation intervention in this study.

Box 4-1 5As principle of smoking cessation intervention, modified from Glynn & Manley (1989)

Ask all parents if they smoke, and document this in the questionnaire.
Assess the smoking parent's health status, smoking and quitting-related issues, and their readiness to quit based on structured questions.
Advise and motivate all smoking parents to quit by personalizing the risks of smoking and the benefits of smoking cessation.
Assist the smoking parents in their quitting attempts according to their stages of change. Focus on three domains of smoking cessation counseling: cognitive re-structuring, coping or behavioral skills, and social support.
Arrange follow-up and hotline services.

4.3.1 ASK

This was the very first step, re-contacting the smoking parents in the birth cohort; the desire to talk about smoking cessation was clearly articulated. In this initial telephone contact, it was of utmost importance to establish a rapport and a trusting relationship between the counselor and the smoking parent (Rogers, 1957; Egan, 1998; Frey & Oishi, 1995). Hence, guidelines on effective communication skills were developed by advising the counselors on techniques both for beginning and conducting an interview (Box 4-2). Ensuring the confidentiality of all parents was stressed. Counselors were also advised to make use of the introductory statement provided to guide the interview. Box 4-3 lists the advised procedures for maximizing successful contact with parents.

Box 4-2 Guidelines on telephone interview

Beginning the interview -- the most important purpose of the initial telephone conversation is to gain the cooperation of the smoking parents and to establish rapport at this stage. Cooperation can be gained by convincing the smoking parents of the importance and value of the smoking cessation program. It is very important to talk in a friendly manner and with a well-delivered introductory statement (Appendix 4-1) tailored to engaging the parents in answering the questions. Success in engaging parents in this initial telephone contact will minimize refusals, thus improving the chances of collecting unbiased information.

Confidentiality *-- the confidentiality of all parents must be ensured. No names or locations of subjects being interviewed should be disclosed.*

Techniques for conducting the interview

i. the counselor should always be neutral in transmitting questions and answers in order to ensure validity. Therefore, the counselor should:

- avoid interjecting his/her own opinions
- be an active listener and only give the minimum of reinforcement, such as "ok", "I see"…or "uh-huh"
- never suggest an answer

ii. the counselor should also communicate accurately (based on the structured questionnaires), maximize the parents' ability and willingness to answer questions, listen actively to determine what is relevant, and use probing to increase the validity, clarity, and completeness of the responses. Finally, the counsellor should give stage-specific intervention to the smoking parents.

iii. probing / interviewing skills include showing interest and understanding by an expression such as "uh-huh," "I see", and "yes", conveying the message that the response has been heard and more is expected. Pause is another technique of silence. It can tell a respondent that you are listening and waiting to hear more. Repeating the question can help a respondent who has not understood, misinterpreted, or strayed from the question to get back on track. Repeating the reply can also stimulate the respondent to say more, or recognize an inaccuracy.

Box 4-3 Procedures for contacting the parents and introducing the program

To maximize successful contact, the following tactics/techniques are suggested:

i. Place calls to telephone numbers listed on the Birth Cohort Study's demographic records until either the parent is reached or it is determined that the parent cannot be reached at this number.

ii. Make calls at different times of the day and on different days of the week.

iii. The most productive times to call are weekday evenings after dinner and weekends, except Sunday morning.

iv. Time the call so that it will end by 10:30 p.m., unless a parent has asked to call back late.

v. Make an appointment for the next contact at a mutually convenient time.

- If a busy signal or no answer is received, but an answering machine is available, leave a brief message about the purpose of the call and state that a call will be made at another time.
- If it is a wrong number, verify the number dialed.
- If a parent is unavailable, politely ask when a call should be made in order to catch the person at home.
- If a parent agrees to an interview at a particular time, call back at that time.

vi. A call record (Appendix 4-2) for each file should be completed after each call is finished (even if the number was not working, no answer was received, or the interview was not completed). This record may help to identify the appropriate time to make the next call. For example, we should try to contact the parent during the weekend if all weekday time slots have been tried.

vii. When finished asking all the questions and having completed the counseling session, record the name and date of the interview/counseling session in the space provided and complete the counseling record. Feel free to make note of any additional information that is relevant to this program.

4.3.2 ASSESS

One of the major goals of the initial and subsequent interviews is to assess the smoking parents' readiness to change, i.e. to quit smoking.

Readiness to Change

The transtheoretical model of change suggested by Prochaska and Diclemente (1983) was adopted as the assessment guideline for the telephone interviews. This theory has also been applied in various clinical settings in assessing the stages of behavioral change. Areas of application have included diet, exercise, smoking cessation and medication compliance. It has also been widely used in smoking cessation studies to predict the success of smoking cessation (Woodby, Windsor, Snyder, Kohler, & Diclemente, 1999; DiClemente, Prochaska, & Gibertini, 1985; Prochaska & DiClemente, 1983). Pre-contemplation, contemplation, preparation, action and maintenance are the five stages of change in the transtheoretical model of change. Relapse describes what happens when smokers draw back from action or maintenance to pre-contemplation, contemplation or preparation.

Behavioral change does not follow a linear progression through the stages. Most smokers actually move through the stages of change in sequences of cycling and re-cycling. Smokers may progress towards the maintenance stage but they may also relapse. The three questions below were asked to identify the smoking parent's stages of change during the interviews:

1. Are you seriously thinking about quitting smoking currently? Yes/no
2. Are you intending to quit smoking in the next month? Yes/no
3. Are you intending to quit smoking in the next 6 months? Yes/no

Box 4-4 Prochaska's Stages of Change

Pre-contemplation is the initial stage, at which there is no intention to quit the behavior in the foreseeable future, i.e. for at least the next 6 months.
Contemplation is the stage in which smokers are aware that a problem is there and are seriously thinking about overcoming it but have not started to take any action. Typically, they intend to quit smoking within the recent 6 months.
Preparation is the stage that combines intention and behavioral changes. Current smokers in this stage are intending to take action in the next few months and have unsuccessfully attempted to quit in the past year.
Action is the stage in which clients have successfully stopped smoking for a period from 1 day to 6 months.
Maintenance is the stage in which clients have successfully maintained not smoking for more than 6 months.

4.3.3. ADVISE

Clinical approaches to facilitating changes in smoking behavior are essential after the smokers' readiness to change is identified. The mere provision of information is not enough to promote change, as the smoking parents may still engage in ambivalence. Motivational interviewing has been found to be effective and was adopted for use in facilitating change in the smoking behavior of the parents in this study.

Motivational Interviewing -- a skill aimed at helping smoking parents build commitment and eventually making a decision to quit smoking. It is a form of client-centered counseling, consisting of a combination of self-perception theory, social learning theory and the social psychology of directive persuasion to resolve the individual's ambivalence. Motivational interviewing focuses particularly on motivation, with the assumption that behavior change is relatively straightforward once ambivalence and resistance are resolved (Cullari, Allyn, & Bacon, 2001; Miller & Rollnick, 1991). Based on a combination of the theories, the principles of motivational interviewing focus on the importance of eliciting smokers to talk about change and respond to their own resistance. Motivational interviewing also emphasizes the interpersonal contact between smokers and counselors. The counselor's style is a powerful determinant of the smoker's resistance and change. An empathetic style is more likely to bring out self-motivational responses and less resistance from the smoker. With the application of motivational interviewing, each person has powerful potential for change. The major role of the counselor is to release that potential and facilitate the natural change process of the individual.

4.3.3 ASSIST

In order to assist the smoking parents in stopping, a modified Lichtenstein's model (1979) of counseling domains was also adopted. This model focused on social support, cognitive restructuring and behavioral skills throughout the entire process of the interview and intervention.

Social Support The social support domain was the most important domain in communicating, encouraging and supporting the smoking parents throughout all the stages of change. Both intra-treatment supportive and extra-treatment supportive interventions were emphasized.

Intra-treatment Supportive Intervention In the intra-treatment supportive intervention, first, the counselor would communicate with caring and concern by asking the parents' feelings about quitting; listening to his or her fears, difficulties experienced and ambivalent feelings; and directly expressing concern and willingness to help. Second, the parents were encouraged to talk about the quitting process, including about their concerns or worries about quitting, any success that had already been achieved, and the difficulties they had encountered while trying to quit. Last, parents were encouraged to make an attempt to quit, and the counselor's belief in their ability to quit was verbalized.

Extra-treatment Supportive Intervention In the extra-treatment supportive intervention, two approaches were emphasized. First, parents were advised to request support from their network and establish a smoke-free environment. Second, they were also prompted to seek support from the hotline service and through subsequent follow-ups, as well as using the self-help materials for reference.

Cognitive Domain The cognitive domain of smoking cessation counseling was useful in motivating the parents to attempt quitting. The 5 Rs principle (The

Smoking Cessation Clinical Practice Guideline Panel and Staff, 1996) – relevance, risk, rewards, roadblocks and repetition – was used to emphasize the benefits of cessation related to the parent's and his/her family's health, with the aim of motivating smokers who were unwilling to quit at the time. .

Smokers may be unwilling to quit due to misinformation or concern about the effects of quitting, or hindered by previous unsuccessful quit attempts. Therefore, after assessing their stages of change, it was important to provide the "5R's" motivational intervention.

First, information was made as specific as possible to the parents' owns reasons of quitting (**Relevance**). If a smoking parent realized the health hazards of smoking and was beginning to look at his/her self-health and family's health, the counselor could make a direct connection between these two issues.

Second, motivational information has the greatest impact if it is relevant to a parent's disease status of (**Risk**), family or social concern. The risks of parental smoking associated with a child's development can cease once the parent has stopped smoking. These risks include exposure to passive smoking, experimentation with smoking, and nicotine addiction (Kandel & Faust, 1975; Hawkins, Brown, & Davis, 2002; AAP, 1988).

Third, information on the benefits of quitting were provided (**Rewards**) with an **emphasis on the benefits to the whole family.** The tactics of this approach involved asking parents about what they thought about the benefits of quitting,

and sharing some other benefits. Benefits included both the short- and long-term benefits of quitting, and benefits to people around the smoker. Examples of possible rewards were improved health, saving money, setting a good example to children, having heavier/more healthy children, and greater social acceptability.

Fourth, (**Roadblocks/**challenges) the counselor encouraged the parent to express her/his concerns and fears, and gave the intervention accordingly. For example, common barriers included withdrawal symptoms, fear of failure, weight gain, lack of support, depression, enjoyment of smoking.

Last, the motivational intervention was **repeat**ed in every follow-up session. Unsuccessful quitters were reassured that most people make repeated quit attempts before they are successful.

Coping and Behavioral Skills The coping and behavioral domain was also used to give advice on successful quitting strategies (Cromwell, Bartosch, Fiore, Hasselblad, & Baker, 1997a). Several problem-solving skills were shared with the smoking parent by providing basic information about smoking and successful quitting. First of all, the addictive nature of smoking and the nature and time course of withdrawal symptoms were discussed. Secondly, the parent was encouraged to recognize potential triggers or challenges, or activities that are thought to increase the risk of smoking and relapse, and to think about how he/she would overcome them. Prior planning was encouraged to prepare for handling high-risk situations, for example when other smokers were around, and parents were also urged to refrain from drinking alcohol while quitting. Thirdly,

coping strategies for handling craving and withdrawal symptoms were also useful for them, especially when potential dangerous situations might arise. Such strategies included reducing negative moods, directing attention away from smoking urges, and effecting lifestyle changes that would reduce stress, improve quality of life, or produce pleasure. Withdrawal symptoms such as anxiety, irritability, craving, nausea, diarrhea or sore throat are the way the body reacts when it stops getting nicotine. Counselors were advised to expand the parents' coping skills by introducing and expanding the 5Ds as in Box 4-5 below:

Box 4-5 The 5Ds coping skills for resisting the urge to smoke

Delay	Every time you want to smoke, wait a few minutes instead of immediately finding a cigarette.
Declare	Always remind yourself of your choice to be a non-smoker.
Distract	Take your mind off smoking through actions such as taking oral substitutes, keeping hands busy, planning something enjoyable, adopting a healthy lifestyle and reducing stress.
Drink	Take slow sips of water, holding it in the mouth a little longer than usual to savor the taste.
Deep breath	Take a deep breath in and out slowly, and repeat three times.

4.3.4 ARRANGE

This is the last "A" of the intervention principle. Direction was focused on the extra-social support of this program to affirm the plan to quit and facilitate adhesion to the program. Follow-up and hotline services were introduced. Explanation was also given to the smoking parent about the follow-up and its importance.

4.4 Suggested Strategies on Stage-Specific Intervention

Based on the information gathered from the interview and the integration of the above three domains, a stage-specific intervention was developed. The transtheoretical stage of change model was applied in this smoking cessation plan, as which strategies were required depended on which stage each individual smoking parent was at during the process. Parents in the action stage of change were more likely to respond to specific strategies for change and more ready to accept the counselor's encouragement and advice. However, parents in the contemplation stage of change, were expected to become more resistant and therefore less likely to change. The intervention for these parents specifically required techniques for negotiating ambivalence, such as motivational interviewing. Therefore, suggested strategies for stage-specific intervention were developed as below**:**

Table 4-1: Suggested Strategies for Stage-Specific Intervention

Stage		**Intervention**				
Name	Characteristics	Principles	Major counseling area			Suggested strategies
			Social support	Cognitive restructuring	Behavioral skills	
PC	not considering the possibility of quitting	increase awareness of need to change	√	√		Encourage thinking about quitting smoking Record factors leading to smoking habits, e.g. mood, events & places
C	both considering quitting & remain smoking	motivate & increase confidence in ability to change	√	√		Emphasize benefits of quitting smoking Express empathy and provide support Explore concerns and fears
P	recently planning to quit	move parents to action	√		√	Set a quit date Recommend an individualized plan Explore potential triggers Expand behavioral skills (5Ds)
A	has engaged in steps to bring about quitting	reaffirm commitment & follow-up	√		√	Reaffirm agreed plan Reinforce behavioral skills
M	still using active steps to keep not smoking	relapse prevention	√	√		Encourage planning for potential difficulties Encourage cultivating image as non-smoker
R	Has reverted back to smoking again	analyze barriers & reframe as learning opportunity	√			Assist in overcoming shame and guilt Reassess readiness to change Reframe failure as learning opportunity
Remark: PC = Pre-contemplation; C = Contemplation; P = Preparation; A = Action; M = Maintenance; R = Relapsed						

4.4.1 Pre-contemplation:

Awareness of the need to change was motivated/cultivated/increased in this stage. The benefits of quitting were stressed to motivate the client to quit. Parents who indicated unwillingness to make a quit attempt during a telephone interview may have done so due to many possible reasons, including lack of information about the harmful effects of smoking or/and the benefits of quitting, fears or worries about quitting, and lack of information about how to stop.

A comprehensive discussion of the smoker's own reasons for wanting to quit smoking and an exploration of other possible reasons for quitting was often involved. Parents were encouraged to think about the pros and cons of smoking. Possible key questions included "What concerns you about stopping smoking?", "What would be some of the good things about attempting to quit smoking?", and "What do you think has to change?" Parents were also encouraged to record factors affecting their smoking patterns, such as mood, places and events.

4.4.2 Contemplation

The intervention for clients at this stage was focused on motivating them to quit and increasing their confidence in their ability to quit. In addition to motivating the parent's intention to quit, self-efficacy was encouraged by exploring the parent's concerns and fears and stressing their ability to handle these situations. Counselors assisted them in identifying, for example, the three most difficult situations encountered, and exploring how they got through each one without smoking. Additional possibilities were then offered.

4.4.3 Preparation

The intervention for parents in this stage focused on negotiating a realistic, personalized plan. Assistance and advice on successful quitting was included in this stage. Strategies used in this stage included setting a quit date, reviewing the workable strategies from the previous attempt, anticipating challenges, and removing reachable smoking gear. Advice on successful quitting was also important, for example, stress on the importance of successful quitting, tactics to avoid relapse, and strategies to handle potential triggers.

4.4.4 Action

The intervention for parents in this stage focused on reaffirming the agreed-upon plan and providing advice on handling potential triggers. Advice was given on relapse prevention, such as emphasizing that total abstinence is essential and reminding parents that drinking alcohol is highly associated to relapse.

4.4.5 Maintenance

The main intervention focuses for parents in this stage were enhancing their support network and encouraging planning for any potential difficulties. They were encouraged to cultivate their image as non-smokers through the evaluation of the quitting process and revisiting their self-efficacy and motivation.

4.4.6 Relapse

Intervention for clients in this stage focused on assisting them to overcome shame and guilt. Their readiness to quit again was then reassessed, and

assistance given on reframing failure as a learning opportunity for the next attempt.

4.5 Quality control

4.5.1 Preparation of counselors

All counselors in this smoking cessation intervention program were registered nurses with over 10 years of clinical working experience, all of whom had attended a 5-day comprehensive counseling training course jointly co-organized by the Hong Kong Council on Smoking and Health (COSH) and the Department of Community Medicine at the University of Hong Kong.

The workshop provided guidelines on managing the care of smokers, the assessment of smoking status, the planning individualized interventions to promote cessation, the delivery of smoking cessation advice, strategies for relapse prevention, and evaluation of the intervention outcome. Before the initiation of the trial, an additional two-week monitoring exercise was carried out among the researcher and the counselors, using demonstration and return demonstrations of the telephone interview and counseling intervention process. These two weeks also allowed the researchers and the counselors' time for clarification of the research objectives, the randomization procedures, the structure of the questionnaires, and the interviewing process; and for discussion of the possible responses from smoking parents and suggested ways to handle difficult responses. In particular, this exercise was conducted to familiarize the counselors with the guidelines and protocol specifically developed for this study.

During the entire process of the RCT intervention stage, the three counselors held weekly meetings to identify the difficulties encountered during the interview and counseling processes, to discuss and standardize interventions, and to clarify if problems were found. All interview and counseling records were reviewed and agreed upon before data entry.

4.5.2 Inter-counselor reliability

As the counselors served the roles of both interviewer and counselor, these could be a source of bias for reported favoring of particular groups. It was also realized that inter-counselor reliability needed to be established before implementation.

The inter-counselor reliability check was conducted twice during the data collection period. A tape-recording procedure was used to monitor the interviews, the counselors' attitudes, counseling approaches, expressions used and tones of voice, the accuracy in identifying the parents' stages of behavioral changes in terms of 'readiness to quit', and the appropriateness of the intervention given.

The first inter-counselor reliability check was conducted at the beginning of the data collection process, and the second was done at the halfway point in the data collection process. Each of the three counselors tape-recorded seven of their interviews, and the other two assessed these subjects by listening to the recorded tapes. As a result, a total of forty-two interviews were examined for inter-counselor reliability in the two random reliability checks. This represents about 5% of the baseline interviews randomly selected. The intra-class correlation coefficient (2,1) (Landis & Koch, 1977)was calculated, with the alpha calculated

to be at 0.99 (0.9996-0.9997) at the 95% confidence interval, indicating high inter-counselor reliability.

4.6 SUMMARY

These smoking cessation telephone interview guidelines and the counseling protocol provided a reference for the counselors as the empirical and theoretical basis of the interviews and smoking cessation counseling. To summarize, Table 4-2 below provides an overview of the theoretical foundations and techniques of the interview and smoking cessation counseling described in this chapter. This protocol covers two stages of the 5As principle of smoking cessation intervention, the interviewing and counseling stages. During the interview stage, 'ask' and 'assess' are the two essential steps in planning the intervention, involving identification of the smoking parents' smoking status and their readiness to quit smoking. A client-centered approach of motivational interviewing with positive reinforcement was adopted for use during this stage, to enhance the effectiveness of the advice. Counselors were advised to familiarize themselves with the interview techniques and the knowledge required to differentiate the stages of change for smoking cessation. For the counseling stage, this protocol suggested using stage-specific strategies to promote the smoking parent's motivation to move through Prochaska's stages of behavioral change. Counselors thus assessed parents' readiness to quit, advised them to do so, and arranged follow-up and other support before the end of call.

The motivational interviewing approach of 5Rs was adopted to create a collaborative relationship between the counselor and the parent, and to enhance

the parent's motivation to quit smoking. Lichtenstein's approach was also used to reconstruct the parent's beliefs about quitting and to develop effective coping strategies (5Ds) to overcome the urge to smoke. Throughout the counseling process, intra-session support including reflective listening and extra-session support by means of printed self-help materials, a hotline and follow-up services were provided.

Table 4-2: Theoretical Foundations & Techniques of Interview and Smoking Cessation Counseling

<table>
<tr><th colspan="2">5As principle of smoking intervention</th><th>Motivational interviewing & other theoretical foundations</th><th colspan="2">Major strategies</th></tr>
<tr><td rowspan="2">Interviewing Stage</td><td>Ask</td><td>Client-centered approach & practical approach</td><td colspan="2">Interviewing techniques:

Beginning:
friendly manner, introduce self and purpose of interview, collect verbal informed consent
Conducting:
neutral in transmitting questions, use reflective listening techniques
Procedures:
deliver intervention component according to assigned group, record and report</td></tr>
<tr><td>Assess</td><td>Prochaska’s transtheoretical model of change</td><td colspan="2">Differentiation of various stages of change</td></tr>
<tr><td rowspan="3">Counseling Stage</td><td>Advice</td><td rowspan="3">Motivate to attempt quitting

Coping & behavioral skills

Empathetic support</td><td rowspan="3">5Rs:
1. Relevance
2. Risk
3. Rewards
4. Roadblocks
5. Repeat

5Ds:
1. Delay
2. Deep breathing
3. Distract
4. Drink
5. Declare

Intra-counseling support:
1. Reflective listening
2. Encouragement

Extra-counseling support:
1. Self-help materials
2. Hotline services
3. Follow-up</td><td rowspan="3">Stage Specific Intervention</td></tr>
<tr><td>Assist</td></tr>
<tr><td>Arrange</td></tr>
</table>

Chapter 5

Pilot Study

5.1 Introduction

5.2 The pilot study

5.3 Feasibility of telephone-based interview

5.4 Psychometric properties of questionnaires

5.4.1 Validity

5.4.2 Internal consistency

5.4.3 Test-retest reliability

5.5 Validity of spousal proxy report on smoking status and cigarette consumption

5.6 Biochemical validation of self-reported smoking status

5.7 Implications for study logistics

5.8 Conclusions

5.1 Introduction

This chapter presents the details of the pilot study conducted. The pilot study served the following purposes: (1) to examine the feasibility of a telephone-based interview to obtain the smoking and health-related information from parents with young children, (2) to establish the validity and reliability of the questionnaires for obtaining information on smoking behavior, (3) to establish the validity of spousal proxy reports of smoking status and biochemical validation. The logistics of the telephone interviewing procedures to screen for smoking parents, to assess smoking behaviors and the counseling intervention for the main study, will be discussed in the conclusion to this chapter.

5.2 Pilot study

The pilot study was conducted from 30 August 2000 to 13 January 2001 during the Toddler Sessions at the Wong Siu Ching Family Health Service Center (the clinic), located in Tai Po, New Territories East District. The clinic serves the Tai Po area, one of the largest districts in New Territories and the most populated region in Hong Kong, and serves over 43,000 attendees annually.

Parents with young children aged 3-4 years who attended the Toddler Sessions at the clinic were the target subjects in this pilot study. This age group of children was targeted because they were similar in age to the young children in the 1997 Birth Cohort Study. While the parents were waiting for service, they were invited to complete the Eligibility Screening Checklist to be used in the main RCT study to assess the parents' current smoking status, and return it immediately upon completion to the researcher waiting at the center. They were

also to take an expired carbon monoxide test using the Bedfont Micro II Smokerlizer. Those who indicated that they had taken part in the 1997 cohort study were excluded from the pilot study.

Based on the information obtained from the Eligibility Screening Checklist, follow-up telephone interviews were carried out within 6-8 weeks with the families reported to have at least one smoking parent. Both parents were interviewed to re-assess their and their spouse's smoking behaviors using both the structured Baseline Questionnaires for Smoking Parents and for Non-Smoking Parents. This was done to test the feasibility of using telephone interviews to obtain information relating to the parents' smoking history and behaviors and the offer of the telephone-based smoking cessation counseling.

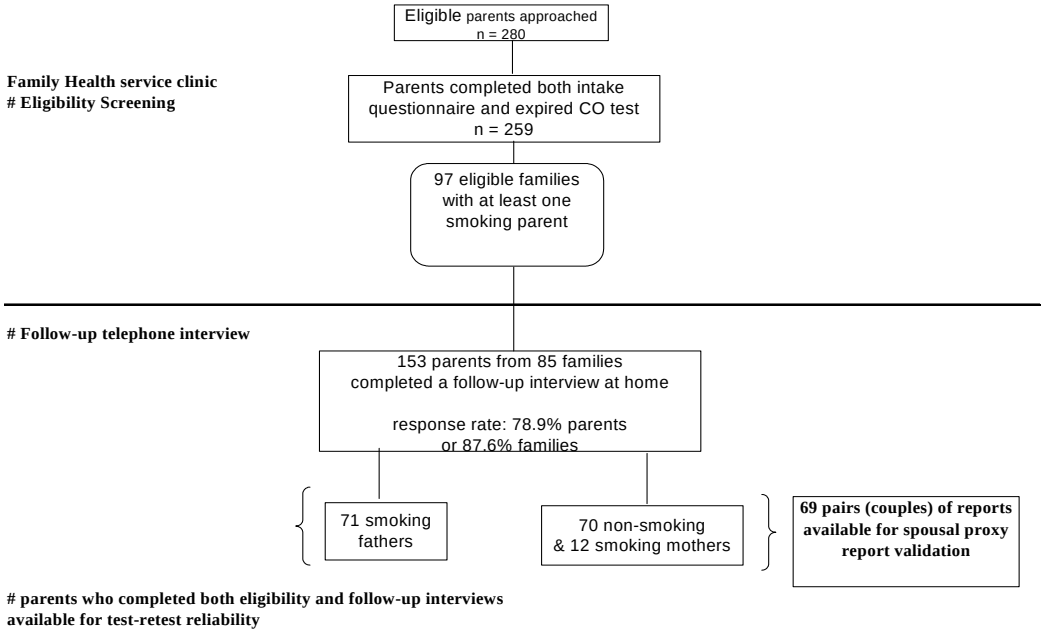
This pilot study also allowed for testing of the psychometric properties to establish the validity and reliability of the baseline questionnaires for the main study. This also served to establish agreement between the self and spousal proxy reports of smoking information between the two parents. The experience and difficulties encountered in carrying out the telephone interviews were noted to inform the development of the logistical process and the interview strategies for the main RCT study.

5.3 Feasibility of telephone-based interview

Out of the total of 280 eligible parents approached at the Toddler Sessions at the clinic, 259 (92.5%) agreed to take part and completed both the Eligibility Screening Checklist and the exhaled CO test.

Follow-up telephone calls were made to the 97 families reported to have at least one smoking parent to interview both parents to reassess their own and their spouse's smoking behaviors. In the 97 families out of a total of 194 parents reported to, 153 parents from 84 families (69 couples, 2 fathers and 13 mothers) were successfully re-contacted for the follow-up, giving response rates of 78.9% (153/194) parents or 87.6% (85/97) families (Figure 5-1). The relatively high response rate among families and parents to this telephone interview indicated the feasibility of the telephone-based interview to obtain smoking-related information. By contrast, only 18 out of the 40 (45%) smoking parents who were specially asked if they were willing to accept telephone-based smoking cessation counseling indicated their acceptance of the invitation to take part in the program.

Figure 5-1 Subject flow in the pilot study



5.4 Psychometric properties of questionnaires

The questions and constructs adopted for use in the baseline questionnaires have been tested for validity and reliability in various studies and populations, with details described previously in chapter 3. However, the psychometric properties of the newly-developed baseline questionnaires required testing in the pilot study for its validity and reliability before the main study. In the pilot study, both the Eligibility Screening Checklist and the Baseline Telephone Interview Questionnaires to be used in the main study were tested.

The Eligibility Screening Checklist obtained information about the parents' demographic characteristics, such as educational attainment, occupation, family income, the couples' smoking status (to identify smokers) and cigarette consumption, if any, and the health status of their pre-school children.

The Baseline Questionnaire was designed for both the smoking (usually the fathers) and non-smoking parents (usually the mothers), and included questions on their and their spouse's smoking behaviors and estimated cigarette consumption (for proxy report) that were identical to those included in the Eligibility Screening Checklist. One of the parents (usually the mother) was also asked to report on their perceived health status and their children's health information and respiratory symptoms. The smoker(s) of the family (could be fathers or mothers or both) were further asked about their smoking-related respiratory symptoms, level of nicotine dependency, stage of readiness to quit smoking, smoking cessation self-efficacy, alcohol use, marital locus of control,

demographic information and their willingness to take part in a smoking cessation program.

5.4.1 Validity

One professional English-Chinese translator and three experienced smoking cessation counselors (proficient in both English and Chinese) were asked to check the face validity of the Baseline Questionnaires developed based on previous questionnaires and constructs described in the last chapter. The face validity test was done to ensure that the questionnaires were considered accurately translated and that all items in the questionnaires were clearly stated and could be understood. All four involved considered the items clear and easily understandable.

Four local and international experts in smoking control research were invited to establish the content validity of the questionnaires by examining the relevancy of the items related to the study objectives, and its relevancy in assessing the smoking behaviors of the smoking parents with young children. Relevancy was rated using a 4-point Likert scale, with 1 indicating ‘not relevant’, 2 ‘somewhat relevant’, 3 ‘relevant’ and 4 ‘very relevant’. The agreement among the four experts of the constructs in the questionnaires was assessed using the Content Validity Index.

The questionnaires could be sub-divided into eight constructs for content validity testing. The constructs tested included (1) children’s health as perceived by

parents, (2) parental reports on child's respiratory symptoms, (3) parental self-perceived health status (among non-smoking parents), (4) smoking parents' self-perceived health status, (5) smoking-related respiratory symptoms, (6) health problems other than respiratory symptoms, (7) smoking history and cigarette consumption, (8) level of nicotine dependency, (9) history of quitting, (10) stage of readiness to quit smoking, (11) marital locus of control, (12) family demographics, and (13) willingness to participate in a smoking cessation program. All four experts considered the constructs appropriate and relevant to the study aims and objectives. The results of the Content Validity Index for all constructs were 0.93 (Table 5-1).

Table 5-1 Content Validity Index of the Questionnaire

Constructs/Questions	Number of items	Content Validity Index
Children's health perceived by parents	1	93.8
Parental report on child's respiratory symptoms	12	93.8
Parental self-perceived health status (among non-smoking parents)	2	93.8
Smoking parents' self-perceived health status	2	93.8
Smoking-related respiratory symptoms	12	93.8
Health problems other than respiratory symptoms	1	93.8
Smoking history and cigarette consumption	10	93.8
Level of nicotine dependency	6	93.8
Quit history	11	93.8
Stage of readiness to quit smoking	4	93.8
Marital locus of control	8	87.5
Family demographics	6	93.8
Willingness to participate in a smoking cessation program	1	93.8
TOTAL	**76**	**93.1**

5.4.2 Internal consistency

The internal consistency of the constructs in the questionnaire was determined using Cronbach's alpha coefficients. The Cronbach's alpha correlation coefficient for the constructs 'children's health status as perceived by parents' and 'parental self-perceived health status' were 0.72 and 0.73 respectively, but the coefficient could not be calculated for 'children's respiratory symptoms' since the sample size was too small. The other constructs assessed among smoking parents were smoking parents' self-perceived health, smoking-related respiratory symptoms, smoking status and consumption, level of nicotine dependency, stages of readiness to quit smoking and marital locus of control. The Cronbach's alpha for these constructs ranged from 0.60 to 0.86, indicating acceptable internal consistency of the questionnaire (Table 5-2).

Table 5-2 Internal consistency of the questionnaire according to Cronbach's alpha

	Cronbach's alpha
Children's health status perceived by parents	0.72
Children's respiratory symptoms	-
Perceived self health (non-smoking parents)	0.73
Questions on smoking parents	
Perceived self health (smoking parents)	0.80
Smoking-related respiratory symptoms	0.86
Health problems other than respiratory symptoms	-
Smoking history and cigarette consumption	0.62
Level of nicotine dependency	0.60
Quit history	0.60
Stages of readiness to quit smoking	0.84
Marital locus of control	0.66

5.4.3 Test-retest reliability

Among the 97 families with at least one smoking parent, 85 were successfully re-contacted after 6-8 weeks and completed the telephone baseline questionnaire. The responses given by the parents these two times were used to establish the test-retest reliability of the questionnaires.

The test-retest reliability was calculated using the intra-class correlation for multiple categorical responses. Table 5-3 shows the test-retest reliability of the 85 families who had completed both the Eligibility Screening Checklist and the

telephone baseline interview questionnaire 6-8 weeks apart. The ICC was calculated to be 0.84 to 0.95 for demographic characteristics and 0.69 to 1.00 for smoking-related variables. All were considered significantly correlated, with $p<0.0001$.

Table 5-3 Test-retest reliability of the selected demographics and smoking-related variables (N=85) of the questionnaires

		Intra-class correlation coefficient		
	n*	ICC	95% CI	p
Demographics				
Educational attainment	84	0.95	0.92-0.97	<0.001
Monthly household income	81	0.84	0.76-0.89	<0.001
Employment	84	0.89	0.84-0.93	<0.001
Smoking-related variables				
Father's smoking status	85	1.0	-	<0.001
Mother's smoking status	85	0.75	0.65-0.83	<0.001
Father's cigarette consumption	58	0.69	0.53-0.80	<0.001
#Mother's cigarette consumption	4	-	-	-

** n differs because of missing data or not applicable*
# calculation cannot be made with only 4 paired data

5.5 Validity of spousal proxy report on smoking status and cigarette consumption

Agreement between the self reports and proxy reports of spousal smoking-related information provided at the clinic and via telephone interviews was measured by Kappa statistics or the intra-class correlation coefficient (ICC) (Campbell, Sanson-Fisher, & Walsh, 2001; Fisher, 1921; Landis & Koch, 1977).

Of the 69 families with questionnaires completed by both parents, reliability between each partner's report of their family demographic information was good, with the ICC ranging from 0.70-0.95 (Table 5-4).

Table 5-4 shows the agreement between the self-reported and spousal proxy reports of smoking status and cigarette consumption. Among the 69 matched couples who completed the follow-up questionnaires, there was perfect agreement between the fathers' self reports and the mothers' proxy reports of the fathers' smoking status, with ICC=1.00, and good agreement between the mothers' self reports and the fathers' proxy reports of the mothers' smoking status, with ICC=0.82. The reliability of the cigarette consumption proxy reports was lower, ranging from 0.33-0.58.

Table 5-4 Agreement between self reports and spousal proxy reports of family demographics and couples' smoking behaviors (N=69)

	Intra-class correlation coefficient			
	ICC	95% CI	n*	P
Demographics:				
Monthly household income	0.72	0.58-0.82	64	<0.001
Number of children at home	0.95	0.91-0.97	67	<0.001
Number of adults at home	0.70	0.57-0.81	67	<0.001
Number of people at home	0.77	0.65-0.85	67	<0.001
Smoking-related variables:				
Father's smoking status *	1.00	1.00	69	<0.001
Mother's smoking status*	0.82	0.72-0.88	68	<0.001
Father's cigarette consumption	0.58	0.36-0.74	47	<0.001
Mother's cigarette consumption	0.33	0.18-0.96	4	0.13

* N differs because of missing data or inapplicable items

Further detailed analysis was conducted of the cigarette consumption reported by the smokers themselves and the proxy estimates by their spouses. Table 5-5 shows that among the 6 mothers who reported themselves as smokers, their husbands could not state the number of cigarettes they smoked. Half (50%, 3 out of 6) of the fathers and 31.9% (22 out of 69) of the mothers could not report their smoking spouses' cigarette consumption. Two fathers and 13 mothers gave a higher estimate of their spouses' cigarette consumption than the self-reported cigarette consumption. Another 7 mothers estimated lower cigarette consumption of the fathers than the self-reported amount. Nevertheless, the analysis shows that there was significant agreement between the self reports and proxy reports of smoking status between married couples, with $p<0.001$.

Table 5-5 Agreement between parental self-reported and spousal proxy reports of daily cigarette consumption

Proxy reports by fathers	Mother's self reports									ICC statistic		
	Non-smoking	Smoking	Total	Cigarettes per day				Un-known	Total	ICC	95%CI	P
				1-5	6-15	16-25	≥ 26					
Non-smoking	61	2	63							0.82	0.72-0.88	<0.001
Smoking	1	4	5									
Daily con-sumption												
1-5 cigs												
6-15 cigs				1					1			
16-25 cigs					1				1	0.33	0.18-0.96	<0.001
≥26 cigs					1				1			
Unknown			1					3	3			
Total	62	6	69	1	2	0	0	3	6			

Proxy reports by mothers	Father's self reports									ICC statistic		
	Non-smoking	Smoking	Total	Cigarettes per day				Un-known	Total	ICC	95%CI	P
				1-5	6-15	16-25	≥ 26					
Non-smoking	2		2							1.0	-	<0.001
Smoking		67	67									
Daily con-sumption												
1-5 cigs				5					5			
6-15 cigs				4	13	4	1		22			
16-25 cigs				2	6	7	2		17	0.58	0.36-0.74	<0.001
≥26 cigs						1	2		3			
Unknown								22	22			
Total	2	67	69	11	19	12	5		69			

5.6 Biochemical validation of self-reported smoking status

Agreement between the self-report smoking status and biochemical measures of exhaled CO concentration at the clinic was measured by Kappa statistics or the intra-class correlation coefficient.

Of 259 parents who completed both the Eligibility Screening Checklist and the exhaled CO test at the clinic, 21 were self-reported smokers. The prevalence of self-reported smoking parents (n=21) at the clinic was 3.8% (n=8) of the mothers and 27.7% (n=13) of the fathers. Table 5-6 shows the agreement between the self-reported smoking status and the exhaled CO levels. Two mothers who self-reported as non-smokers were tested with CO levels ≥ 9ppm, suggestive of active smoking, but none of the fathers fell in this category. Eight self-reported smokers (2 mothers and 6 fathers) had exhaled CO of ≤ 8ppm. Of these, two mothers were reported as occasional smokers and three fathers as light smokers. Results show significant reliability ($p<0.0001$) of self-reported smoking status and CO level, with kappa of 0.74 and 0.63 respectively for mothers and fathers.

Table 5-6 Agreement of self-reported smoking status and exhaled CO concentration in 259 parents

	Self-reported smoking status	Total	CO concentration*		Kappa	p
			≤ 8ppm	≥ 9ppm		
Mothers (n=212)	Non-smokers	204	202	2		
	Smokers	8	2**	6	0.74	<0.001
Fathers (n=47)	Non-smokers	34	34	0		
	Smokers	13	6**	7	0.63	<0.001
Overall		259			0.70	<0.001

*Cutoffs for the CO concentration: ≤ 8ppm=non-current smoker; ≥ 9 ppm = current smoker
**Two mothers were occasional smokers and three fathers were light smokers

5.7 Implications for study logistics

With regard to the logistics of the telephone interviewing procedures to assess smoking parents' smoking behaviors and conduct a counseling intervention to prepare for the main study, notes were taken during the pilot study process to inform future practice. The experiences and difficulties encountered during the process were shared among the counselors, and several thoughts concerning the logistics for the main study were identified and delineated.

This proactive telephone approach was able to reach those who had not thought of taking part in a smoking cessation program. The pilot study of the telephone approach showed that it was possible to reach those people who might be difficult to recruit (for example: those on shift duty). The counseling team decided to make phone calls throughout the day, and even in the evenings or late at night as requested by the participants, to suit the schedule of the intended recruited smoking parents. Most mothers could be reached during the daytime when their children were at school.

The counselors had planned to call the subjects on their residential phone numbers; however, as mobile phones have become popular, parents were willing to provide their mobile phone numbers for easier and more convenient contact.

It was found that the interviewers had little control over the interview situation over the telephone, since respondents could easily end the interview by hanging up. The interviewers also had greater difficulty in establishing credibility and a trusting relationship with a respondent over the telephone. Thus, strategies and

interview techniques to initiate conversation were the major training needs of the counselors.

The respondents had no visual aids during the telephone interview, making it sometimes difficult to understand the interview questions or counseling. Thus, clarity in the verbal expression of the questions for the telephone interview was considered important. All the counselors were trained to use clear verbal expression.

5.8 Conclusions

The pilot study indicated that the telephone-based interview is a feasible means of reaching the smoking parents of young children and obtaining smoking-related information, and that smoking parents generally accepted the proactive offer of participation in a telephone-based smoking cessation program. The study confirmed that the questionnaires tested were valid and reliable instruments for assessing smoking behaviors, and also those self reports of smoking behavior are valid and spouses' proxy reports of smoking status are a feasible and reliable method of assessing spousal smoking status. The experience from this pilot study also helped in refining the logistics of the telephone interviews and counseling for the main study.

(Note: A manuscript was accepted for publication based on the content of this chapter: Mak YW, Loke AY, Lam TH, Abdullah A. (2005) Validity of self-reports and reliability of spousal proxy reports on the smoking behavior of Chinese parents with young children. Addictive Behaviors 30(4), 841-845

RESULTS

Chapter 6

Cross-sectional baseline study

6.1 Introduction

This chapter first presents the flow of subjects in this study through the telephone recruitment and participation in the smoking cessation program, demonstrating the acceptability of the proactive telephone-based smoking cessation program among smoking parents. The characteristics of the smoking parents who completed the baseline telephone interview in the cross-sectional baseline telephone interview (first stage) and information regarding their household smoking hygiene practice will be described. The correlates of the parental household smoking hygiene and the predictive factors of poor household smoking hygiene (smoking < 3m away from children) will also be presented at the end of this chapter.

6.2 Subject flow through telephone recruitment and participation in the smoking cessation program

Figure 6-1 shows the flow of participants through telephone recruitment and participation in the smoking cessation program. There were 2311 smoking parents remaining in the 1997 birth cohort at the beginning of this RCT, in 2001, only 1,420 of whom were considered eligible. A total of 891 parents from the birth cohort pool were excluded due to invalid telephone numbers (n=510, 57.2%), denial of ever having smoked (n=23, 2.6%), having quit smoking for more than 6 months (n=159, 17.8%), no longer residing in Hong Kong (n=141, 15.8%), being separated or divorced and their ex-spouses not giving contact information (n=50, 5.6%), or being deceased (n=8).

All of the 1,420 eligible parents were approached, and 1,149 (80.9%) completed the baseline telephone interview. These parents were the subjects of the cross-sectional baseline interview (the first stage) in this study.

Of the smoking parents interviewed, 952 (67%) were willing to participate in the trial and 197 refused to take part. The 952 participating parents were randomized from June 2001 to July 2003 (the second stage of the study), with the last 6-month follow-up session completed in January 2004. A total of 485 parents were randomized into the control group and 467 parents were in the intervention group. At the end of the 6 months, 91.5% (444/485) of the smoking parents in the control group and 84.6% (395/467) in the intervention group completed the follow-up interview.

A total of 51 smoking parents in the control group and 82 in the intervention group reported that they had quit smoking for the previous 7 days at the 6-month follow-up interview. All (n=133) were invited to attend a final assessment session, which included a face-to-face interview and biochemical tests (exhaled CO level and urine cotinine) to validate their smoking status. These self-reported quitters were given a choice of attending the final assessment either at the Ruttonjee Hospital, The University of Hong Kong, or The Hong Kong Polytechnic University, at a time convenient to them. Among these self-reported quitters, 58.6% (34/58) in the control group and 62.6% (57/91) in the intervention group completed the final assessment session.

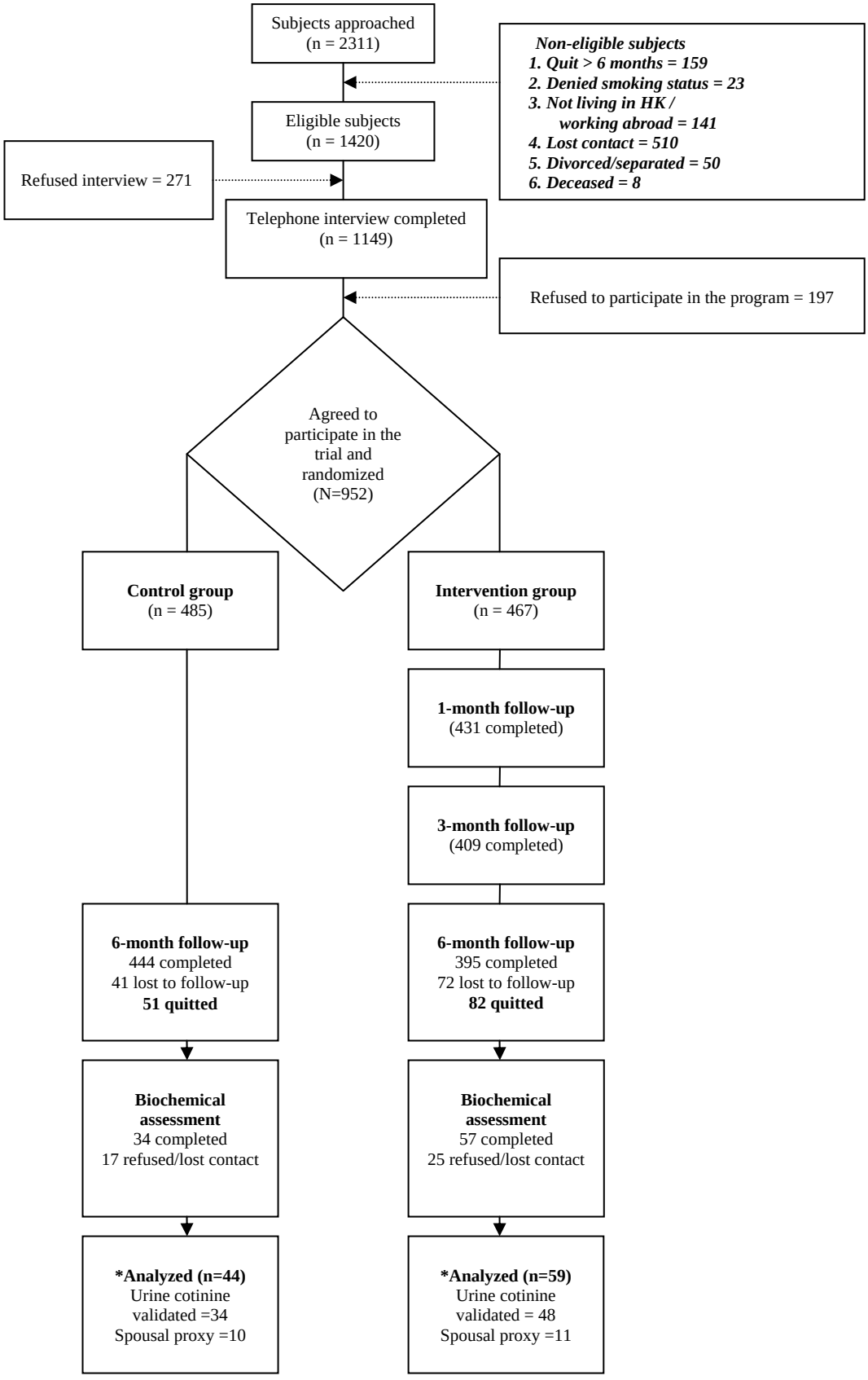


Fig. 6-1 Flow of participants through telephone recruitment and indication of participation in the smoking cessation program

6.2.1 Reasons for refusal to the baseline telephone interview

Table 6-1 shows the reasons provided by the 271 parents (19.1%) who refused the baseline telephone interview. The main reported reason was 'not interested in quitting' (33.9%), 70 parents (25.8%) did not give any reason for not participating, about one fifth (17.3%) refused indirectly through their spouses or relatives, 14.8% refused due to 'lack of time' and 11 (0.4%) had 'failed to quit before and not ready to try again'.

Table 6-1 Reasons for refusal to the baseline telephone interview among Hong Kong Chinese parents with young children (N=271)

Reasons	No. of parents	%
Not interested in quitting	92	33.9
Did not give reason	70	25.8
Refused by spouses/other relatives	47	17.3
Lack of time	40	14.8
Failed to quit before and not ready to try again	11	0.4
Others	11	0.4

6.2.2 Acceptability of proactive telephone-based smoking cessation program

The number of parents who completed the telephone interviews and the indication of their willingness to take part in the RCT is an indication of the acceptability of a proactive telephone intervention program among parents with young children. The majority of the parents (80.9%), including 72% who reported themselves as having no intention to quit smoking in the foreseeable future (pre-contemplators), were willing to complete a 15-minute telephone interview related to smoking and health issues. As a matter of fact, 952 out of the 1,420 (67%) smoking parents actually indicated their willingness to participate in the smoking cessation program offered. This indicated that, although the smoking parents did not initiate their request for smoking cessation intervention,

they were highly receptive to the invitation to take part in a proactive smoking cessation program.

6.3 Characteristics of children at birth (from the 1997 Birth Cohort Study)

Information was retrieved from the 1997 birth cohort to show the characteristics of the children at birth (Table 6-2). There were 1,050 children of the 1,149 participating smoking parents of whom one or both parents were current smokers. There were 45.7% girls and 54.3% boys in this group. The vast majority (90.6%) was born with normal birth weight (2.5 – 3.99 kg), but 55 (5.4%) were low birth weight babies of less than 2.5 kg, and 42 (4.1%) were big babies weighing 4 kg or more. About half of these children (47.6%) were their parents' first children and 530 (50.5%) were the second or subsequent children in their families. Congenital birth defects were identified among eighteen children (1.7%).

Table 6-2 Characteristics of children at birth in 1997[#] (N=1,050)

Children's characteristics at birth	No. of families	%
Gender		
Girl	470	45.7
Boy	559	54.3
missing	21	
Birth month		
April	512	48.8
May	522	49.7
missing	16	
Birth weight		
<2.5 kg	55	5.4
2.5 -3.99 kg	931	90.6
>=4 kg	42	4.1
missing	22	
Birth order		
First	500	47.6
Second or above	530	50.5
missing	20	
Congenital defect	18	1.7
missing	21	

#information retrieved from the Birth Cohort Study
Missing data up to 2%

6.4 Characteristics of parents who completed the baseline interview

6.4.1 Socio-demographic characteristics

Table 6-3 shows the socio-demographic characteristics of the smoking parents with young children in the cross-sectional baseline telephone interview.

Among the 1,149 smoking parents who completed the baseline interview, 167 (14.6%) were mothers, and 980 (85.4%) were fathers. About half (54.7%) of the smoking parents were aged 36-45 years, 34.0% were aged 35 or younger and 11.3% were aged 46 or older. Most of the parents (81.6%) had attained secondary school education or higher, and the others (19.4%) had primary school education. The majority of the parents (64.1%) had an average monthly household income, i.e. between HK$10,000 and HK$29,999. About one-third (31.4%) of the parents worked as sales persons or service workers, about one quarter were plant and machine operators and assemblers, and about 12.1% were managers or administrators. The vast majority of the parents who completed the baseline interview (1,024 97.7%) were married, and slightly more than half (56.5%) lived in the New Territories.

Table 6-3 Socio-demographic characteristics of the Hong Kong Chinese parents with young children who participated in the baseline interview (N=1,149*)

Socio-demographic characteristics	No. of parents	%
Gender		
Mother	167	14.6
Father	980	85.4
missing	2	
Age		
35 or below	389	34.0
36-45	625	54.7
46 or above	129	11.3
missing	6	
Educational attainment		
Primary or below	222	19.4
Secondary	832	72.9
Matriculation	31	2.7
Tertiary or above	57	5.0
missing	7	
Monthly household income#		
HK$9,999 or below	183	16.9
HK$10,000-29,999	693	64.1
HK$30,000 or above	205	19.0
missing	68	
Occupational status		
Sales persons and service workers	357	31.4
Plant & machine operators & assemblers	270	23.7
Managers or administrators	138	12.1
Non-technical workers	92	8.1
Housewives	78	6.9
Clerks	57	5.0
Associate professionals	30	2.6
Students	10	0.9
Professionals	29	2.5
Craft & related workers	8	0.7
Skilled agricultural & fishery workers	4	0.4
Unemployed	65	5.7
missing	11	
Marital stability		
Married	1024	97.7
Separated / divorced	24	2.3
missing	2	
District		
Hong Kong Island	179	15.7
Kowloon	318	27.8
New Territories	646	56.5
missing	6	

#US$1=HK$7.8.
*The total number is not equal to 1,149 due to missing data up to 5.9% of subjects, and missing data were excluded for analysis

6.4.2 Baseline smoking and quitting behaviors

Table 6-4 shows the baseline smoking and quitting behaviors of the eligible smoking parents who completed the baseline telephone interview.

Of these 1,149 eligible parents, the majority (1,066, or 92.8%) were daily smokers. They consumed an average of 15.2 cigarettes per day (SD = 8.6, range: 0.02-80), with 467 (40.9%), 554 (48.5%) and 122 (10.7%) consuming 10 or fewer, 11-20, and 21 or more respectively. According to the Fagerstrom Test of Nicotine Dependency, the parents were considered to have high (n=206, 18.1%), moderate (n=281, 24.7%) and low (n=652, 57.2%) dependency levels. About half of the smoking parents (52.1%) had started smoking in their teens (15-19), and 165 (14.5%) had started even before the age of 15. Of the 1,149 smoking parents, about 13.1% (137) had smoking spouses. Most of the smoking parents (790, i.e. 68.9%) had attempted to quit smoking in the previous year.

The majority of them (71.8%) had no intention to quit smoking within the coming 6 months, about one-fifth (19.8%) had thought about quitting within 6 months but not in one month, only 3.7% were prepared to quit and 4.7% were taking action to quit. Slightly fewer than half (529, or 47.6%) of the parents perceived the importance of quitting, but 592 (53.3%) perceived it as difficult and only 399 (36.7%) were confident of being able to quit smoking.

Table 6-4 Smoking-related behaviors of Hong Kong Chinese parents with young children at the baseline interview (N=1,149*)		
Characteristics of parental smoking behaviors	**No. of parents***	**%**
Smoking status in the previous 6 months		
Daily smokers	1066	92.8
Occasional smokers	36	3.1
Recent quitter < 6 months	47	4.1
Daily cigarette consumption in the previous 6 months		
<= 10	467	40.9
11-20	554	48.5
21+	122	10.7
Average: 15.2 cigarettes per day (SD=8.6)		
Nicotine dependency level		
Low	652	57.2
Moderate	281	24.7
High	206	18.1
Age started smoking cigarettes regularly		
<15	165	14.5
15-19	592	52.1
20-24	295	26.0
≥25-29	84	7.4
Parental smoking status		
One parent smoked	911	87.0
Both parents smoked	137	13.1
Alcohol dependency	47	4.1
Previous quit attempts	790	68.9
Stages of readiness to quit smoking		
Pre-contemplation	823	71.8
Contemplation	227	19.8
Preparation	42	3.7
Action	54	4.7
Perceived importance of quitting		
Not so important	582	52.4
More important	529	47.6
Perceived difficulty of quitting		
Less difficult	518	46.7
More difficult	592	53.3
Perceived confidence of being able to quit		
Less confident	687	63.3
More confident	399	36.7

*The total number is not equal to 1149 due to missing data

6.4.3 Parents' self-perceived health status

The interview also solicited information regarding the smoking parents' self-perceived health status, the occurrence of respiratory symptoms and medical problems in the previous 6 months (Table 6-5). The majority of them perceived themselves as having had good or very good health (94.9%) in the previous 6 months. However, they reported frequent morning coughs (13.2%), nasal symptoms (14.0%) and frequent morning phlegm (28.6%), and had medical problems (19.2%) that required medical follow-up or hospitalization.

Table 6-5 Smoking parents' self-perceived health status, occurrence of frequent respiratory symptoms and medical problems in the previous 6 months (N=1,149[#])

	No. of parents	%
Health condition of parent smokers		
Health status		
Good or very good	1085	94.9
Poor or very poor	58	5.0
Frequent sore or uncomfortable throat		
Yes	101	8.8
No	1048	91.2
Frequent cough in the morning after waking up		
Yes	152	13.2
No	997	86.8
Frequent phlegm in the morning after waking up		
Yes	329	28.6
No	820	71.4
Frequent asthma sound in lungs or chest		
Yes	61	5.3
No	1088	94.7
Frequent running nose or nasal congestion		
Yes	160	14.0
No	984	86.0
Had medical problem requiring regular follow-up/hospitalization		
Yes	219	19.2
No	923	80.8

Total percentage maybe more or less than 100 due to rounding of the figures;
[#] the total number is not equal to 1,149 due to missing data for up to 0.6%

6.4.4 Parental perceptions of children's health status

In the baseline telephone interview, all the eligible parents of the young children (usually mothers) were also asked about their perceptions of their children's health status, the occurrence of respiratory symptoms and medical services utilization in the previous 6 months.

Table 6-6 shows that the majority of the children (94.3%) were reported to have good or very good health. Nevertheless, there were some who had frequent throat symptoms (3.3%), morning cough (6.9%), morning phlegm (4.3%), and asthmatic (6.9%) and nasal symptoms (18.6%). As many as 86.3% had required medical consultations and 4.8% had been admitted to hospital within the previous 6 months.

Table 6-6 Parental perceptions of children's health status and reported occurrence of respiratory symptoms and medical services utilization in the previous 6 months (N=1,050)		
Children's health reported by parents	**N**	**%**
Health status		
Good or very good	945	94.3
Poor or very poor	57	5.7
Frequent sore or uncomfortable throat		
Yes	34	3.3
Frequent cough in the morning after waking up		
Yes	70	6.9
Frequent phlegm in the morning after waking up		
Yes	44	4.3
Frequent asthmatic symptoms		
Yes	64	6.3
Frequent running nose or nasal congestion		
Yes	188	18.6
Number of medical consultations		
None	140	13.7
1-3	592	57.9
4-6	199	19.5
7 or more	91	8.9
Number of hospitalizations		
None	967	95.0
1	49	4.8
2	2	0.2

6.5 Household smoking hygiene practice by smoking parents

This section aimed to examine the practice of household smoking hygiene by the smoking parents with young children in this study.

Levels of household smoking hygiene practice were classified based on the responses given by the parents to the following questions: (1) Do you/your spouse/other smoker(s) smoke at home? (2) If the answer to (1) is yes, what is the number of cigarettes consumed per day at home? (3) Do you / your spouse / other smoker(s) smoke near your child (within 3 meters or 10 feet)? (4) If the answer to (3) is yes, what is the number of cigarettes consumed per day at home within 3 meters or 10 feet)?

Parental smoking hygiene practice was then categorized into three levels. Those who did not smoke at home at all were classified as exercising '**complete restriction**', those who smoked at home but not within 3 meters of the child were classified as exercising '**partial restriction**', and those who smoked at home and within 3 meters of their children were classified as exercising '**no restriction**' of household smoking hygiene.

The subjects included for analysis for this section included the 1,149 parents and 1,050 children. The characteristics of the parents who practiced different levels of household smoking hygiene were described and compared. The predictive factors of poor household smoking hygiene practice (those who smoked < 3m from their children) were identified.

Univariate analysis with frequency and percentages was used. Potential covariates that were related to parental household smoking hygiene at the bivariate level were examined by chi-square test. Linear by linear association trend by chi-square tests were performed to find the relationship between the covariates and the level of household smoking hygiene.

Two separate rounds of chi-square tests were performed to identify the preliminary sets of predictor variables in the same manner. First, the correlates of parents who smoked at home (partial restriction and no restriction) and those who did not smoke at home (complete restriction) were compared. Second, among only those parents who smoked at home, comparison was made between those who practiced ‘partial restriction’ and those who practiced ‘no restriction’. Finally, two separate sets of binary logistic forward stepwise regressions were used to determine which set of correlates best predicts poor household smoking hygiene (no restriction versus those who smoked < 3 meters away from their children) by calculating the odds ratios (OR) with 95% confidence intervals (CI), adjusted for the children’s characteristics at birth.

6.6 Household ETS exposure of young children

Table 6-7 presents the extent of ETS exposure of young children at home. Among these 1,050 children, 151 (14.4%) were not exposed to their parents' smoke at home. Of the 898 (85.5%) children who were exposed to parental smoking at home, 339 (32.3%) were not exposed within 3 meters distance and 559 (53.3%) were exposed to their parents' smoke within 3 meters of their presence (no restriction).

Of the 898 children exposed at home, about four-fifths (79.3%) were exposed to one household smoker, and 17.8% and 2.9% were exposed to two and three or more smokers in the same household respectively. A small percentage of them (4.7%) were exposed to household smoking from their mother, 862 (82.3%) from their father and 137 (13.1%) from both parents.

The total exposure to household smoking of the children was determined by adding up the number of cigarettes consumed at home and 3 meters near the children respectively by all household smokers. Of the 898 children exposed to household smoking by parents, the extent of the exposure from their parents could not be reported for 25 of them, 550 (63.0%) were exposed to 1-5 cigarettes, 203 (23.3%) were exposed to 6-10 cigarettes, and 120 (13.7%) were exposed to 11 or more cigarettes per day. Of the 559 children who were exposed to cigarettes within 3 meters of them, the extent of the exposure from their parents could not be reported for 25 of them, 423 (79.2%) were exposed to 1-5, (18.4%) to 6-10 and 39 (2.4%) to 11 or more cigarettes per day.

Table 6-7 The extent of ETS exposure of young children from families in which at least one parent smoked among Hong Kong Chinese (N=1,050 children)		
Household characteristics	**N**	**%**
Level of restrictions		
Complete restriction	151	14.4
Partial restriction (Smoked at home but not within 3 meters of the child)	339	32.3
No restriction	559	53.3
Total number of household smokers (among those who smoked at home)		
1	712	79.3
2	160	17.8
3 or more	26	2.9
0 *	151	
Source of parent smokers		
Mother smoked only	49	4.7
Father smoked only	862	82.3
Both parents smoked	137	13.1
Incomplete report	2	
Source of smokers smoking at home		
Mother smoked only	52	5.8
Father smoked only	654	72.8
Both parents smoked	103	11.5
Mother and other smoker(s)	5	0.6
Father and other smoker(s)	63	7.0
Both parents and other smoker(s)	15	1.7
Other smoker(s) only	6	0.7
No smoker smoked at home*	151	
Total number of cigarettes consumed at home per day by all household smokers (n=898)		
1-5	550	63.0
6-10	203	23.3
11-15	61	7.0
16-20	30	3.4
21 or above	29	3.3
Not reported	25	
Total number of cigarettes smoked per day within 3 meters of their children by all household smokers (n=559)		
5 or below	423	79.2
6-10	98	18.4
11-15	19	3.6
16-20	10	1.9
21 or above	10	1.9
Not reported	25	

*At least one parent smoker in the household but reported not smoking at home
Missing data for up to 2.4%

6.7 The correlates of parental household smoking hygiene

6.7.1 Demographic variables

Table 6-8 shows the relations between the levels of parental household smoking hygiene practice and the demographic characteristics of smoking parents. Of the 1,149 parents who completed the telephone interview, 167 (14.4%) reported complete restriction of smoking at home, 405 (35.2%) smoked at home but not within 3 meters of the child, and 575 (50.0%) parents smoked without restriction at home.

The levels of smoking restriction at home were significantly related to mother smokers (χ^2=17.22, P < 0.001), occupational status (χ^2= 21.69, P < 0.01), levels of education (χ^2=23.78, P < 0.01), and monthly household income (χ^2= 30.08, P < 0.001), and were not related to parents' age or their marital status.

There was a significant increasing linear trend of association for poor household smoking hygiene identified among mother smokers (χ^2=12.60, P < 0.001). The proportion of smoking mothers among those practicing complete household restriction was the lowest (4.2%), the proportion increased to 15.6% among those who practiced partial restriction and to the highest (16.9%) among those who practiced no restriction.

A similar increasing trend was found among housewives and unemployed parents with significant overall linear association of occupational status (χ^2= 7.83, P < 0.01), and also among the parents who had attained the lowest

education level (χ^2=15.88, P < 0.001) and had the lowest monthly household income (χ^2= 24.80, P < 0.001).

Table 6-8 Relations between parental household smoking hygiene and demographic characteristics of smoking parents N=1,149@

Demographic characteristics	Parental household smoking hygiene: Complete restriction (n=167)		Partial restriction (n=405)		No restriction (n=575)		χ^2 value (df)	Linear trend χ^2 value
	n	***%***	***n***	***%***	***n***	***%***		
Gender							17.22***	12.60***
Mother	7	4.2	63	15.6	97	16.9	(2)	
Father	160	95.8	342	84.4	478	83.1		
Occupational status								
Student	4	2.4	3	0.8	3	0.5	21.69**	7.83**
Employed	156	93.4	352	88.0	476	83.7	(6)	
Housewife	3	1.8	24	6.3	51	8.8		
Unemployed	4	2.4	20	5.0	41	7.0		
Age							10.61	1.10
35 or below	46	27.6	147	36.3	196	34.4	(4)	
36-45	105	62.9	210	52.0	309	54.2		
46 or above	16	9.6	47	11.6	65	11.4		
Educational attainment							23.78**	15.88***
Primary or below	24	14.5	77	19.0	121	21.2	(6)	
Secondary	121	72.9	288	71.1	423	74.1		
Matriculation	4	2.4	18	4.4	9	1.6		
Tertiary or above	17	10.2	22	5.4	18	3.2		
Monthly household income#							30.08***	24.80***
HK$9,999 or below	18	11.4	60	15.8	105	19.3		
HK$10,000-29,999	93	58.9	232	61.2	368	67.7	(4)	
HK$30,000 or above	47	29.8	87	23.0	71	13.1		
Marital status							0.30	0.001
Married	164	98.2	395	97.5	563	97.9	(2)	
Separated or divorced	3	1.8	10	2.5	12	2.1		
District							6.24	1.97
Hong Kong Island	35	21.0	56	13.9	88	15.4	(4)	
Kowloon	50	29.9	110	27.2	158	27.6		
New Territories	82	49.1	238	58.9	326	57.0		

@ The total number may not be equal to 1,149 due to missing data. Missing data <=1.1% unless stated otherwise.

#US$1=HK$7.8, missing data = 5.9%

P value: *<0.05; **<0.01,*** <0.001

6.7.2 Parental baseline smoking behaviors

Table 6-9 shows the characteristics of parental smoking behaviors in the previous 6 months in terms of household smoking hygiene practice. Smoking parents who practiced poor household smoking hygiene were more likely to be daily smokers (χ^2 =83.6, P < 0.001), to consume more cigarettes per day (χ^2=116.1, P < 0.001), to have moderate or severe nicotine dependency based on Fagerstrom's test of nicotine dependency (FTND) (χ^2=113.4, P < 0.001), to have started regular smoking before the age of 20 (χ^2=35.7, P < 0.001), to have smoking partners (χ^2=25.6, P < 0.001), and to have maintained abstinence for less than one month in the previous attempt (χ^2= 10.16, P < 0.01). However, there were no differences among smoking parents who consumed other tobacco-related products, who were alcohol-dependent, and who had made prior attempts to quit in the previous year.

There was also a significant increasing linear trend of association for poor household smoking hygiene among daily smokers (χ^2=49.72, P < 0.001), those who consumed more than 10 cigarettes per day (χ^2= 96.3, P < 0.001), who were moderate and high nicotine-dependent smokers (χ^2=93.27, P < 0.001), who had started regular smoking before the age of 20 (χ^2=27.2, P < 0.001), who had a smoking spouse (χ^2= 19.10, P < 0.001) and who had maintained abstinence for less than one month in the last quitting attempt (χ^2= 8.64, P < 0.01).

Table 6-9 Parental smoking behaviors in the previous 6 months in terms of parental household smoking hygiene (N=1,149)

Parental smoking behaviors	Parental household smoking hygiene: Complete (n=167)		Partial (n=405)		No restriction (n=575)		χ^2 value (df)	Linear trend of χ^2 value
	n	***%***	***n***	***%***	***n***	***%***		
Smoking status							83.6*** (2)	49.72***
Occasional smokers	23	13.9	4	1.0	6	1.0		
Daily smokers	143	86.1	401	90.0	569	99.0		
Daily cigarette consumption							116.1*** (4)	96.30***
<= 10	126	75.9	162	40.1	179	31.2		
11-20	40	24.1	206	51.0	308	53.8		
21+		-	36	8.9	86	15.0		
Smoke other tobacco-related products							1.98 (2)	0.66
Yes	14	8.4	27	6.7	53	9.2		
No	152	91.6	374	93.3	520	90.8		
Nicotine dependency level †							113.4*** (6)	93.27***
Low	151	92.1	232	57.6	269	47.0		
Moderate	10	6.1	111	27.5	160	28.0		
High	3	1.8	60	14.9	143	25.0		
Age started smoking cigarettes regularly							35.7*** (8)	27.2***
<15	17	10.2	46	11.5	102	17.9		
15-19	76	45.8	209	52.3	307	53.9		
20-24	51	30.7	112	28.0	132	23.2		
25-29	13	7.8	28	7.0	24	4.2		
30-39	9	5.4	5	1.3	5	0.9		
Parental smoking status							25.55*** (2)	19.10***
One parent smoked	153	91.6	299	75.1	416	73.0		
Both parents smoked	14	8.4	99	24.9	154	27.0		
Alcohol dependency							1.98 (2)	0.25
Yes	5	3.0	21	5.2	21	3.7		
No	160	97.0	383	94.8	551	96.3		
Previous attempts to quit							1.78 (2)	0.15
Yes	109	65.3	287	70.9	394	68.6		
No	58	34.7	118	29.1	180	31.4		
Length of prevous attempts to quit							10.16** (2)	8.64**
<=1 month	45	42.5	157	56.1	232	59.8		
> 1 month	61	57.5	123	43.9	156	40.2		

† Fagerstrom test of nicotine dependency: low (score 0-3), moderate (score 4-5) and severe (score = 6-10);

@ The total number may not equal 1,149 due to missing data in up to 3.3%.

P value: *<0.05; **<0.01, *** <0.001

6.7.3 Readiness to quit smoking and smoking cessation self-efficacy

Table 6-10 shows the relationship between parental household smoking hygiene and stages of readiness to quit and self-efficacy. Smoking parents who had poor household smoking hygiene were associated with perceiving greater difficulty in quitting (χ^2=9.76, P < 0.01) and having less confidence in their ability to quit (χ^2=13.43, P < 0.01). There was no association between household smoking hygiene and the perceived importance of quitting.

A relatively smaller portion of the smoking parents (42.9%) who practiced total restriction perceived it to be more difficult to quit, and this increased to 52.8% among those who practiced partial restriction and 56.8% among those who did not restrict household smoking, with a significant linear trend (χ^2=8.99, P < 0.01). A similar significant increasing linear trend of association was also reported among the parents who had less confidence in quitting (χ^2=11.43, P < 0.01).

Table 6-10 Relations between parental household smoking hygiene and stages of readiness to quit smoking and smoking cessation self-efficacy (N=1,149@)

Independent variables	Parental household smoking hygiene practice: Complete restriction (n=167)		Partial restriction (n=405)		No restriction (n=575)		χ^2 value (df)	Linear trend χ^2 value
	n	***%***	***n***	***%***	***n***	***%***		
Stages of readiness to quit smoking							12.1	2.52
Pre-contemplation	118	70.7	289	71.4	416	72.5	(6)	
Contemplation	27	16.2	85	21.0	115	20.0		
Preparation	6	3.6	17	4.2	19	3.3		
Action	16	9.6	14	3.5	24	4.2		
Perceived importance of quitting							0.68	0.63
Less important	82	50.6	201	51.4	299	53.6	(2)	
More important	80	49.4	190	48.6	259	46.4		
Perceived difficulty of quitting							9.76**	8.99**
Less difficult	93	57.1	186	47.2	239	43.2	(2)	
More difficult	70	42.9	208	52.8	314	56.8		
Perceived confidence in ability to quit							13.43**	11.43**
Less confident	82	50.9	245	63.5	360	66.8	(2)	
More confident	79	49.1	141	36.5	179	33.2		

@ The total number may not equal 1,149 due to missing data. Missing data <=1.1%.

*<0.05; **<0.01, *** <0.001

6.7.4 Parental perceived health status

Table 6-11 presents the parental self-perceived health status and the occurrence of respiratory symptoms in the previous 6 months by their level of household smoking hygiene practice.

Parental household smoking hygiene was not associated with their self-perceived health status, nor with the perceived frequency of their respiratory symptoms including sore throat, cough, phlegm, asthma and nasal symptoms. Further analysis was done by examining the aggregated reported symptoms into any respiratory symptoms. A statistically significant relationship was then found, namely that smoking parents who perceived no frequent respiratory symptoms were more likely not to restrict household smoking (χ^2 =7.07, P < 0.05). Furthermore, parents who had upper respiratory symptoms were more likely to restrict smoking at home than the partially restricting and non-restricting parents among those who had had health problems in the previous 6 months (42.9% vs. 11.9% and 22.2%, χ^2=15.29, P < 0.05). However, this linear trend could not be observed in the smoking parents with other health problems.

Table 6-11 Parental self-perceived health status and the occurrence of respiratory symptoms in the previous 6 months by their household smoking hygiene (N=1,149)

Health condition of parent smokers	Parental household smoking hygiene						χ^2 value (df)	Linear trend χ^2 value
	Complete (n=167)		Partial (n=405)		No restriction (n=575)			
	n	***%***	***n***	***%***	***n***	***%***		
Health status							3.06	2.43
Good or very good	163	97.6	380	94.8	540	94.2	(2)	
Poor or very poor	4	2.4	21	5.2	33	5.8		
Frequent throat symptoms							0.86	0.54
Yes	14	91.6	32	92.1	55	90.4	(2)	
No	153	8.4	373	7.9	520	9.6		
Frequent cough							3.29	3.29
Yes	19	11.4	57	14.1	96	16.7	(2)	
No	148	88.6	348	85.9	479	83.3		
Frequent phlegm							3.46	2.86
Yes	47	28.1	115	28.4	192	33.4	(2)	
No	120	71.9	290	71.6	383	66.6		
Frequent asthmatic symptoms							3.86	3.53
Yes	4	2.4	21	5.2	36	6.3	(2)	
No	163	97.6	384	94.8	539	93.7		
Frequent running nose or nasal congestion							0.27	0.19
Yes	21	12.7	57	14.1	82	14.3	(2)	
No	144	87.3	346	85.9	492	85.7		
Any frequent respiratory symptoms							7.07*	6.05*
Yes	67	40.1	166	41.0	279	48.5	(2)	
No	100	59.9	239	59.0	296	51.5		
Frequency of upper respiratory problems							15.29*	0.01
0	20	57.1	57	85.1	84	71.8	(6)	
1	15	42.9	8	11.9	26	22.2		
2			2	3.0	6	5.1		
3					1	0.9		
Frequency of lower respiratory problems							0.84	0.13
Yes	2	5.7	2	3.0	7	6.0	(2)	
No	33	94.3	65	97.0	110	94.0		
Had medical problem requiring regular follow-up/hospitalization in the previous 6 months							2.62	0.17
Yes	35	21.1	67	16.7	117	20.5	(2)	
No	131	78.9	335	83.3	455	79.5		

Total percentage maybe more or less than 100 due to rounding of the figures;
The total number is not equal to 1,149 due to missing data in up to 0.8%

*p <0.05

6.7.5 Parental perception of children's health status

The questions on health status and health-related questions were also asked with regard to the children. Results show that there was no statistically significant correlation between parental household smoking hygiene and the children's health (Table 6-12).

Table 6-12 Parental perception of children's health status and related symptoms in the previous 6 months by parental household smoking hygiene (N=1,050)

Children's health, frequent respiratory symptoms and health services utilization	Parental household smoking hygiene						χ^2 value (df)	Linear trend χ^2 value
	Complete (n=151)		Partial (n=339)		No restriction (n=559)			
	n	***%***	***n***	***%***	***n***	***%***		
Health status							1.16 (2)	0.48
Good or very good	134	94.4	310	95.4	500	93.6		
Poor or very poor	8	5.6	15	4.6	34	6.4		
Frequent sore or uncomfortable throat							0.66 (2)	0.32
Yes	5	3.5	13	4.0	16	2.9		
No	139	96.5	315	96.0	527	97.1		
Frequent cough							2.38 (2)	2.15
Yes	8	5.5	28	8.5	52	9.6		
No	137	94.5	301	91.5	492	90.4		
Frequent phlegm							1.61 (2)	0.57
Yes	9	6.2	13	4.0	31	5.7		
No	136	93.8	316	96.0	513	94.3		
Frequent asthmatic symptoms							1.31 (2)	0.03
Yes	7	4.8	24	7.3	33	6.1		
No	138	95.2	305	92.7	510	93.9		
Frequent running nose or nasal congestion							1.90 (2)	1.85
Yes	31	21.4	65	19.8	92	17.1		
No	114	78.6	263	80.2	447	82.9		
Any respiratory symptoms							0.54 (2)	0.52
Yes	42	29.0	93	28.2	144	26.4		
No	103	71.0	237	71.8	401	73.6		
Reasons for medical consultation(s)							8.68 (8)	0.16
No consultation	17	11.0	58	16.3	65	12.7		
Some other health problems	9	5.8	20	5.6	40	7.8		
Upper respiratory problems	125	81.2	262	73.6	379	74.3		
Lower respiratory problems	2	1.3	6	1.7	10	2.0		
Both URI and LRI	1	0.6	10	2.8	16	3.1		
Reason for hospitalization(s)							2.12 (6)	1.71
No hospitalization	148	96.7	339	95.2	479	94.5		
Some other health problems	3	2.0	10	2.8	13	2.6		
Upper respiratory problems	1	0.7	4	1.1	8	1.6		
Lower respiratory problems	1	0.7	3	0.8	7	1.4		

P value: *<0.05; **<0.01, *** <0.001

6.8 The predictive factors of smoking parents who practiced poor smoking hygiene at home

Two rounds of logistic regression were performed. All the characteristics that were found to be statistically significantly different ($p<0.05$) between the parents who smoked at home (partial or no restriction) and those who did not in the previous bivariate analysis were included in the forward stepwise logistic regression analysis with adjustment for the children's characteristics at birth (birth weight, gender, congenital defects and birth order) (bivariate results not reported).

The variables included in this regression model were parental gender (fathers vs. mothers), employment status, educational attainment; monthly household income, smoking status, daily cigarette consumption, level of nicotine dependency, age started regular smoking, spousal smoking status, stage of readiness to quit, perceived difficulty of quitting, and perceived confidence in ability to quit. These variables accounted for 87.5% of the variability in poor household smoking hygiene in the families with at least one smoking parent.

Results show that 8 of the 12 tested variables were significant contributors to the model (Table 6-13). These characteristics included: mother smokers (OR=4.92; 95% CI:1.59 – 15.16; p=0.006), daily smokers (OR=18.96; 95% CI:5.90 – 60.97; p<0.0001), consuming more than 10 cigarettes per day (OR=3.10; 95% CI:1.96 – 4.90; p<0.0001), being moderately (OR=4.57; 95% CI:2.13 – 9.82; p<0.0001) or severely nicotine-dependent (OR=4.86; 95% CI:1.46 – 16.25; p=0.01), having a smoking partner (OR=2.78; 95% CI:1.21 – 6.43; p=0.02), having been of normal birth weight (OR=2.62; 95% CI:1.17 – 5.84; p=0.02) or a

big baby (OR=6.94; 95% CI:1.30 – 37.10; p=0.02), and having more than one child at home (OR=1.70; 95% CI:1.12 – 2.59; p=0.01).

6.9 The predictive factors of smoking parents who were unable to restrict smoking within 3 meters of their children (poor household smoking hygiene)

The second round of multivariate logistic regression was also performed among only those parents who consumed cigarettes at home (partial or no restriction) in the same manner as the previous analysis.

Comparison was made between the parents in the partial restriction and no restriction levels of household smoking hygiene. There were 6 variables included in this regression model: educational attainment, monthly household income, daily cigarette consumption, level of nicotine dependency, age started regular smoking, and reports of any respiratory symptoms. These six variables accounted for 61.4% of the variability in poor smoking hygiene among smoking parents practicing various levels of household restriction.

In the final model, two significant predictive factors of the poorest household smoking hygiene among the parents who smoked at home were identified. These were having a higher monthly household income (p=0.001) and having moderate or severe nicotine dependence (OR=2.04; 95% CI: 1.41 – 2.96; p=0.001).

Table 6-13: Summary of the two logistic regression models (forward stepwise) to predict poor parental smoking hygiene at home

Predicting variables	Parental smoking hygiene			
	Smoked at home (referent group: complete restriction)		No restriction (referent group: partial restriction)	
	Adjusted OR* (95% CI)	P value	Adjusted OR* (95% CI)	P value
Relationship with the child				
Mother	4.92 (1.59-15.16)	0.006		
Father **(referent)**				
Monthly household income #				
HK$9,999 or below (referent)				0.001
HK$10,000-29,999			2.13 (1.34-3.38)	0.001
HK$30,000 or above			1.91 (1.33-2.73)	<0.0001
Daily smokers	18.96 (5.90-60.97)	<0.0001		
Average daily cigarette consumption in the previous 6 months		<0.0001		
10 or less (referent)				
11-20	3.10 (1.96-4.90)	<0.0001		
21+	1442.8 (0-1.61E+11)	0.44		
Level of nicotine dependence		<0.0001		0.001
Low (referent)				
Moderate	4.57 (2.13-9.82)	<0.0001	1.23 (0.89-1.68)	0.21
Severe	4.86 (1.46-16.25)	0.01	2.04 (1.41-2.96)	<0.0001
Both parents smoke	2.78 (1.21-6.43)	0.02		
Children's information:				
Birth weight				
<2.5 kg (referent)		0.02		
2.5-4kg	2.62 (1.17-5.84)	0.02		
>4kg	6.94 (1.30-37.10)	0.02		
Was the second child or higher	1.70 (1.12-2.59)	0.01		
-2 log likelihood		590.64		1170.93
Model chi-square	(df=10)	222.58	(df=4)	30.06
P		<0.0001		<0.0001
Overall rate of correct classification		87.5%		61.4%

Note: OR = odds ratio; CI= confidence interval

***** Adjusted for children's characteristics at birth (birth weight, gender, congenital defects and birth order) and all significant variables in the bivariate analysis

6.10 Summary

This chapter describes the information gathered from the cross-sectional survey at the baseline via telephone interview. All eligible smoking parents were asked about their recent health, smoking, quitting and other related information. Their spouses were also interviewed in order to obtain proxy reports of information regarding the smoking partners and their children's health.

Most of the smoking parents (80.9%) were willing to complete a telephone-based interview on their health and smoking-related information. Among the 1,149 parents who completed the interview, most were smoking fathers (85.4%) aged less than 45 years (88.7%). The vast majority of them (92.8%) were daily smokers. Most (68.9%) of the smoking parents had attempted to quit smoking on their own in the previous 6 months, but most parents (71.8%) were not considering quitting in the following 6 months (pre-contemplators).

The majority of the children (85.6%) were reported to have been exposed to household smoking, with 13.1% having two smoking parents. In the situations where both parents smoked, and where the smoking parent/s smoked more cigarettes and were highly dependent on nicotine, smoking was less likely to be restricted at home. The parents' education, socioeconomic status and perceptions of the importance of quitting smoking, as well as the occurrence of any respiratory symptoms, were all factors that were identified in the bivariate analysis as significantly associated with household smoking hygiene. However, the factors associated with children's health were not associated with the parental smoking behavior at home.

Chapter 7

Smoking parents entering the randomized controlled trial, and attrition

7.1 Introduction

This chapter will first describe and compare the characteristics of the smoking parents who chose or did not choose to participate in this proactive telephone-based smoking cessation intervention program, and to identify the predictors of their participation. It will then go on to describe and compare the characteristics of the smoking parents who entered the RCT and were randomized into intervention and control groups. Description and comparison will be made between those parents who adhered to the program and those who were lost to follow-up, and to identify the characteristics which best predict program adherence.

7.2 Factors affecting smoking parents' decision whether to take part in RCT

This section intends to examine the factors affecting the smoking parents' decision to participate in the smoking cessation intervention. Information on factors contributing to willingness to accept the invitation to take part in the RCT smoking cessation program will be useful for the development of an appropriate recruitment process for future smoking cessation interventions. Participation is defined here as eligible smoking parents who agreed to take part in this RCT.

Comparison was made between the participating and non-participating parents of this RCT. The differences in the characteristics identified in the bivariate analysis were included in a model to identify the predictive factors of participation by forward stepwise logistic regression. The odds ratio for participation was adjusted for all identified significant variables from the bivariate analyses.

7.2.1 Reasons given by parents for not taking part in RCT

Among the 1,149 smoking parents who completed the baseline telephone interview, 952 (82.9%) indicated their willingness to participate in this RCT, while 197 (17.1%) refused.

Table 7-1 shows the reasons given by the parents for not taking part in the smoking cessation intervention program. About three-quarters (76.1%) indicated that they were not interested in quitting smoking at the time, 6.6% did not have time, another 6.6% believed that they could quit smoking by themselves, and 3% did not want to try again because of previous unsuccessful attempts at quitting. The remaining 15 smoking parents (7.6%) declined the invitation to the intervention program because they considered smoking as an enjoyment, a personal choice and a way to relieve pressure.

Table 7-1 Smoking parents' reasons for not taking part in smoking cessation intervention (N=197)

Reasons	No. of parents	%
Not interested	150	76.1
Had no time	13	6.6
Able to quit on their own	13	6.6
Had previous unsuccessful attempts to quit and did not want to try again	6	3.0
Others	15	7.6

7.2.2 Socio-demographic differences between participants and non-participants

Table 7-2 shows a comparison between the socio-demographic characteristics of the 952 (82.9%) smoking parents who agreed to take part in this proactive telephone based smoking cessation program and the 197 (17.1%) smoking parents who refused.

Results show that the participants and non-participants of the program did not differ in age, marital status, or number of children under 12 years old. However, a significantly higher proportion of the smoking mothers than fathers agreed to take part in the program (89.2% vs. 81.8%; χ^2 = 5.58, df=1, p<0.05). Participation was more likely among those who had attained secondary school education than those with only primary school education or with matriculation and above (84.5% vs. 81.2% and 75.0%; p=0.05), among those who were currently employed than among the unemployed (83.7% vs. 70.8%, χ^2= 17.12, df=1, p<0.01), and at the middle monthly household income level (87.4% vs. 78.1% and 77.6%; χ^2= 17.12, df=1, p<0.001).

Table 7-2 Socio-demographic comparison between participating and non-participating parents of the proactive telephone-based smoking cessation trial among parents with young children (N=1,149[#])

Characteristics	Non-participants (N = 197)		Participants (N = 952)		χ^2 value (df)
Demographics:	***n***	***%***	***n***	***%***	
Parents					5.58*
Mother	18	10.8	149	89.2	(1)
Father	179	18.2	803	81.8	
Age					2.11
35 or below	60	15.4	329	84.6	(2)
36-45	107	17.1	518	82.9	
46 or above	27	20.9	102	79.1	
Educational attainment					5.90*
Primary or below	42	18.8	181	81.2	(2)
Secondary	129	15.5	704	84.5	
Matriculation or above	22	25.0	66	75.0	
Monthly household income					17.12***
HK$9,999 or less	40	21.9	143	78.1	(2)
HK$10,000-29,999	87	12.6	606	87.4	
HK$30,000 or above	46	22.4	159	77.6	
Employment status					7.24**
Currently employed [##]	175	16.3	898	83.7	(1)
Unemployed	19	29.2	46	70.8	
Marital status					0.48
Married	194	17.3	930	82.7	(1)
Divorced / separated	3	12.0	22	88.0	
Number of children under 12					2.79
1	76	17.3	364	82.7	(2)
2	92	16.1	478	83.9	
3+	19	17.1	92	82.9	
District					0.94
Hong Kong Island	28	15.6	151	84.4	(2)
Kowloon	51	16.0	267	84.0	
New Territories	117	18.1	531	81.9	

US$1=HK$7.8. Total percentage may be more or less than 100 due to rounding of the figures.
The total number is not equal to 1,149 due to missing data in up to 5.9% of cases.
Included parents who were currently employed, housewives and full-time students.
P value: * < 0.05; ** < 0.01, *** < 0.001

7.2.3 Comparison of smoking behaviors between participants and non-participants

Table 7-3 compares the smoking behaviors of the participants and non-participants. The smoking behaviors of the two groups were similar in terms of their smoking status, daily cigarette consumption, level of nicotine dependency, number of years smoking and their preference of smoking at home. It was interesting to note that the parents who lived with another smoker in the same household were more likely to take part in the smoking cessation program (31.5% vs. 23.1%; χ^2= 5.45, df=1, p<0.05).

Table 7-3. Smoking behaviors of participating and non-participating smoking parents of the proactive telephone-based smoking cessation trial (N=1,149[#])

Smoking behaviors	Non-participants (N = 197)		Participants (N = 952)		χ^2 (df)
	n	***%***	***n***	***%***	
Smoking status					2.72
Daily smoker	186	17.4	880	82.6	(2)
Occasional smoker	7	19.4	29	80.6	
Recent quitter <6 months	4	8.6	43	91.4	
Daily cigarette consumption in past 1 month					4.09
10 or fewer	96	19.8	388	80.2	(2)
11-20	79	15.0	447	85.0	
21+	17	17.2	82	82.8	
Nicotine dependency level †					2.77
Low	121	18.5	532	81.5	(2)
Moderate	40	14.2	241	85.8	
Severe	33	15.9	174	84.1	
Years of smoking					2.17
1-10	15	15.3	83	84.7	(3)
11-20	90	16.7	450	83.3	
21-30	67	16.7	335	83.3	
31 or more	21	22.3	73	77.7	
Living with other smokers in the same household					5.45*
Yes	45	13.3	293	86.7	(1)
No	150	19.1	637	80.9	
Smoke at home					1.94
Yes	159	16.4	808	83.6	(1)
No	35	20.8	133	79.2	

Total percentage maybe more or less than 100 due to rounding of the figures.

[#] The total number is not equal to 1,149 due to missing data in up to 3.5% of cases.

* P value < 0.05

7.2.4 Comparison of smoke quitting history and smoking cessation self-efficacy between participants and non-participants

Comparison was made between the participants and non-participants of this RCT. Results show that there were differences in the smoking parents' previous smoke quitting history and smoking cessation self-efficacy (Table 7-4).

Participants of the RCT were more likely to have attempted quitting in the year prior to the baseline interview (86.5% vs. 75.0%; χ^2= 22.9, df=1, p<0.001); in the contemplation stage (96.0%) according to Prochaska's stage of behavioral change than those in pre-contemplation stage (78.3%), in the preparation stage (92.9%) and in action stage (90.7%) with χ^2 = 45.3, df=3 and p<0.001. Regarding to the smoking cessation self efficacy, the participants were also more likely to perceive the importance of quitting (93.2% vs. 75.2%; χ^2= 66.2, df=1, p<0.001) but considered it more difficult to quit (86.5% vs. 81.1%; χ^2= 5.93, df=1, p<0.05).

Participants and non-participants did not differ in the length of time they had been abstinent in the last quitting attempt, their confidence in their ability to quit, their alcohol dependency level and their marital self-efficacy.

Table 7-4 Previous quitting history, current smoking cessation self-efficacy and willingness to participate in the proactive telephone-based smoking cessation trial (N=1,149[#])

Previous quitting and related variables	Non-participants (N = 197)		Participants (N = 952)		value for χ^2 tests (df)
	n	%	n	%	
Ever attempted quitting					22.9***
No	89	25.0	267	75.0	(1)
Yes	107	13.5	685	86.5	
Length of abstinence in the last quitting attempt≈					0.09
One month or less	57	13.1	379	86.9	(1)
More than a month	47	13.8	293	86.2	
Stage of change					45.3***
Pre-contemplation	179	21.7	646	78.3	(3)
Contemplation	9	4.0	218	96.0	
Preparation	3	7.1	39	92.9	
Action	5	9.3	49	90.7	
Self-perception of smoke quitting:					66.2***
importance of quitting[+] (mean=61)					(1)
Less important	138	24.8	439	75.2	
More important	36	6.8	493	93.2	
difficulty of quitting[++] (mean=58)					5.93*
Less difficult	98	18.9	421	81.1	(1)
More difficult	80	13.5	512	86.5	
confidence in ability to quit[+++] (mean=50)					0.33
Less confident	109	15.8	579	84.2	(1)
More confident	58	14.5	341	85.5	
Others:					
Alcohol dependency level					0.00
Not dependent	184	16.8	908	83.2	(1)
Dependent	8	17.0	39	83.0	
Marital locus of control					1.02
Low (score ≤ 23)	140	16.8	692	83.2	(1)
High (score ≥ 24)	34	14.1	207	85.9	

[#] The total number is not equal to 1,149 due to missing data in up to 6.6% of cases.

≈Question only for those parents who had attempted quitting smoking in the past.

+/++/+++These variables were classified as more versus less by dividing at the mean value.

P value : *<0.05; **<0.01,*** <0.001

7.2.5 Difference in smoking parents' and children's health condition in the previous 6 months and the smoking parents' willingness to participate in RCT

Table 7-5 compares the participants' and non-participants' health conditions in the previous 6 months. The participants and non-participants did not differ in their self-perceived health status. However, participants were more likely to report frequent cough in the morning (88.8% vs. 81.9%; χ^2= 4.38, df=1, p<0.05) and frequent asthmatic symptoms (93.4% vs. 82.3%; χ^2= 5.08, df=1, p<0.05) in the previous 6 months. They were also more likely to have had medical problems that required follow-up and hospital admission in the previous 6 months (90.0% vs. 81.1%, χ^2= 9.65, df=1, p<0.01). In proportion, there were more participants who perceived themselves as having poor or very poor health, and frequent respiratory symptoms, but these associations were not statistically significant.

Smoking parents were also asked for their perceptions of their index children's health status within the previous 6 months, but there were no statistically significant differences between the participants and non-participants in terms of their children's health status (Table 7-6).

Table 7-5 Smoking parents' health condition and their willingness to participate in the proactive telephone-based smoking cessation program (N=1,149[#])

Health condition of parent smokers	Non-participants (N = 197)		Participants (N = 952)		χ^2 (df)
	n	***%***	***n***	***%***	
Health status					1.94
Good or very good	189	17.4	896	82.6	(1)
Poor or very poor	6	10.3	52	89.7	
Frequent sore or uncomfortable throat					2.16
Yes	12	11.9	89	88.1	(1)
No	185	17.7	863	82.3	
Frequent cough in the morning after waking up					4.38*
Yes	17	11.2	135	88.8	(1)
No	180	18.1	817	81.9	
Frequent cough in the day- or night-time					0.68
Yes	10	13.7	63	86.3	(1)
No	187	17.5	884	82.5	
Frequent phlegm in the morning after waking up					0.58
Yes	52	15.8	277	84.2	(1)
No	145	17.7	675	82.3	
Frequent phlegm in the day- or night-time					1.87
Yes	16	12.8	109	87.2	(1)
No	180	17.7	838	82.3	
Frequent asthma symptoms					5.08*
Yes	4	6.6	57	93.4	(1)
No	193	17.7	895	82.3	
Frequent nasal symptoms					0.01
Yes	27	16.9	133	83.1	(1)
No	169	17.2	815	82.8	
Had medical problem requiring regular follow-up/hospitalization					9.65**
Yes	22	10.0	197	90.0	(1)
No	174	18.9	749	81.1	

Total percentage maybe more or less than 100 due to rounding of the figures.

[#] The total number is not equal to 1,149 due to missing data in up to 0.6% of cases.

P value : * < 0.05; ** < 0.01

Table 7-6 Children's health condition in the previous 6 months and their parents' willingness to participate in smoking cessation program (N=1,050[#])

Children' health condition	Non-participants (N = 188)		Participants (N = 862)		χ^2 (df)
	n	***%***	***n***	***%***	
Health status					0.09
Good or very good	164	17.4	781	82.6	(1)
Poor or very poor	9	15.8	48	84.2	
Frequent throat symptoms					0.76
Yes	4	11.8	30	88.2	(1)
No	172	17.5	810	82.5	
Frequent morning cough					1.80
Yes	8	11.4	62	88.6	(1)
No	168	17.7	781	82.3	
Frequent cough in the day- or night-time					0.21
Yes	8	20.0	32	80.0	(1)
No	168	17.2	810	82.8	
Frequent morning phlegm					0.32
Yes	9	20.5	35	79.5	(1)
No	167	17.1	807	82.9	
Frequent phlegm in the day- or night-time					3.93
Yes	9	23.1	20	76.9	(1)
No	167	23.7	821	76.3	
Frequent asthmatic symptoms					0.14
Yes	10	15.6	54	84.4	(1)
No	166	17.4	787	82.6	
Frequent nasal symptoms					2.91
Yes	24	12.8	164	87.2	(1)
No	148	17.9	677	82.1	
Number of medical consultations					2.79
None	27	19.3	113	80.7	(3)
1-3	108	18.2	484	81.8	
4-6	28	14.1	171	85.9	
7 or above	13	14.3	78	85.7	
Mean (sd)	*1.15*	*0.77*	*1.25*	*0.80*	
Number of hospitalizations					0.45
None	167	17.3	800	82.7	(1)
1+	8	16.3	43	83.7	

Total percentage maybe more or less than 100 due to rounding of the figures.

[#] The total number is not equal to 1,050 due to missing data in up to 4.6% of cases.

7.2.6 Predictors for participation

All the characteristics that were found to be statistically significantly different between the participants and non-participants in the previous analysis were included in the model and analyzed by forward stepwise logistic regression to identify the predictive factors of participation in the telephone-based smoking cessation program (Table 7-7).

Results show a linear trend for increasing odds to participate in a smoking cessation program associated with monthly household income ($p<0.001$). Parents who were currently employed (OR=2.97; 95% CI: 1.33-6.61; $p<0.01$) and had had medical problems that required follow-up or been hospitalized in the previous 6 months (OR=2.12, 95% CI: 1.24-3.65; $p<0.01$) were also more likely to take part in this program.

Results also show a linear trend to participate in the smoking cessation program with the stage of 'readiness to quit smoking' ($p<0.05$). The most significant association was observed at the contemplation stage of quitting (OR=3.22 95% CI: 1.55-6.65; $p<0.005$). The perceived importance of quitting smoking (OR=3.72; 95% CI: 2.38-5.82; $p<0.001$) was another predictor of smoking parents' participation in the telephone-based smoking cessation program.

Table 7-7 Summary of logistic regression model (forward stepwise) to predict participation in the proactive telephone-based smoking cessation trial

Independent variables	Adjusted OR** (95% CI)	P value
Monthly household income (referent ≤ HK$9,999)		<0.001
HK$10,000-29,999	1.82 (1.10– 3.01)	<0.05
HK$30,000 or above	0.81 (0.46 – 1.44)	0.48
Employment status (referent = unemployed)		
Currently employed	2.97 (1.33 – 6.61)	<0.01
Had medical problem requiring follow-up for intervention / had been admitted to hospital in the previous 6 months	2.12 (1.24 – 3.65)	<0.01
Stage of quitting (referent = pre-contemplation stage)		<0.05
Contemplation stage	3.22 (1.55 – 6.65)	<0.005
Preparation stage	1.39 (0.40 – 4.79)	0.61
Action stage	1.20 (0.45 – 3.23)	0.72
Perceived importance of quitting (referent = less important)		
More important	3.72 (2.38 – 5.82)	<0.001
- 2 log likelihood	**749.34**	
Model chi-square (df=9)	**106.42**	
P	**.000**	
Overall rate of correct classification	**85.1%**	

Note: OR = odds ratio; CI= confidence interval
** adjusted for all the significant variables in the bivariate analysis.

7. 2.7 Summary of participation predictors

This section compared the differences between the characteristics of parents who participated and those who did not participate in this trial. The predictors of the smoking parents' participation in the proactive telephone-based smoking cessation program were also examined.

Results show that smoking parents who were willing to participate were more likely mothers, employed, with household income ranging from 10,000-29,999 rather than lower or higher. Participants were also more likely to live with other smokers, to have attempted to quit smoking before, to not be in the pre-contemplation stage, to perceive greater importance of quitting, to perceive quitting to be difficult, to have had frequent coughs in the previous 6 months and health problems that required medical consultation or hospitalization.

These results indicate that parents could relate more easily to the need to take part in a smoking cessation program when their own health was in jeopardy, especially when those problems were of a higher level of severity (e.g. with frequent asthmatic symptoms and where hospitalization was required). However, the failure to find evidence of the effects of a child's health on their parents' decision to participate in a smoking cessation program is disappointing. This finding indicates that smoking parents should be specifically targeted for health education about the hazards of second-hand smoking to their young children.

Logistic regression identified the predictors of participation as having a middle-lower class household income (HK$10,000-29,999), being currently employed, having recently been hospitalized, being at the contemplation stage, and perceiving the importance of quitting.

7.3 Smoking parents entering the randomized controlled trial

This section compares the characteristics of the smoking parents who agreed to the RCT and were randomized into the intervention and control groups. The purpose of randomization was to allow all eligible smoking parents an equal chance of entering either the intervention group or the control group, thus minimizing selection bias. Any differences identified between the groups in the basic characteristics of the smoking parents were included in the final model of logistic regression when analyzing the outcome measures, and adjusted to examine the effectiveness of the intervention.

7.3.1 Demographic characteristics of smoking parents in the two groups

Among the 952 (82.9%) parents who consented to take part in the smoking cessation intervention randomized controlled trial, 485 were randomized into the control group and 467 were randomized into the intervention group. Chi-square tests were employed to determine whether there were any differences in the demographic characteristics between the smoking parents in the intervention group and those in the control group at baseline.

Table 7-8 compares the baseline demographic characteristics of the smoking parents in the two groups. Of the 952 smoking parents who entered the trial, 149

(15.7%) were mothers and 803 (84.3%) were fathers. About one third of them (34.7%) were aged 35 or younger, 54.6% were aged 36-45 and 10.7% aged 46 or older. About one fifth (19%) had attained primary education or less, the majority (74.0%) had attained secondary school and 6.9% matriculation or higher education. Most of the smoking parents (66.7%) earned a monthly income ranging from HK$10,000-29,999, 15.7% earned HK$9,999 or less and about 17.5% earned HK$30,000 or more. The majority of the parents were currently employed (86.4%), 1.1% were housewives, 4.9% were full-time students and 7.6% were unemployed. The vast majority of the smoking parents were married (97.7%). About half of them (51.2%) had two children under the age of 12, 39% and 9.9% had one and three or more children under the age of 12 respectively. Slightly more than half of the parents (56%) lived in the New Territories, 15.9% lived on the Hong Kong side and 28.1% lived in Kowloon.

Chi-square comparison shows no differences between the two groups of smoking parents randomized into the intervention and control groups in respect of their gender, educational attainment, monthly household income, occupational status, marital status, number of children aged under 12 and district of residence. However, parents who were randomized into the control group were more likely to be aged 46 or older (14.5% vs. 6.9%, χ^2=14.96, df=2, P <0.01). This was the only difference identified.

Table 7-8 Demographic characteristics of smoking parents in RCT (N=952)

Demographic characteristics	All subjects (n=952)		Control group (n=485)		Intervention group (n=467)		χ^2 (df)
	n	***%***	***n***	***%***	***n***	***%***	
Relationship with the child							0.00
Mother	149	15.7	76	15.7	73	15.6	(1)
Father	803	84.3	409	84.3	394	84.4	
Age							14.56**
35 or below	329	34.7	165	34.1	164	35.3	(2)
36-45	518	54.6	249	51.4	269	57.8	
46 or above	102	10.7	70	14.5	32	6.9	
Educational attainment							3.74
Primary or below	181	19.0	104	21.4	77	16.5	(2)
Secondary	704	74.0	348	71.8	356	76.4	
Matriculation or above	66	6.9	33	6.8	33	7.1	
Monthly household income							5.64
HK$9,999 or less	143	15.7	85	18.6	58	12.9	(2)
HK$10,000-29,999	606	66.7	295	64.6	311	69.0	
HK$30,000 or above	159	17.5	77	16.8	82	18.2	
Occupational status							3.02
Currently employed	816	86.4	409	85.0	407	87.9	(3)
Unemployed	72	7.6	29	6.0	17	3.7	
Housewife	10	1.1	38	7.9	34	7.3	
Full-time student	46	4.9	5	1.0	6	1.1	
Marital status							0.91
Married	930	97.7	476	98.1	454	97.2	(1)
Divorced/separated	22	2.3	9	1.9	13	2.8	
Number of children under 12							0.10
1	364	39.0	182	38.4	182	39.6	(2)
2	478	51.2	237	50.0	241	52.4	
3+	92	9.9	55	11.6	37	8.0	
District							0.61
Hong Kong Island	151	15.9	80	16.5	71	15.3	(2)
Kowloon	267	28.1	139	28.7	128	27.5	
New Territories	531	56.0	265	54.8	266	57.2	

Total percentage maybe more or less than 100 due to rounding of the figures; US$1=HK$7.8.

The total number is not equal to 952 due to missing data.

** $P < 0.01$

7.3.2 Baseline smoking behaviors of smoking parents in the two groups

Table 7-9 below shows a comparison of the baseline smoking behaviors of the two groups of smoking parents. The majority of the parents who entered this RCT were daily smokers (92.4%). They consumed an average of 18.2 (SD=17.8) cigarettes per day. The vast majority of the parents in the RCT smoked cigarettes (92.1%), while the remainder also smoked other types of tobacco products. Slightly more than half of the parents (56.2%) had low nicotine dependency according to the Fagerstrom test on nicotine dependency, and 51.9% had started smoking regularly in their teens (aged 15-19). They had smoked for an average of 19.8 years (SD=7.3). About a quarter (24.5%) of the parents were also married to a smoker, and the majority (85.9%) smoked at home daily. Of the 808 parents who smoked at home, 42.3% smoked within 3 meters of their children at home. About 11.6% of the parents were living with another smoker in the same household.

Chi-square comparison shows that the parents who were randomized into the control and intervention groups had similar overall smoking behaviors. There were no statistically significant differences in terms of smoking status (p=0.28) and daily cigarette consumption in the previous month (p=0.09), and the average number of cigarettes smoked by parents in the control and intervention groups was 18.6 (SD=20.0) and 17.8 (SD=15.9) respectively. There were no differences in terms of nicotine dependency level based on Fagerstrom's test, p=0.33, in terms of age started smoking, p=0.66, spousal smoking status, p=0.61, and whether they smoked at home, p=0.16 or smoked within 3 meters of their children at home, p=0.87.

Table 7-9 Baseline smoking behaviors of parents in the two groups (N=952)

Characteristics	All subjects (n=952)		Control (n=485)		Intervention (n=467)		χ^2 (df)
Smoking status	***n***	***%***	***n***	***%***	***n***	***%***	3.85
Daily smoker	880	92.4	442	91.1	438	93.8	(2)
Occasional smoker	29	3.0	19	3.9	10	2.1	
Recent quitter <6 mons	43	4.5	24	4.9	19	4.1	
Daily cigarette consumption in past one month							4.84
10 or less	388	42.3	212	45.8	176	38.8	(2)
11-20	447	48.7	214	46.2	233	51.3	
21 or above	82	8.9	37	8.0	45	9.9	
Mean (SD)	*18.2*	*(17.8)*	*18.6*	*(20.0)*	*17.8*	*(15.9)*	
Smoke other tobacco-related products							0.40
No	872	92.1	443	91.9	429	92.3	(1)
Yes	75	7.9	39	8.1	36	7.7	
Nicotine dependency level							2.20
Low	532	56.2	268	55.7	264	56.7	(2)
Moderate	241	25.4	131	27.2	110	23.6	
Severe	174	18.4	82	17.0	92	19.7	
Age started smoking cigarettes regularly							2.43
<15	136	14.4	68	14.2	68	14.7	(4)
15-19	489	51.9	248	51.7	241	52.1	
20-24	251	26.6	124	25.8	127	27.4	
25-29	56	5.9	33	6.9	23	5.0	
30 or above	11	1.2	7	1.5	4	0.9	
Mean(SD)yrs of smoking	*19.8*	*(7.3)*	*20.2*	*(8.1)*	*19.4*	*(6.3)*	*0.11*
Spouse's smoking status							0.97
Smoker	233	24.5	115	23.7	118	25.3	(1)
Non-smoker	708	74.4	363	74.8	345	73.9	
Smoke at home							1.94
Yes	808	85.9	403	84.3	405	87.5	(1)
No	133	14.1	75	15.7	58	12.5	
Smoke within 3 meters of child							0.03
Yes	349	42.3	175	42.6	174	42.0	(1)
No	476	57.7	236	57.4	240	58.0	
Had smokers in household other than parent							0.04
Yes	110	11.6	55	11.3	55	11.8	(1)
No	842	88.4	430	88.7	412	88.2	

Total percentage maybe more or less than 100 due to rounding of the figures.
The total number is not equal to 952 due to missing data.

7.3.3 Baseline quitting behaviors of smoking parents in the two groups

Comparisons of the baseline quitting histories and other smoking-related characteristics between the smoking parents in the intervention and control groups are shown in Table 7-10.

Most of the parents who entered the RCT had attempted quitting in the previous 6 months (72%). Of those 685 parents who had attempted quitting, slightly less than half had maintained cessation for longer than one month (43.6%). Most parents were not thinking of quitting within 6 months' time (67.9%). The vast majority were not dependent on alcohol and most had internal marital locus of control (77.0%).

Comparison by chi-square shows that there were no significant differences between the smoking parents in the two groups in their previous attempts in quitting at the baseline interview (p=0.89), length of time abstained from smoking in last quitting (p=0.08), the stages of readiness to quit smoking (p=0.24) or their self-perceived health status in the previous 3 months. However, the smoking parents in the control group were less likely to be dependent on alcohol as identified by their CAGE score (97.5% vs. 94.2%, χ^2 = 6.73, df = 1, P <0.01) and had a low level of marital self-efficacy (81.4% vs. 72.5%, χ^2 =9.89, df = 1, P <0.005).

Table 7-10 Baseline quitting histories and other smoking-related characteristics of parents in the two groups (N=952)

Quitting histories & other characteristics	All subjects (n=952)		Control group (n=485)		Intervention group (n=467)		χ^2 (df)
	n	***%***	***n***	***%***	***n***	***%***	
Ever quitting attempt (s)							0.02
Never	267	28.0	137	28.2	130	27.8	(1)
Ever	685	72.0	348	71.8	337	72.2	
Length of abstinence in the last quitting attempt [+]							3.03
1-30 days	379	56.4	180	53.1	199	59.8	(1)
>30 days	293	43.6	159	46.9	134	40.2	
Stage of change							4.21
Pre-contemplation	646	67.9	342	70.5	304	65.1	(3)
Contemplation	218	22.9	100	20.6	118	25.3	
Preparation	39	4.1	17	3.5	22	4.7	
Action	49	5.1	26	5.4	23	4.9	
Others:							
Alcohol dependency level							6.73**
Not dependent	908	95.9	472	97.5	436	94.2	(1)
Dependent	39	4.1	12	2.5	27	5.8	
Marital locus of control [##]							9.89**
Internal	692	77.0	367	81.4	325	72.5	(1)
External	207	23.0	84	18.6	123	27.5	

Total percentage maybe more or less than 100 due to rounding of the figures.
The total number is not equal to 952 due to missing data.
[##] Marital locus of control was measured by asking 8 questions. A score of 23 or below was considered as internal and a score of 24 or above was considered to represent external marital locus of control.
** P value<0.01

7.3.4 Perceived health status of smoking parents in the two groups

Table 7-11 shows a comparison of the perceived health status of the two groups of smoking parents. The majority of parents perceived their health as good or very good (94.4%-94.6%). There were no differences in their reports on the occurrence of frequent respiratory symptoms and hospital admission.

Table 7-11 Comparison of the health condition of the two groups of smoking parents (N=952)

Health condition of parent smokers	Control group (n=485)		Intervention group (n=467)		χ^2 (df)
	n	***%***	***n***	***%***	
Health status					0.02
Good or very good	456	94.6	440	94.4	(1)
Poor or very poor	26	5.4	26	5.6	
Frequent sore or uncomfortable throat					0.55
Yes	42	8.7	47	10.1	(1)
No	443	91.3	420	89.9	
Frequent cough in the morning after waking up					1.59
Yes	62	12.8	73	15.6	(1)
No	423	87.2	394	84.4	
Frequent cough in the day- or night-time					0.31
Yes	30	6.2	33	7.1	(1)
No	453	93.8	431	92.9	
Frequent phlegm in the morning after waking up					0.35
Yes	137	28.2	140	30.0	(1)
No	348	71.8	327	70.0	
Frequent phlegm in the day- or night-time					0.22
Yes	58	12.0	51	11.0	(1)
No	426	88.0	412	89.0	
Frequent asthma sound in lungs or chest					0.29
Yes	31	6.4	26	5.6	(1)
No	454	93.6	441	94.4	
Frequent running nose or nasal congestion					0.22
Yes	49	10.1	51	11.0	(1)
No	434	89.9	412	89.0	
Had medical problem requiring regular follow-up/hospitalization					0.00
Yes	100	20.7	97	20.9	(1)
No	382	79.3	367	79.1	

P value: NS

7.3.5 The perceived health status of the children in the previous 6 month

Parents were also asked to report on the health status of the index children. Table 7-12 shows there were no significant differences between the two groups in terms of the health status of the index children or their medical utilization in the previous 6 months.

Table 7-12 Children's health status in the previous 6 months in the two groups (N=862[#])

Children' health condition	Control group (N=437)		Intervention group (N=425)		χ^2 value (df)
Health status	***n***	***%***	***n***	***%***	0.20
Good or very good	400	94.6	381	93.8	(1)
Poor or very poor	23	5.4	25	6.2	
Frequent throat symptoms					2.37
Yes	12	2.8	20	4.8	(1)
No	415	97.2	393	95.2	
Frequent morning cough up					0.86
Yes	35	8.2	27	6.5	(1)
No	393	91.8	388	93.5	
Frequent cough in the day- or night-time					1.85
Yes	20	4.7	12	2.9	(1)
No	407	95.3	403	97.1	
Frequent morning phlegm					1.23
Yes	21	4.9	14	3.4	(1)
No	407	95.1	400	96.6	
Frequent phlegm in the day- or night-time					1.66
Yes	13	3.0	7	1.7	(1)
No	414	97.0	407	98.3	
Frequent asthmatic symptoms					0.53
Yes	30	7.0	24	5.8	(1)
No	397	93.0	390	94.2	
Frequent nasal symptoms					2.87
Yes	93	21.8	71	17.1	(1)
No	334	78.2	343	82.9	
Number of medical consultations					0.29
None	56	13.1	57	13.6	(3)
1-3	248	57.9	236	56.5	
4-6	84	19.6	87	20.8	
7 or above	40	9.3	38	9.1	
Hospital admissions					0.76
None	408	4.4	392	94.2	(1)
Yes	19	95.6	24	5.8	

* P value < 0.05

7.3.6 Summary of comparisons of the characteristics between the smoking parents randomized into the intervention and control groups

Comparisons of the characteristics of the smoking parents randomized into the intervention and control groups indicated that there were no significant differences in terms of their demographic information, smoking behaviors, quitting histories and other characteristics indicated. There were, however, differences in terms of their age, CAGE score of alcohol dependency level and marital locus of control. The identified characteristics were adjusted when the logical regression model was analyzed to identify the factors contributing to the effectiveness of the intervention.

7.4 Smoking parents' adherence to RCT at 6-month follow-up

This section describes and compares those parents who adhered to the smoking cessation program and those who were lost to follow-up (non-adherence) at 6 months. This is done to examine whether the number of subjects lost to follow-up could threaten the internal validity of a study.

The 952 parents randomized into the intervention (N=467) or control groups (N=485) were contacted again 6 months after the initial telephone interview using a structured follow-up telephone interview questionnaire, to reassess their smoking status. Comparisons were made between their demographic characteristics, smoking behaviors, previous quitting attempts, smoking cessation self-efficacy and the health condition of the smoking parents and their children.

At the 6-month follow-up, 91.5% (444/485) of the participating parents in the control group and 84.6% (395/467) in the intervention group remained in the trial, giving a higher non-adherence rate in the intervention group (15.4%, 72/467) than in the control group (8.5%, 41/485) (χ^2=10.17, df=1, P<0.01).

Table 7-13 Program adherence of smoking parents at 6-month follow-up in the RCT (N=952)

Program adherence	All subjects (n=952)		Control group (n=485)		Intervention group (n=467)		χ^2 statistic (df)
	n	%	n	%	n	%	
Non-adherent	113	11.9	41	8.5	72	15.4	10.17**
Adherent	839	88.1	444	91.5	395	84.6	(1)

** P value < 0.01

7.4.1 Reasons for non-adherence to RCT at 6-month follow-up

Of the total of 113 parents who did not adhere to the RCT, about 38.9% refused to continue for the follow-up and 10.6% indicated their refusal through their spouses. About one fifth (19.5%) were unable to be contacted again due to separation or recent divorce having left no updated contact information. About a quarter (27.4%) could no longer be contacted on the same phone number after repeated attempts. Only 3 (2.7%) indicated that they did not have time, and 1 (0.9%) had emigrated.

Table 7-14 Reasons for being lost to 6-month follow-up (N=113)

Reasons	No. of parents	%
Direct refusal to continue by smoking parents	44	38.9
Refusal through spouses	12	10.6
Separated or divorced; ex-spouses refused to give contact information	22	19.5
Lost contact with the same phone numbers	31	27.4
Lack of time	3	2.7
Emigrated	1	0.9

7.4.2 Comparison of demographics of adherent and non-adherent groups

Table 7-15 compares the differences in the demographic characteristics and smoke-quitting behaviors of the parents who adhered and those who did not adhere to the RCT. There were no differences between the two groups regarding their age, education attainment, monthly household income, employment status and district of residence. Although mothers were more likely not to adhere to the RCT (15.4% vs. 11.2%) than fathers, there was no statistically significant difference.

Table 7-15 Comparison of the demographics of the adherent and non-adherent smoking parents at 6-month follow-up (N=952)

Demographic characteristics	Non-adherent (N =113)		Adherent (N =839)		χ^2 (df)
	n	***%***	***n***	***%***	
Gender					3.48
Mother	23	15.4	126	84.6	(1)
Father	90	11.2	713	88.8	
Age					4.65
18-25	4	17.4	19	82.6	(3)
26-35	46	15.0	260	85.0	
36-45	53	10.2	465	89.8	
46 or above	10	9.8	92	90.2	
Educational attainment					2.78
Primary or below	22	12.2	159	87.8	(3)
Secondary	87	12.4	617	87.6	
Matriculation or above	4	6.1	62	93.9	
Monthly household income					4.2
HK$9,999 or less	16	11.2	127	88.8	(2)
HK$10,000-29,999	75	12.4	531	87.6	
HK$30,000 or above	17	10.7	142	89.3	
Employment status					0.06
Currently employed	108	12.0	790	97.8	(1)
Unemployed	5	10.9	41	89.1	
District					0.22
Hong Kong Island	20	13.2	131	86.8	(2)
Kowloon	32	12.0	235	88.0	
New Territories	61	11.5	470	88.5	

Numbers do not add up to the number of subjects who responded, due to missing data (4.6 %). US$1=HK$7.8.

7.4.3 Comparison of smoking behaviors of adherent and non-adherent parents

A comparison of the smoking behaviors of the adherent and non-adherent parents was performed (Table 7-16). There were no significant differences in their smoking behaviors, except that those who had a smoking partner were more likely to non-adhere to the RCT (19.7% vs. 9.5%, χ^2=15.92, df=1, P<0.001).

Table 7-16 Comparison of parents' smoking behaviors according to adherence status (N=952)

Parental smoking behaviors	Non-adherent (N =113)		Adherent (N =839)		χ^2 (df)
	n	***%***	***n***	***%***	
Total number of smokers at home					8.07*
1	65	10.2	572	89.8	(2)
2	40	15.6	217	84.4	
3+	8	22.2	28	77.8	
Parental smoking status					15.92***
Both parents smoked	46	19.7	187	80.3	(1)
One parent smoked	67	9.5	641	90.5	
Daily cigarette consumption in previous 1 month					1.46
10 or less	48	12.4	340	87.6	(2)
11-20	50	11.2	397	88.8	
21+	13	15.9	69	84.1	
Smoked other tobacco-related products					1.37
Yes	6	8.0	69	92.0	(1)
No	107	12.3	765	87.7	
Nicotine dependency level					0.18
Low	62	11.7	470	88.3	(2)
Moderate	31	12.9	210	87.1	
Severe	20	11.5	154	88.5	
Age started smoking cigarettes regularly					3.62
<15	16	11.8	120	88.2	(4)
15-19	60	12.3	429	87.7	
20-24	33	13.1	218	86.9	
25-29	3	5.4	53	94.6	
30 or above	1	9.1	10	90.9	

Numbers do not add up to total number of subjects who responded, due to missing data (3.7%).

*** P value < 0.001

7.4.4 Comparison of quitting behaviors of adherent and non-adherent parents

Table 7-17 shows a comparison of previous quitting attempt behaviors at baseline between the adherent and non-adherent parents. There was no difference between them in terms of smoke quitting behaviors in the previous six months, the length of abstinence for those who had attempted to quit, stage of readiness to quit, smoking cessation self-efficacy, the CAGE score of alcohol dependency and marital locus of control.

Table 7-17 Comparison of smoking quitting behaviors of adherent and non-adherent parents (N=952)

Quitting history	Non-adherent (N =113)		Adherent (N =839)		χ^2 (df)
Ever attempted quitting	***n***	***%***	***n***	***%***	0.01
No	32	12.0	235	88.0	(1)
One or more times	81	11.8	604	88.2	
Length of abstinence in the last quitting attempt*					0.77
One month or less	42	11.1	337	88.9	(1)
More than a month	39	13.3	254	86.7	
Stage of readiness to change					0.77
Pre-contemplation	80	12.4	566	87.6	(3)
Contemplation	24	11.0	194	89.0	
Preparation	3	7.7	36	92.3	
Action	6	12.2	43	87.8	
Perceived Importance of quitting (mean=61)					0.21
Less important	55	12.5	384	87.5	(1)
More important	57	11.6	436	88.4	
Perceived Difficulty of quitting (mean=58)					1.02
Less difficult	56	13.3	365	86.7	(1)
More difficult	57	11.1	455	88.9	
Perceived confidence in ability to quit (mean=50)					1.85
Less confident	77	13.3	502	86.7	(1)
More confident	35	10.3	306	89.7	
Alcohol dependence level					1.29
Not dependent	106	11.7	802	88.3	(1)
Dependent	7	17.9	32	3.8	
Marital locus of control					1.72
Internal (score ≤ 23)	77	11.1	615	88.9	(1)
External (score ≥ 24)	30	14.5	177	85.5	

Numbers did not add up to the number of subjects who responded, due to missing data (5.6 %)
* Excluded those parents who had not attempted quitting for analysis

7.4.5 Comparison of perceived health status of adherent and non-adherent parents

Table 7-18 shows the parents' self-perceived health status and the reported frequency of their respiratory symptoms. There were no differences between the parents who adhered and those who did not adhere to the trial.

Table 7-18 Comparison of perceived health status of adherent and non-adherent parents (N=952)

Health condition of parent smokers	Non-adherent (N =113)		Adherent (N =839)		χ^2 (df)
	n	***%***	***n***	***%***	
Health status					0.03
Good or very good	107	11.9	789	88.1	(1)
Poor or very poor	6	11.5	46	88.5	
Frequent throat symptoms					0.08
Yes	10	11.2	79	88.8	(1)
No	103	12.0	758	88.0	
Frequent morning cough					0.48
Yes	14	10.4	121	14.5	(1)
No	99	12.1	718	87.9	
Frequent cough in the day- or night-time					1.17
Yes	5	7.9	58	92.1	(1)
No	108	12.2	776	87.8	
Frequent morning phlegm					0.67
Yes	30	10.8	247	89.2	(1)
No	83	12.3	592	87.7	
Frequent phlegm in the day- or night-time					1.83
Yes	9	8.3	100	91.7	(1)
No	104	12.4	734	87.6	
Frequent asthmatic symptoms					0.00
Yes	7	12.3	50	87.7	(1)
No	106	11.8	789	88.2	
Frequent nasal symptoms					0.11
Yes	15	11.3	118	88.7	(1)
No	97	11.9	718	88.1	
Had medical problem that required regular follow-up / hospital admission in the previous 6 months					0.28
Yes	22	11.2	175	88.8	(1)
No	91	12.1	658	87.9	

Missing data up to 0.6% of cases

7.4.6 Comparison of perceived health of children

Comparison was made between the children's health of those who adhered and those who did not adhere to the RCT (Table 7-19), and no significant difference was found.

Table 7-19 Comparison of perceived health of children between adherent and non-adherent parents (N=862)

Children' health condition	Non-adherent (N =99)		Adherent (N =763)		χ^2 (df)
Health status	***n***	***%***	***n***	***%***	2.36
Good or very good	88	11.3	693	88.7	(1)
Poor or very poor	2	4.2	46	95.8	
Frequent throat symptoms					0.03
Yes	3	10.0	27	90.0	(1)
No	89	11.0	721	89.0	
Frequent morning cough					1.43
Yes	4	6.5	58	93.5	(1)
No	89	11.4	692	88.6	
Frequent cough in the day- or night-time					0.75
Yes	2	6.3	30	93.8	(1)
No	90	11.1	720	88.9	
Frequent morning phlegm					1.06
Yes	2	5.7	33	94.3	(1)
No	91	11.3	716	88.7	
Frequent phlegm in the day- or night-time					0.74
Yes	1	5.0	19	95.0	(1)
No	91	11.1	730	88.9	
Frequent asthmatic symptoms					0.83
Yes	8	14.8	46	85.2	(1)
No	85	10.8	702	89.2	
Frequent nasal symptoms					2.87
Yes	14	11.7	150	91.5	(1)
No	79	8.5	598	88.3	
Number of medical consultations					6.80
None	13	11.5	100	88.5	(3)
1-3	63	13.0	421	87.0	
4-6	13	7.6	158	92.4	
7 or above	4	5.1	74	94.9	
Hospital admissions					0.76
No	90	11.3	710	88.8	(1)
Yes	3	7.0	40	93.0	

7.4.7 Predictors of non-adherence to program

Table 7-20 shows the results of logistic regression analyses to identify the predictive baseline characteristics of program adherence. The two identified predictors of non-adherence are 'being allocated to intervention group' and 'parents with smoking partners'. The association between non-adherence and smoking parents with smoking partners was strong (OR=2.2, 95% CI: 1.5-3.4; p<0.001). Parents allocated to the intervention group were almost twice as likely (OR=1.8, 95% CI: 1.2-2.7; p<0.005) not to adhere to the program.

Table 7-20 Summary of logistic regression model (forward stepwise) to predict non-adherence at 6-month follow-up

Independent variables	**OR(95% CI)**	**P value**
Had a smoking spouse	2.2 (1.5-3.4)	<0.001
Intervention group	1.8 (1.2-2.7)	<0.005
-2 log likelihood	**678.49**	
Model chi-square (df=1)	**24.24**	
P	**0.00**	
Overall rate of correct classification	**87.7%**	

Note: OR = odds ratio; CI= confidence interval

7.4.8 Summary of non-adherence to RCT program

This section compared the characteristics of parents who adhered and those who did not adhere to the RCT. The overall non-adherence rate was 12.2%, which is lower than those in other studies (17%) targeted at parents of young children by the reactive approach (Emmons et al., 2001).

The results did not show any association between demographic characteristics, smoking behaviors, previous quitting behaviors, or parents' own and their children's health status and non-adherence. The only two predictive factors associated with non-adherence were having a smoking partner and being allocated to the intervention group.

The higher rate of non-adherence in the intervention group might be due to the fact that there were two additional contacts among this group of smoking parents prior to the 6-month follow-up when compared with the control group. The parents allocated to the intervention group had more chance to express their unwillingness to continue in the intervention. However, according to Prochaska's transtheoretical stages of change, this regressed movement to escape from intervention at some points in the cycling process is normal and was to be expected.

Chapter 8

Primary outcome measures at 6-month follow-up

8.1 Introduction

All smoking parents in both intervention and control groups were reassessed at 6 months for follow-up using the 6-month follow-up questionnaire. Information obtained included their smoking status at the time of interview (question c4c1), daily cigarette consumption in the previous 6 months (question c4c2-c4c3), whether they smoked at home (question c4c4), and whether they smoked near their children (question c4c5).

A comparison of various outcome measures between the intervention and control groups at the 6-month follow-up was performed. Results are presented by the 'intention to treat' principle and analyzed by including only the parents who remained in the 6-month follow-up. In the intention to treat analysis, parents who did not adhere to the study program (lost to follow-up/withdrawn/could not be re-contacted) were analyzed using their baseline parameters.

This chapter starts by comparing the results of the smoking and quitting behaviors between groups (Tables 8-1 to 8-4). It then compares the primary outcome measures of self-reported 7-day point prevalence smoking cessation between the two groups. The quit rates according to spousal proxy and biochemical validations of the 7-day point prevalence are also presented. Agreements of each of the validated measures of primary outcomes are performed by kappa statistics.

Other outcome measures, including the self-reported short-term quitting of 24-hour point prevalence and continuous abstinence of 180 days, are also described (Tables 8-19 to 8-22). Table 8-23 presents a summary of the quit rates using the

different outcome indicators among all the 952 parents at the 6-month follow-up, by intention to treat analysis. In this summary, both the crude odds ratio and the analysis adjusted for unmatched variables between the intervention and control groups at the baseline are measured. Table 8-24 presents another summary table of different outcome indicators of analysis by excluding those parents who were lost to follow-up. Further comparisons between the characteristics of the quitters and non-quitters based on the self-reported 7-day point prevalence indicators are shown in Tables 8-25 – 8-30. The predictive factors of successful quitting by the two methods of analysis are discussed at the end of the chapter.

8.2 Smoking behaviors of parents at the 6-month follow-up

Tables 8-1 and 8-2 show the smoking behaviors of the parents in the trial at 6-months. There were 58 parents in the control group and 91 in the intervention group who reported not having smoked for more than 24 hours.

Table 8-1 shows the analysis by intention to treat principle. Among the 952 parents who entered the trial, 803 parents reported having continued smoking and 149 had stopped smoking for at least 24 hours at the 6-month follow-up interview, representing 84.3% and 15.7% respectively. A higher proportion of parents in the intervention group than in the control group reported having stopped smoking for more than 24 hours (19.5% vs. 12.0%) (χ^2=10.21, df=1, p<0.001). About half (49.3%) of the parents in the trial consumed 10 or fewer cigarettes per day, slightly less than half (45.0%) smoked 11-20 and 5.8% more than 20 cigarettes a day. These parents consumed an average of 13 cigarettes a day.

Of the 952 parents in the trial, 28.9% of them achieved full restriction of smoking at home. There were more parents in the intervention group who were able to completely restrict smoking at home (31.7%) than in the control group (26.3%). More than half of the 952 parents (52.3%) restricted smoking within 3 meters of their children. However, there was no statistically significant difference between the two groups in terms of such partial restriction.

Table 8-1 Smoking behaviors of parents at 6-month follow-up: analysis by *intention to treat* principle (N=952)

Characteristics	Total subjects (n=952)		Control group (n=485)		Intervention group (n=467)		χ^2 or t statistic (df)
	n	***%***	***n***	***%***	***n***	***%***	
Smoking status							10.21***
Smoking	803	84.3	427	88.0	376	80.5	(1)
Stopped for more than 24 hours	149	15.7	58	12.0	91	19.5	
Daily cigarette consumption in past 1 month							1.03
10 or less	469	49.3	233	50.5	236	48.0	(2)
11-20	428	45.0	221	44.3	207	45.6	
21 or above	55	5.8	31	5.1	24	6.4	
Missing			1		2		
Mean (SD)	*13.2*	*7.6*	*13.5*	*7.54*	*12.9*	*7.7*	*1.14*
F = 0.13, sig. 0.71, thus equal variances assumed							
Mean diff = 0.56, df = 950, 95% CI: -0.40 – 1.53							
Smoked at home							3.36
Yes	675	71.1	356	73.7	319	68.3	(1)
No	275	28.9	127	26.3	148	31.7	
Smoked within 3 meters of child [#]							1.00
Yes	454	47.7	239	49.3	215	49.3	(1)
No	498	52.3	246	50.7	252	50.7	
Missing			22		3		

Parents who did not complete the intervention (withdrawn / could not be contacted) were considered stage unchanged from baseline.

Total percentage maybe more or less than 100 due to rounding of the figures.

[#] Parents who were not smoking at home were included in the not smoking within 3 meters of their children

P value: * < 0.05; ** < 0.01, *** < 0.001

Further analysis was performed by including only those parents who remained in the trial at the 6-month follow-up. Table 8-2 shows that there were significantly more parents in the intervention group (23.0%) who reached the action or maintenance stage at the 6-month follow-up than in the control group (13.1%) (χ^2=14.24, df=1, p<0.001). The parents in the intervention group also consumed fewer cigarettes on average (t = 3.62, df=834, 95% CI: 0.94- 3.18, p<0.001) and were more likely to achieve full restriction of smoking at home than the parents in the control group (36.3% vs. 27.6%, χ^2=7.09, df=1, p<0.01).

Table 8-2 Smoking behaviors of parents at 6-month follow-up *excluding the 'lost to follow-up'* (N=839)

Characteristics	Total subjects (n=839)		Control group (n=444)		Intervention group (n=395)		χ^2 or t statistic (df)
	n	***%***	***n***	***%***	***n***	***%***	
Smoking status							14.24***
Smoking	690	82.2	386	86.9	304	77.0	(1)
Stopped smoking for more than 24 hours	149	17.8	58	13.1	91	23.0	
Daily cigarette consumption in past 1 month							8.54*
10 or less	489	58.5	239	54.0	250	63.6	(2)
11-20	313	37.4	182	41.1	131	33.3	
21 or above	34	4.1	22	5.0	12	3.1	
Missing			1		2		
Mean (SD)	*10.8*	*8.27*	*11.8*	*8.17*	*9.7*	*8.26*	*3.62****
F = 0.07, sig. 0.79, thus equal variances assumed Mean diff = 2.06, df = 834, 95% CI: 0.94 – 3.18							
Smoked at home							7.09**
Yes	560	68.2	309	72.4	251	63.7	(1)
No	261	31.8	118	27.6	143	36.3	
Missing			17		1		
Smoked within 3 meters of child [#]							3.07
Yes	316	38.8	176	41.7	140	35.7	(1)
No	498	61.2	246	58.3	252	64.3	
Missing			22		3		

Parents who were lost to follow-up (withdrawn / could not be contacted) were excluded for analysis.

Total percentage maybe more or less than 100 due to rounding of the figures.

The total number is not equal to 952 due to missing data.

[#] Parents who were not smoking at home were included in the not smoking within 3 meters of their children

P value: * < 0.05; ** < 0.01, *** < 0.001

8.3 Smoking cessation attempts at the 6-month follow-up

Comparisons of the cessation attempts between the intervention and control groups are shown in Table 8-3 by the intention to treat principle and Table 8-4 by excluding those lost to follow-up for analysis. Table 8-3 shows that at the 6-month follow-up, 38.2% had attempted to quit in the previous 6 months. However, the results also revealed that most of the parents (63.7%) remained in the pre-contemplation stage, with no intention to quit in the next 6 months. About 17.2% had not started to quit but intended to quit in the next 6 months, although not in the next month (contemplation). About 2.8% were prepared to quit smoking within the next month. Only 10.7% were in the action stage and 5.6% had maintained cessation for more than 6 months. Further analysis of the two groups found that there were significantly more smokers in the action and maintenance stages in the intervention group (13.5% and 6.9%) than in the control group (8.0% and 4.3%), with the chi-squared value at 17.44, df=4, $p<0.01$.

Table 8-3 Cessation attempts and stages of readiness to quit smoking at 6-month follow-up: analysis by *intention to treat* principle (N=952)

Attempts to quit and stages of readiness to quit smoking	Total subjects (n=952)		Control group (n=485)		Intervention group (n=467)		χ^2 statistic (df)
	n	***%***	***n***	***%***	***n***	***%***	
Previous attempt to quit							2.33
No	588	61.8	311	64.1	277	59.3	(1)
Yes	364	38.2	174	35.9	190	40.7	
Stage of readiness to quit							17.44**
Pre-contemplation	606	63.7	327	67.4	279	59.7	(4)
Contemplation	164	17.2	90	18.6	74	15.8	
Preparation	27	2.8	8	1.6	19	4.1	
Action	102	10.7	39	8.0	63	13.5	
Maintenance	53	5.6	21	4.3	32	6.9	

Parents who did not complete the intervention (withdrawn / could not be contacted) were considered stage unchanged from baseline.

Total percentage maybe more or less than 100 due to rounding of the figures.

P value: * < 0.05; ** < 0.01, *** < 0.001

Table 8-4 shows the same comparison but excludes those parents who were lost to follow-up. The results show stronger differences between the two groups in terms of ever having attempted to quit (χ^2=6.68, df=1, p= 0.01) and 'stages of readiness to quit' (χ^2=21.14, df=4, p< 0.001). Significantly more parents in the intervention group than in the control group had reached the action stage (14.9% vs. 8.4%). A similar trend was also found in the parents in the maintenance stage (8.1% vs. 4.8%).

Table 8-4 Cessation attempts and stages of readiness to quit smoking at the 6-month follow-up: excluding the *lost to follow-up* for analysis (N=839)

Attempts to quit and stages of readiness to quit smoking	Total subjects (n=839)		Control group (n=444)		Intervention group (n=395)		χ^2 statistic (df)
	n	***%***	***n***	***%***	***n***	***%***	
Previous attempt to quit							6.68**
No	470	56.4	267	60.5	203	51.7	(1)
Yes	364	43.6	174	39.5	190	48.3	
Missing			3		2		
Stage of readiness to quit							21.14***
Pre-contemplation	528	63.1	299	67.6	229	58.0	(4)
Contemplation	136	16.2	78	17.6	136	14.7	
Preparation	24	2.9	7	1.6	24	4.3	
Action	96	11.5	37	8.4	96	14.9	
Maintenance	53	6.3	21	4.8	53	8.1	

Parents who were lost to follow-up (withdrawn / could not be contacted) were excluded for analysis.

Total percentage maybe more or less than 100 due to rounding of the figures.

The total number is not equal to 839 due to missing data.

P value: * < 0.05; ** < 0.01,*** < 0.001

8.4 Primary outcome indicator: self-reported 7-day point prevalence

Tables 8-5 and 8-6 show the comparison between the two groups of parents in their self-reported 7-day point prevalence of smoke quitting. Table 8-5 presents the results based on the intention to treat principle, while Table 8-6 presents the results with analysis excluding those lost to follow-up.

A total of 133 smoking parents (51 from the control and 82 from the intervention group) reported having quit smoking for more than 7 days. The quit rate in the intervention group (17.6%) was statistically significantly higher than that of the control group (10.5%) as measured by the intention to treat principle (χ^2=9.82, df=1, p=0.002). A more prominent difference was observed when analyzed by excluding those lost to follow-up, with quit rates of 20.8% versus 11.5% in the intervention and control groups respectively (χ^2=13.48, df=1, p<0.001).

Table 8-5 Self-reported smoking cessation for 7 days: analysis by *intention to treat* principle *

Self-reported smoking quitting for 7 day	Control group (N=485)		Intervention group (N=467)	
	N	%	N	%
Quit	51	10.5	82	17.6
Had not quit	434	89.5	385	82.4
χ^2=9.82 df=1 p=0.002				

*Results were calculated on *intention to treat* basis: parents who did not complete the intervention (withdrawn / could not be contacted) were considered smokers.

Table 8-6 Self-reported smoking cessation for 7 days: analysis excluding those *lost to follow-up*

Self-reported 7-day point prevalence	Control group (N=444)		Intervention group (N=395)	
	N	%	N	%
Quit	51	11.5	82	20.8
Had not quit	393	88.5	313	79.2
χ^2= 13.48 df= 1 P<0.001				

*Results were based on the number of participants available at 6 months: parents who did not complete the intervention (withdrawn / could not be contacted) were excluded.

8.4.1 Validation by spousal proxy reports

All spouses of the smoking parents were invited to take part in a separate interview for spousal proxy validation. In the interviews, the husband or wife was asked to report on their spouse's smoking status. A total of 407 and 354 spouses in the control and intervention groups completed the proxy validation interview. More spouses of the control group completed the proxy report interview (91.7% vs. 89.6%) than those of the intervention group.

Table 8-7 shows the agreement between the spousal proxy validation and the self-reported 7-day point prevalence of smoke quitting. Parents with no spousal proxy report of their smoking status were considered as having their smoking status disconfirmed. Of the 51 and 82 self-reported quitters, more in the control group (n=35, 68.6%) than the intervention group (n=38, 46.3%) were proxy validated by their spouses. Separate analysis on the agreement between the self-reported cessation and spousal proxy validation was performed by kappa statistics by groups. The results show satisfactory agreement both in the control group (k=0.66, p<0.001) and the intervention group (k=0.54, p<0.001).

Table 8-7 Agreement between spousal proxy validation[#] and self-reported 7-day point prevalence of smoking cessation

Spousal validated cessation	**Control (N=51)** N	%	**Intervention (N=82)** N	%
Disconfirmed	16	31.4	44	53.7
Confirmed	35	68.6	38	46.3
Kappa agreement (p value)	*0.66*	*<0.001*	*0.54*	*<0.001*

For the spousal proxy, the husband or wife was asked to report their spouse's smoking status in a separate interview.
* Spousal proxy validation results were computed based on the *intention to treat* basis; an unreported spousal proxy was considered as disconfirmed quitting.

Tables 8-8 and 8-9 present comparisons of spousal proxy validation of smoking cessation between groups, analyzed by intention to treat and by excluding those lost to follow-up. There were more parents in the intervention group whose smoking cessation was validated by their spouses than in the control group (8.1% vs. 7.2%). However, this difference was not statistically significant (χ^2=0.17, df=1, p=0.68). The Table 8-9 results also show more parents in the intervention group to be validated by their spouses as having quit smoking (9.6% vs. 7.9%). Here, too, the difference was not statistically significant (χ^2=1.00, df=1, p= 0.32).

Table 8-8 Group difference on spousal proxy validation[#] of smoking cessation by *intention to treat*[*]

Spousal proxy reports	Control (N=485)		Intervention (N=467)	
	N	%	N	%
Quit	35	7.2	38	8.1
Did not quit	450	92.8	429	91.9
χ^2=0.17 df=1 p=0.68				

Spousal proxy reports were invited for all parents who participated in the RCT. For the spousal proxy, the husband or wife was asked to report their spouse's smoking status in a separate interview.
* The spousal proxy validation results were computed based on the *intention to treat* principle; unreported spousal proxies and parents who were non-adherent to the program were considered as disconfirmed quitting.

Table 8-9 Group difference on spousal proxy validation[#] of smoking cessation *among all the 839 participants remaining* at 6-month follow-up[*]

Spousal proxy reports	**Control (N=444)**		**Intervention (N=395)**	
	N	%	N	%
Quit	35	7.9	38	9.6
Did not quit	409	92.1	298	90.4
χ^2=1.00 df=1 p= 0.32				

For the spousal proxy, the husband or wife was asked to report their spouse's smoking status in a separate interview.
* Parents who were non-adherent to the program were excluded for analysis.

8.4.2 Validation by exhaled carbon monoxide test

All parents who reported smoking cessation for more than 7 days were invited to take an exhaled carbon monoxide test using the Bedfont Micro II Smokerlizer. Table 8-10 presents the agreement between the self-reported 7-day point prevalence smoking cessation and their exhaled carbon monoxide validation among the 133 self-reported quitters. Self-reported quitting parents who did not attend for the test were not considered as confirmed quitters.

In the control group, 34 out of 51 self-reported quitters (64.7%) took the exhaled carbon monoxide validation. All except one of the parents tested were confirmed as quitters (n=33, 64.7%), giving a kappa agreement of 0.72 ($p<0.01$). In the intervention group, the status of all 44 out of 82 self-reported quitters was confirmed (53.7%). The kappa statistic (0.58, $P<0.001$) of agreement was significant. This result shows a higher level of agreement in the control group than in the intervention group.

Table 8-10 Agreement between self-reported 7-day point prevalence of smoking cessation and exhaled carbon monoxide validation[#]

Exhaled carbon monoxide validation	**Control (N=51)**		**Intervention (N=82)**	
	N	%	N	%
Disconfirmed	18	35.3	38	46.3
Confirmed	33	64.7	44	53.7
Kappa agreement (p value)	*0.72*	*<0.001*	*0.58*	*<0.001*

[#] Self-reported cessation was validated by exhaled carbon monoxide (CO); the cutoffs for the CO concentration: 8ppm or below = non-current smoker; 9 ppm or above = current smoker

Tables 8-11 and 8-12 compare the differences in the quit rates between the two groups by carbon monoxide validation of smoking cessation, by the intention to treat principle and by excluding those lost to follow-up. Table 8-11 shows that more parents in the intervention group were confirmed as quitters than in control group (9.4% vs. 6.8%). However, there was no significant difference in the analysis by intention to treat (p=0.14).

Table 8-11 Carbon monoxide validation[#] of smoking status by *intention to treat* [*]

Exhaled carbon monoxide validation	**Control (N=485)**		**Intervention (N=467)**	
	N	%	N	%
Quit	33	6.8	44	9.4
Did not quit	452	93.2	423	90.6
χ^2= 2.19 df= 1 p=0.14				

[#] Self-reported cessation was validated by exhaled carbon monoxide (CO); the cutoff for the CO concentration: 8ppm or below = non-current smoker; 9 ppm or above = current smoker.

* The exhaled carbon monoxide validation results were computed based on the *intention to treat* principle; the non-attending exhaled carbon monoxide test and parents who were non-adherent to the program were considered as disconfirmed quitting

Table 8-12 shows that more parents in the intervention than the control group (11.1% vs. 7.4%) were validated as quitters. There was a borderline but non-significant difference when the data were analyzed by excluding those lost to follow-up (p=0.06).

Table 8-12: Carbon monoxide validation[#] of smoking status by *excluding those lost to follow-up*

Exhaled carbon monoxide validation	**Control (N=444)**		**Intervention (N=395)**	
	N	%	N	%
Quit	33	7.4	44	11.1
Did not quit	411	92.6	351	88.9
χ^2=3.44 df=1 p=0.06				

[#] Self-reported cessation was validated by exhaled carbon monoxide (CO); the cutoff for the CO concentration: 8ppm or below = non-current smoker; 9 ppm or above = current smoker.

* Parents who were non-adherent to the program were excluded for analysis.

8.4.3 Validation by urine cotinine test

All parents who self-reported smoke cessation for more than 7 days were invited to give urine samples for a cotinine test when they attended the final assessment. Table 8-13 presents the agreement between the self-reported 7-day point prevalence of smoke cessation and the urine cotinine validation among the 133 self-reported quitters. Self-reported quitting parents who did not attend for the urine cotinine test were still considered as smokers by the intention to treat principle.

In the control group, the smoking cessation status was confirmed in all 34 parents by the urine cotinine test levels, representing 66.7% of the self-reported quitters. Kappa agreement was at 0.73, with p <0.001. In the intervention group, 54 out of 82 self-reported quitters (65.9%) were tested for urine cotinine, but only 48 were confirmed as quitters (58.5%). The kappa agreement between the self-reported quitting and urine cotinine validation of the intervention group was at 0.63, with p<0.001.

Table 8-13 Agreement between self-reported 7-day point prevalence of smoking quitting and urine cotinine validation[#]

Urine cotinine validation	**Control (N=51)**		**Intervention (N=82)**	
	N	%	N	%
Disconfirmed	17	33.3	34	41.5
Confirmed	34	66.7	48	58.5
Kappa agreement (p value)	*0.73*	*<0.001*	*0.*63	*<0.001*

[#] Self-reported cessation was validated by urine cotinine test (using the NicAlert test). In the NicAlert test, urine cotinine at level 2 or below (30-100 ng/ml) indicates *non-smoker*; level 3 or above (100-200 ng/ml) indicates *smoker*.

* The urine cotinine validation results were computed based on the *intention to treat* principle; parents who did not attend for the test and were non-adherent to the program were considered as disconfirmed quitting.

Tables 8-14 and 8-15 show comparisons of the urine cotinine validation of smoking cessation between the two groups by the intention to treat principle and by analysis excluding those lost to follow-up. Parents who did not test for urine cotinine or tested at level 3 or above of the NicAlert test were considered as not confirmed quitters by the intention to treat principle.

More self-reported quitters in the intervention group than in the control group were confirmed as quitters by urine cotinine validation when analyzed by both the intention to treat principle (10.3% vs. 7.0%) and by excluding the lost to follow-up (12.2% vs. 7.7%). The difference was not statistically significant (χ^2 =3.23 p=0.07) when analyzed by the intention to treat principle, but a statistically significant difference was obtained when analyzed by excluding those lost to follow-up (χ^2=4.79, p<0.05).

Table 8-14 Urine cotinine validation[#] of smoking cessation by *intention to treat* [*]

Urine cotinine validation	Control (N=485)		Intervention (N=467)	
	N	%	N	%
Quit	34	7.0	48	10.3
Did not quit	451	93.0	419	89.7
χ^2=3.23 df= 1 p=0.07				

[#] Self-reported cessation was validated by urine cotinine test (using the NicAlert test). In the NicAlert test, urine cotinine at level 2 or below (30-100 ng/ml) indicates *non-smoker*; level 3 or above (100-200 ng/ml) indicates *smoker*.

* The urine cotinine validation results were computed based on the *intention to treat* principle, parents who did not attend for the test and were non-adherent to the program were considered as disconfirmed quitting.

Table 8-15 Urine cotinine validation[#] of smoking cessation by *excluding those lost to follow-up*[*]

Urine cotinine validation	Control (N=444)		Intervention (N=395)	
	N	%	N	%
Quit	34	7.7	48	12.2
Did not quit	410	92.3	347	87.8
χ^2=4.79 df=1 p<0.05				

[#] Self-reported cessation was validated by urine cotinine test (using the NicAlert test). In the NicAlert test, urine cotinine at level 2 or below (30-100 ng/ml) indicates *non-smoker*; level 3 or above (100-200 ng/ml) indicates *smoker*.

* Parents who were non-adherent to the program were excluded for analysis.

8.4.4 Validation by either exhaled carbon monoxide or urine cotinine or both

Table 8-16 presents the agreement between the self-reported 7-day point prevalence of smoking cessation and the biochemical validations of the 133 self-reported quitters. The biochemical validations included a urine cotinine test (using the NicAlert test) or an exhaled carbon monoxide test, or both.

In the control group, biochemical validations confirmed the quit status of 34 (66.7%) of the 51 self-reported quitters, with Kappa agreement at 0.73 and p <0.001. In the intervention group, 54 out of 82 self-reported quitters (65.9%) were tested, but only 48 were confirmed as quitters (58.5%), with Kappa agreement at 0.64 and p<0.001.

Table 8-16 Agreement between biochemical validations* and self-reported 7-day point prevalence of smoking cessation

Biochemical validation	**Control (N=51)**		**Intervention (N=82)**	
	N	%	N	%
Disconfirmed	17	33.3	33	40.2
Confirmation rate	34	66.7	49	59.8
Kappa agreement (p value)	*0.73*	*<0.001*	*0.64*	*<0.001*

[#] Self-reported cessation was validated by urine cotinine test (using the NicAlert test) or exhaled carbon monoxide test, or both.

Both Tables 8-17 and 8-18 present comparisons between the two groups on the biochemical validations of their self-reported quitting for at least 7 days. Table 8-17 shows that more parents in the intervention group than the control group had their self-reported quitting for at least 7 days confirmed by bio-chemical validations (10.5% vs. 7.0%), with statistical significance (χ^2 =3.63, df=1, p=0.05).

Table 8-17 Biochemical validation[#] of smoking cessation for 7 days analyzed by *intention to treat*[*]

Biochemical validation	Control (N=485)		Intervention (N=467)	
	N	%	N	%
Quit	34	7.0	49	10.5
Did not quit	451	93.0	418	89.5
χ^2= 3.63 df=1 p=0.05				

[#] Self-reported cessation was validated by urine cotinine test (using the NicAlert test) or exhaled carbon monoxide test, or both.

* The bio-validated results were computed based on the *intention to treat* principle; parents who did not attend for testing and were non-adherent to the program were considered as disconfirmed quitting.

Table 8-18 shows the same comparison analyzed by excluding those lost to follow-up. A similar trend was observed, with statistically significantly more parents in the intervention group than in the control group having their quitting status biochemically validated (12.4% vs. 7.7%), (χ^2=5.29, df=1, p<0.05).

Table 8-18 Biochemical validation[#] of smoking cessation analyzed by *excluding those lost to follow-up*[*]

Biochemical validation	Control (N=444)		Intervention (N=395)	
	N	%	N	%
Quit	34	7.7	49	12.4
Did not quit	410	92.3	346	87.6
χ^2= 5.29 df=1 p<0.05				

[#] Self-reported cessation was validated by urine cotinine test (using the NicAlert test) or exhaled carbon monoxide test, or both.

* Parents who were non-adherent to the program were excluded for analysis.

8.5 Other outcome indicators: 24-hour point prevalence of cessation

Tables 8-19 and 8-20 show the comparison between two groups of parents in their self-reported 24-hour point prevalence of smoking cessation. A total of 149 parents reported 24-hour point prevalence of cessation, 58 from the control group and 91 from the intervention group.

Table 8-19 presents the comparison of self-reported quitting in the two groups by the intention to treat principle. The quit rate of the intervention group (19.5%) was statistically significantly higher than that of the control group (12.0%) (χ^2 =10.21, df=1, p=0.001). Table 8-20 presents the results analyzed by excluding those lost to follow-up. A even more prominent significant difference was observed with the quit rates of 23.0% in the intervention group and 13.1% in the control group (χ^2=14.2, df=1, p<0.001).

Table 8-19 Self-reported 24-hour point prevalence of smoking cessation analyzed by *intention to treat* *

Self-reported 24-hour point prevalence of smoking cessation	Control (N=485)		Intervention (N=467)	
	N	%	N	%
Quit	58	12.0	91	19.5
Did not quit	427	88.0	376	80.5
χ^2= 10.21 df=1 p=0.001				

* Results were based on intention to treat principle: parents who did not complete the intervention (withdrawn / could not be contacted) were considered smokers.

Table 8-20 Self-reported 24-hour point prevalence among all the 839 participants *remaining at 6-month follow-up* *

Self-reported 24-hour point prevalence	Control (N=444)		Intervention (N=395)	
	N	%	N	%
Quit	58	13.1	91	23.0
Did not quit	386	86.9	304	77.0
χ^2=14.2 df=1 p<0.001				

* Results were based on the number of participants available at 6 months: parents who did not complete the intervention (withdrawn / could not be contacted) were excluded.

8.6 Other outcome indicators: 180 days' continuous abstinence

Tables 8-21 and 8-22 show comparisons between the two groups of parents in terms of their self-reported status of 180 days' continuous abstinence. A total of 52 parents reported 180 days' continuous abstinence, 22 of whom were from the control group and 30 from the intervention group.

Table 8-21 presents the results analyzed by the intention to treat principle, while Table 8-22 presents the results analyzed by excluding those lost to follow-up. The quit rates of the intervention group (6.4% and 7.6%) were higher than those of the control group (4.5% and 5.0% by the intention to treat principle and by excluding the lost to follow-up respectively), but no statistical significance was identified.

Table 8-21 Self-reported 180 days' continuous abstinence by *intention to treat* *

Self-reported 180 days' continuous abstinence	**Control (N=485)**		**Intervention (N=467)**	
	N	%	N	%
Quit	22	4.5	30	6.4
Did not quit	463	95.5	437	93.6
χ^2= 1.64 df= 1 p=0.20				

*Results were based on *intention to treat* principle: parents who did not complete the intervention (withdrawn / could not be contacted) were considered smokers.

Table 8-22 Self-reported 180 days' continuous abstinence by *excluding those lost to follow-up**

Self-reported 180 days' continuous abstinence	**Control (N=444)**		**Intervention (N=395)**	
	N	%	N	%
Quit	22	5.0	30	7.6
Did not quit	422	95.0	365	92.4
χ^2=2.51 df=1 p=0.11				

* Results were based on the number of participants available at 6 months: parents who did not complete the intervention (withdrawn / could not be contacted) were excluded.

8.7 Primary outcome measures of smoking cessation adjusted by confounding factors

Analysis of logistic regression (forward stepwise method) was conducted to examine both the crude odds ratio and the adjusted odds ratio by the intention to treat principle and by excluding those lost to follow-up, taking into account all unmatched variables (age distribution, number of years smoked, alcohol dependency and marital efficiency) between the intervention and control groups.

.

Table 8-23 presents the various outcome measures of the quit rates analyzed by the intention to treat principle. More parents in the intervention group (17.6%; 82/467) than the control group (10.5%; 51/485) self-reported as quitters for 7 days or more ($p<0.05$), giving an absolute risk reduction of 7.1% (95%CI, 2.70% - 11.50%). The number needed to treat (NNT) to get one additional smoking parent to quit was calculated to be 14 (9–37). The crude odds ratio of quitting was 1.8 (95% CI: 1.3-2.6; $p<0.05$). Significantly more self-reported quitting was noted in the intervention group than the control group after controlling for the previously mentioned unmatched baseline variables between the groups (adjusted OR: 1.8; 95% CI: 1.2-2.6; $p<0.005$).

Table 8-23 also shows that the 24-hour point prevalence of smoke quitting was higher in the intervention group (20%) than in the control group (12.0%), with adjusted OR=1.7; 95%CI: 1.2-2.4, $p<0.01$. There were also more smoking parents in the intervention group (6.4%) than in the control group (4.6%) who reported 180 days' continuous abstinence, but there was no significant difference, with adjusted OR=1.4; 95%CI: 0.8-2.5, $p=0.25$.

The confirmed quit status of the parents for the 7-day point prevalence validated by the exhaled carbon monoxide tests was higher in the intervention group (9.4%) than in the control group (6.8%) (adjusted OR=1.4; 95%CI: 0.9-2.3, p=0.18). A similar trend was noted before adjusting for the unmatched baseline variables between groups (crude OR=1.4; 95%CI: 0.9-2.3, p=0.14).

More confirmed quitting was noted in the intervention group than the control group by urine cotinine validation (10.3% vs. 7.7%) but the differences were not statistically significant (adjusted OR=1.5 95%CI: 1.0-2.4, p=0.10). The trend was similar but also with no significant difference before adjusting for the baseline unmatched variables between groups (crude OR=1.5 95%CI: 1.0-2.4, p=0.07).

The exhaled carbon monoxide test and the urinary cotinine test were combined with the spousal proxy reports to aggregate the confirmed smoking cessation status of the smoking parents. This was done because some of the self-reported quitters were not available for final assessment and validation tests. The results revealed that the combined validation of the spousal and biochemical reports was similar to the validation of each individual measure.

The results also show that the biochemically (either urine cotinine or exhaled carbon monoxide or both) validated quit rates were significantly greater in the intervention group (10.5%; 49/467) than in the control group (7.0%; 34/485) ($p<0.05$). The absolute risk reduction was 3.5% (0.60% to 7.09%), with the number needed to treat of 29 (14-167).

Table 8-23 Smoking cessation status confirmed by various outcome indicators, analyzed *by intention to treat* [+]

QUIT RATES	Control		Intervention		Crude OR (95% CI)	Adjusted OR[++] (95% CI)
	N	%	N	%		
Self-reported						
7-day point prevalence (main outcome)	51	10.5	82	17.6	1.8 * (1.3-2.6)	1.8 ** (1.2-2.6)
24-hour point prevalence	58	12.0	91	20.0	1.8 ** (1.2-2.5)	1.7 ** (1.2-2.4)
Continuous abstinence	22	4.6	30	6.4	1.5 (0.8-2.5)	1.4 (0.8-2.5)
Biochemical measures validated						
7-day point prevalence quit rate						
Exhaled carbon monoxide (CO)	33	6.8	44	9.4	1.4 (0.9-2.3)	1.4 (0.9-2.3)
Either CO or spousal proxy or both [#]	44	9.1	55	11.8	1.3 (0.9-2.0)	1.3 (0.8-2.0)
Urine cotinine	34	7.0	48	10.3	1.5 (1.0-2.4)	1.5 (1.0-2.4)
Either urine cotinine or spousal proxy or both [##]	44	9.1	59	12.6	1.5 (1.0-2.2)	1.4 (1.0-2.2)
Either CO or urine cotinine or both	34	7.0	49	10.5	1.6 (1.0-2.5)	1.7 * (1.1-2.7)

Note: OR = odds ratio; CI= confidence interval

[+] Results were based on *intention to treat* principle: parents who did not complete the intervention (withdrawn / could not be contacted) were considered smokers. Those who had no validation were also considered as smokers.

[++] Adjusted for unmatched variables (age distribution, number of years smoked, alcohol dependency and marital efficiency) between intervention and control groups.

[#] Self-reported cessation was validated by exhaled carbon monoxide (CO) or spousal proxy; cutoff for CO concentration: 8ppm or below = non-current smoker; 9 ppm or above = current smoker. For the spousal proxy report, the husband or wife was asked to report their spouse's smoking status in a separate interview.

[##] Self-reported cessation was validated by urine cotinine test (using the NicAlert test) or spousal proxy. In the NicAlert test, urine cotinine at level 2 or below (30-100 ng/ml) indicates *non-smoker*; level 3 or above (100-200 ng/ml) indicates *smoker*.

P value: * < 0.05; ** ≤ 0.01, *** < 0.001

Table 8-24 presents the same analysis by excluding those lost to follow-up using the total of 839 parents who remained in the study at 6 months. The results are similar to those analyzed by intention to treat.

Analysis was done by logistic regression, and adjusted by the unmatched variables in the baseline. The reported smoking cessation rates at 7 days and 24 hours for the intervention group were 20.8% and 23.0% respectively. In the control group, the 7-day and 24-hour smoking cessation rates were 11.5% and 13.1% respectively. The adjusted OR for 7 days' cessation was 1.9, 95%CI 1.3-2.9 and $p<0.001$, and the adjusted OR for 24 hours of smoking cessation was 1.9, 95%CI 1.3-2.7 and $p<0.001$.

An examination of the results for continuous abstinence from smoking for 180 days revealed that here, too, more parents in the intervention group had achieved quitting (7.6%) than in the control group (5.0%), but no significant difference was observed (adjusted OR=1.6 95%CI:0.9-2.8, p=0.14).

Based on the biochemical validations, more confirmed quitting was observed in the intervention group than in control group by urine cotinine validation (12.2% vs. 7.7%; adjusted OR=1.6 95%CI: 1.0-2.7, $p<0.05$) and either urine cotinine or spousal validation (14.9% vs. 9.9%; adjusted OR=1.5 95%CI: 1.0-2.4, $p<0.05$).

Table 8-24 Smoking cessation status confirmed using various outcome indicators by *excluding those lost to follow-up* [+]

QUIT RATES	Control		Intervention		Crude OR (95% CI)	Adjusted OR[++] (95% CI)
	N	%	N	%		
Self-reported						
7-day point prevalence (main outcome)	51	11.5	82	20.8	2.0 *** (1.4-3.0)	1.9 *** (1.3-2.9)
24-hour point prevalence	58	13.1	91	23.0	2.0 *** (1.4-2.9)	1.9 *** (1.3-2.7)
Continuous abstinence	22	5.0	30	7.6	1.6 (0.9-2.8)	1.6 (0.9-2.8)
Biochemical measures validated						
7-day point prevalence quit rate						
Exhaled carbon monoxide (CO)	33	7.4	44	11.1	1.6 (1.0-2.5)	1.5 (0.9-2.5)
Either CO or spousal proxy or both [#]	44	9.9	55	14.0	1.5 (1.0-2.0)	1.4 (0.9-2.2)
Urine cotinine	34	7.7	48	12.2	1.7 * (1.1-2.6)	1.6 * (1.0-2.7)
Either urine cotinine or spousal proxy or both [##]	44	9.9	59	14.9	1.6 ** (1.1-2.4)	1.5 * (1.0-2.4)
Either CO or urine cotinine or both	34	7.7	49	12.4	1.6 (1.0-2.5)	1.5 (1.0-2.5)

Note: OR = odds ratio; CI= confidence interval

+ Results were based on the number of participants available at 6 months: parents who did not complete the intervention (withdrawn / could not be contacted) were excluded.

++ Adjusted for unmatched variables (age distribution, number of years smoked, alcohol dependency and marital efficiency) between intervention and control group.

[#] Self-reported cessation was validated by exhaled carbon monoxide (CO) or spousal proxy; cutoff for CO concentration: 8ppm or below = non-current smoker; 9 ppm or above = current smoker. For the spousal proxy report, the husband or wife was asked to report their spouse's smoking status in a separate interview.

[##] Self-reported cessation was validated by urine cotinine test (using the NicAlert test) or spousal proxy. In the NicAlert test, urine cotinine at level 2 or below (30-100 ng/ml) indicates *non-smoker*; level 3 or above (100-200 ng/ml) indicates *smoker*.

P value: * < 0.05; **< 0.01, *** < 0.001

8.8 Comparison between successful quitters and non-quitters

Chi-squared tests were performed to identify the factors other than group allocation that were associated with successful quitting based on the primary outcome measures. Comparisons were made of the characteristics of the parents at the baseline: (1) social-demographic characteristics, (2) smoking behaviors, (3) previous quitting attempts and smoking cessation self-efficacy, (4) and (5) health condition of the smoking parents and their children, and (6) reasons for attempting to quit. These comparisons are described below.

Table 8-25 compares the baseline socio-demographic characteristics of the quitters and non-quitters. A total of 133 (14.0%) of the 952 parents who adhered to the study reported themselves as having been successful in quitting for more than 7 days. The successful quitters were likely mothers (21.1% vs 14.8%), aged between 36-45 years (54.9% vs 53.8%), with a tertiary level of education (6.8% vs 4.2%), with a monthly household income between HK$10,000-29,999 (68.5% vs 66.5%) or HK$30,000 or above (20.0% vs 17.1%), housewives (9.1% vs 7.4%) or unemployed (5.3 % vs 4.8%), married (98.5% vs 97.6%), and living on Hong Kong island (18.8% vs 15.4%). However, the quitters and non-quitters did not differ with statistical significance on all these demographic variables.

Table 8-25 Demographic differences between successful quitters and non-quitters (N=952)

Characteristics	Non-quitters (N =819)		Quitters (N =133)		χ^2 (df)
	n	%	n	%	
Demographics:					
Gender					3.42
Mother	121	14.8	28	21.1	(1)
Father	698	85.2	105	78.9	
Age					3.33
35 or below	286	35.0	43	32.4	(2)
36-45	439	53.8	79	54.9	
46 or above	91	11.2	11	8.3	
Educational attainment					2.25
Primary or below	159	19.4	22	16.5	(3)
Secondary	605	74.0	99	74.4	
Matriculation	20	2.4	3	2.3	
Tertiary	34	4.2	9	6.8	
Monthly household income					2.31
HK$9,999 or less	128	16.5	15	11.5	(2)
HK$10,000-29,999	517	66.5	89	68.5	
HK$30,000 or above	133	17.1	26	20.0	
Employment status					0.89
Currently employed	705	86.8	111	84.1	(3)
Housewife	60	7.4	12	9.1	
Full-time student	8	1.0	2	1.5	
Unemployed	39	4.8	7	5.3	
Marital status					0.45
Married	799	97.6	131	98.5	(1)
Separated/divorced	20	2.4	2	1.5	
District					1.35
Hong Kong Island	126	15.4	25	18.8	(2)
Kowloon	228	27.9	39	29.3	
New Territories	462	56.6	69	51.9	

The total number may not add up to 952 due to missing data

US$1= HK$ 7.8.

** P value = 0.01

Table 8-26 compares the baseline smoking behaviors of the quitters and non-quitters. They did not differ on the total number of smokers living in the same household, spousal smoking status and whether they smoked other types of tobacco-related products.

There was a significant difference with regard to successful quitting between those parents who did not smoke at home at the baseline (21.2%) and those who did (13.0%) (χ^2=6.34, df=1 $p<0.05$). Further, a higher proportion of successful quitters was observed among those parents who consumed 10 or fewer than 10 cigarettes per day at the baseline (58.2%) than among those who consumed 11-20 (39.1%) or more than 20 cigarettes per day (2.7%), giving χ^2=15.23, df=2, $p<0.001$. Successful quitters were also more likely to have low nicotine dependency (66.2% vs. 54.3%) and to have started regular smoking either before 15 years (16.5% vs. 14.1%) or aged 25-29 (12.8% vs. 4.8%) with (χ^2=8.57, df=2 $p<0.01$) and (χ^2=14.66, df=4 $p<0.01$) respectively.

Table 8-26 Comparison between successful quitters and non-quitters by parental smoking behaviors at baseline (N=952)

Parental smoking behaviors	Non-quitters (N =819)		Quitters (N =133)		χ^2 (df)
	n	%	n	%	
Total number of smokers in the household					0.02
1	548	68.6	89	67.9	(1)
2 or above	251	31.4	42	32.1	
Spousal smoking					1.15
Yes	614	75.0	94	70.7	(2)
No	196	23.9	37	27.8	
Smoked at home					6.34*
Yes	704	87.0	104	78.8	(1)
No	105	13.0	28	21.2	
Daily cigarette consumption in previous 1 month					15.23***
10 or less	324	40.1	64	58.2	(2)
11-20	404	50.1	43	39.1	
21+	79	9.8	3	2.7	
Smoked other tobacco-related products					0.03
Yes	65	8.0	10	7.6	(1)
No	750	92.0	122	92.4	
Nicotine dependency level †					8.57*
Low	446	54.6	86	66.2	(2)
Moderate	210	25.7	31	23.8	
Severe	161	19.7	13	10.0	
Age started smoking cigarettes regularly					14.66*
<15	141	14.1	22	16.5	(4)
15-19	430	53.1	59	44.4	
20-24	217	26.8	34	25.6	
25-29	39	4.8	17	12.8	
30 or above	10	1.2	1	0.8	

The total number may not add up to the given total due to missing data.
† Nicotine dependence level was measured by the Fagerstrom scale, divided into 3 levels: low (score 0-3), moderate (score 4-5) and severe (score = 6-10).
P value: *<0.05; **<0.01,*** <0.001

Table 8-27 compares the quitting history and smoking cessation self-efficacy at the baseline between the successful quitters and the non-quitters. They did not differ on whether they had attempted quitting prior to the baseline interview, their perceptions of the difficulty of quitting, their levels of alcohol dependency and their marital efficiency.

However, successful quitters were more likely to have maintained cessation for longer than a month in previous quitting attempts reported in the baseline interview (53.5% vs. 41.9%, $p<0.05$), more prepared to quit within a month's time (5.3% vs. 3.9%) and more likely to have stopped smoking (23.3% vs. 2.2%), with $\chi^2=106.41$, df=3, and $p<0.001$. Successful quitters were also more likely to perceive greater importance in quitting smoking (62.6% vs. 51.3%, $\chi^2=5.74$, df=1 $p<0.05$) and to have more confidence in their ability to quit (60.3% vs. 33.2%, $\chi^2=35.37$, df=1 $p<0.001$).

Table 8-27 Comparison of quitting history and related variables between non-quitters and successful quitters (N=952)

Quitting history	Non-quitters (N =819)		Quitters (N =133)		χ^2 (df)
	N	%	n	%	
No. of previous quitting attempt(s)					2.31
None	237	28.9	30	22.6	(1)
One or more	582	71.1	103	77.4	
Length of abstinence in the last quitting attempt					4.67*
One month or less	333	58.1	46	46.5	(1)
More than a month	240	41.9	53	53.5	
Stage of readiness to quit smoking					106.41***
Pre-contemplation	578	70.6	68	51.1	(3)
Contemplation	191	23.3	27	20.3	
Preparation	32	3.9	7	5.3	
Action	18	2.2	31	23.3	
Perception of quitting:					
Importance of quitting (mean=61)					5.75*
Less important (below mean)	390	48.7	49	37.4	(1)
More important (below mean)	411	51.3	82	62.6	
Difficulty of quitting (mean=58)					1.7
Less difficult (below mean)	355	44.3	66	50.4	(1)
More difficult (above mean)	447	55.7	65	49.6	
Confidence in ability to quit (mean=50)					35.37*
Less confident (below mean)	527	66.8	52	39.7	(1)
More confident (above mean)	262	33.2	79	60.3	
Alcohol dependency level					0.05
Not dependent	780	95.8	128	96.2	(1)
Dependent	34	4.2	5	3.8	
Marital locus of control [#]					2.02
Low	599	77.8	93	72.1	(1)
High	171	22.2	36	27.9	
Method adopted for quitting prior to baseline interview:					
Received help from medical professionals	2	0.3	3	2.9	8.01** (1)
Participated in smoking cessation program	2	0.3	-	-	0.35 (1)
Used nicotine replacement therapy for quitting	16	2.8	9	8.8	9.00** (1)

The total number may not add up to the same for each item, due to missing data.

[#] Marital locus of control was measured by asking 8 questions. A score of 23 or below was considered as a low score, and a score of 24 or above was considered as high marital locus of control.

P value: *<0.05; **<0.01,*** <0.001

Table 8-28 compares the self-perceived health status, frequent respiratory symptoms and medical problems requiring follow-up or hospitalization at baseline between the quitters and non-quitters, and reveals no association.

Table 8-28 Distribution of non-quitters and quitters by smoking parents' health condition at baseline (N=952)

Health condition of parent smokers	Non-quitters (N =819)		Quitters (N =133)		χ^2 (df)
	n	%	n	%	
Self-perceived health status in the previous 3 months					0.85
Good or very good	769	94.2	127	96.2	(1)
Poor or very poor	47	5.8	5	3.8	
Frequent sore or uncomfortable throat					0.61
Yes	79	9.6	10	7.5	(1)
No	740	90.4	123	92.5	
Frequent cough in the morning after waking up					0.09
Yes	115	14.0	20	15.0	(1)
No	704	86.0	113	85.0	
Frequent cough in the day- or night-time					1.14
Yes	57	7.0	6	4.5	(1)
No	757	93.0	127	95.5	
Frequent phlegm in the morning after waking up					0.00
Yes	238	29.1	39	29.3	(1)
No	581	70.9	94	70.7	
Frequent phlegm in the day- or night-time					1.52
Yes	98	12.0	11	8.3	(1)
No	717	88.0	121	91.7	
Frequent asthma sound in lungs or chest					0.60
Yes	51	6.2	6	4.5	(1)
No	768	93.8	127	95.5	
Frequent running nose or nasal congestion					0.81
Yes	111	13.6	22	16.5	(1)
No	704	86.4	111	83.5	
Had medical problems that required regular follow-up/hospitalization in the previous 6 months					3.01
Yes	162	19.9	35	26.5	(1)
No	652	80.1	97	73.5	

The total number may not add up to the same for each item, due to missing data.
P value : *<0.05; **<0.01,*** <0.001

Table 8-29 shows a comparison of the children's health status between the non-quitters and successful quitters. Of the 862 children, 124 (14.4%) came from parents who had successfully quit and 738 (85.6%) from those who had not quit. The children of successful quitters were perceived as having better health (96.9% vs. 93.8%), but with no statistical significance. Fewer of the children of successful quitters were reported as having frequent morning cough (2.4%) and phlegm (0.8%), as compared to 8.2% and 4.7% respectively of the children from non-quitters (χ^2=5.20, df=1 p<0.05 and χ^2=4.10, df=1 p<0.05). There was no relationship between quitting and the children's required medical consultations or hospital admissions.

Table 8-29 Comparison of children's health status between non-quitters and quitters (N=862)

Health condition of children with smoking parents	Non-quitters (N =738)		Quitters (N =124)		χ^2 statistic (df)
	n	%	n	%	
Child's health status					1.55
Good or very good	665	93.8	116	96.7	(2)
Poor or very poor	44	6.2	4	3.3	
Child had frequent morning cough					5.19*
Yes	59	8.2	3	2.4	(1)
No	660	91.8	121	97.6	
Child had frequent morning phlegm					4.10*
Yes	34	4.7	1	0.8	(1)
No	684	95.3	123	99.2	
Number of child's doctor consultations					4.70
0	95	13.2	18	14.5	(3)
1-3	409	56.6	75	60.5	
4-6	145	20.1	26	21.0	
7 or above	73	10.1	5	4.0	
Had medical problem that required regular follow-up/hospitalization in the previous 6 months					0.59
Yes	35	4.9	8	6.5	(1)
No	685	95.1	115	93.5	

The total number may not add up to the same for each item, due to missing data.

P value: *<0.05; **<0.01, *** <0.001

Table 8-30 presents a comparison of reasons given for ever having attempted to quit smoking at the baseline interview. There were no significant relationships between quitting (or not) and whether the parents had received smoking cessation advice from health professionals, recognized pollution caused by smoking, been encouraged to quit by other quitters, been isolated from non-smokers, wanted to save money, and perceived the effects of anti-smoking campaigns.

However, quitters were more likely to recognize the disadvantages of smoking to family members (36.9% vs. 20.7%, χ^2=12.92, df=1 p<0.001), to have been encouraged to quit by family, friends and relatives (13.6% vs. 7.6% χ^2=4.06, df=1 p<0.05), to have addressed the disadvantages of smoking to their own health (36.9% vs. 27.2%, χ^2=3.98, df=1 p<0.05) and to believe that smoking had set a bad example to their children (4.9% vs. 1.4%, χ^2=5.66, df=1 p<0.05).

Table 8-30 Comparison of reasons for ever attempting to quit between non-quitters and successful quitters (N=952)

Reasons for attempting to quit	Non-quitters (N =819)		Quitters (N =133)		p-value χ^2 tests
	n	%	n	%	
Received advice to quit from health professionals					0.74
Yes	14	2.4	4	3.9	(1)
No	566	97.6	99	96.1	
Recognized the disadvantage of smoking to family					12.92***
Yes	120	20.7	38	36.9	(1)
No	460	79.3	65	63.1	
Recognized pollution caused by smoking					0.01
Yes	5	0.9	1	1.0	(1)
No	575	99.1	102	99.0	
Encouragement from family, friends or relatives					4.06*
Yes	44	7.6	14	13.6	(1)
No	536	92.4	89	86.4	
Encouragement from other quitters					0.56
Yes	2	0.3		-	(1)
No	578	99.7	103	100.0	
Isolation from non-smokers (in public areas or from family)					0.04
Yes	15	2.6	3	2.9	(1)
No	565	97.4	100	97.1	
Addressed the disadvantages of smoking to one's own health					3.98*
Yes	158	27.2	38	36.9	(1)
No	422	72.8	65	63.1	
Smoking set a bad example to children					5.66*
Yes	8	1.4	5	4.9	(1)
No	572	98.6	98	95.1	
Save money					0.04
Yes	58	10.0	11	10.7	(1)
No	522	90.0	92	89.3	
Effect of public anti-smoking campaigns					0.01
Yes	5	0.9	1	1.0	(1)
No	575	99.1	102	99.0	

The total number may not add up to the same for each item, due to missing data.

P value : *<0.05; **<0.01,*** <0.001

8.9 Factors associated with successful quitting

To identify the predictive factors associated with successful quitting for 7 days at the 6-month follow-up, potential predictors (those with significant differences in previous comparisons) were included in the logistic regression for analysis. The potential predictors included demographic characteristics (Table 8-25), smoking behaviors (Table 8-26), quitting behaviors (Table 8-27), smoking parents' own health (Table 8-28) and their children's health (Table 8-29), and the parents' reported reasons for quitting smoking (Table 8-30). In these previous univariate analyses, sixteen variables were found to be significantly associated with successful quitting: being randomized to the intervention group, not smoking at home, smoking 10 or fewer cigarettes in the previous one month, not being severely dependent on nicotine, starting to smoke after age 24, quitting for more than a month in the last quitting attempt, being in the action stage at baseline, perceiving greater importance of quitting, child having frequent morning cough in the previous 6 months, child having frequent morning phlegm in the previous 6 months, recognizing disadvantages of smoking to family, receiving encouragement from family or friends or other relatives, knowing disadvantages of smoking to one's own health, and understanding that smoking set a bad example to children.

Logistic regression was performed firstly by "forced entry method" to examine all the above possible significant variables identified in the univariate analysis to obtain the adjusted odds ratio and the levels of significance of all the potential predictive variables (Table 8-31). A multiple logistic regression analysis by forward stepwise method was then analyzed to investigate the final model, and

adjusting for other factors was performed. The variables remaining in the final model were identified as the predictive factors associated with successful quitting on 7-day point prevalence (Table 8-32).

The model of logistic regression (Enter) identified five independent predictors of quitting (Table 8-31). The parents in the intervention group were 2.5 times more likely to achieve quitting than those in the control group (95%CI: 1.6-4.0, $p<0.001$). There was an overall trend in the adjusted odds ratio of the stage of readiness to quit at the baseline which suggested that being in the action stage was a strong predictor of parents' successful quitting (adjusted OR: 6.7; 95%CI: 2.1-21.0, $p<0.01$). The daily cigarette consumption in the previous one month ($p<0.01$), the child's frequent cough in the previous 6 months (adjusted OR: 4.0; 95%CI: 1.2-13.7, $p<0.05$) and parents' greater confidence in their ability to quit (adjusted OR: 2.3; 95%CI: 1.5-3.6, $p<0.01$) were also associated with successful quitting.

Table 8-31 Summary of logistic regression model *(enter)* to predict successful quitting for self-reported 7-days point prevalence, by *intention to treat**

Independent variables	Adjusted OR** (95% CI)	P value
Group (referent = control)		
Intervention	2.5 (1.6-4.0)	**<0.001**
Stage of quitting at baseline (referent = pre-contemplation stage)		**<0.01**
Contemplation stage	0.9 (0.5-1.4)	0.60
Preparation stage	0.9 (0.3-2.3)	0.80
Action stage	6.7 (2.1-21.0)	<0.01
Daily cigarette consumption in previous 1 month (referent = daily cigarette consumption of more than 20)		**<0.01**
No consumption	10.1 (1.7-60.0)	<0.05
10 or less	5.5 (1.6-18.6)	<0.01
11-20	3.1 (0.9-10.8)	0.07
Child's frequent morning cough in the previous 6 months (referent = no)	4.0 (1.2-13.7)	<0.05
Greater confidence in ability to quit (referent = less confidence)	2.3 (1.5-3.6)	<0.001

- 2 log likelihood 617.80
Model chi-square (df=9) 125.51
P < 0.001
Overall rate of correct classification: 87.3%

Note: OR = odds ratio; CI= confidence interval
*Results are based on *intention to treat* principle: parents who did not complete the intervention (withdrawn / could not be contacted) were considered as smokers.
**Adjusted for unmatched variables (age distribution, number of years smoked, alcohol dependency and marital efficiency) between intervention and control groups at baseline and all the sixteen significant variables in the univariate analysis.

Further analysis was performed by the forward stepwise method. Table 8-32 presents the final model of the logistic regression model (forward stepwise) to predict successful quitting for 7 days in this proactive telephone-based smoking cessation program. Results show that the predictors of successful quitting were being randomized into the intervention group (OR=2.6, 95%CI: 1.6-4.0 $p<0.001$), being in the action stage at baseline (OR=6.4, 95%CI: 2.0-20.1 $p<0.01$), and consuming nil (OR=9.6, 95%CI: 1.6-58.7 $p<0.05$) or less than 11 cigarettes per day (OR=5.0, 95%CI: 1.5-17.4 $p<0.01$). Parents who had children with frequent morning cough in the previous 6 months (OR=4.8, 95%CI: 1.1-20.8 $p<0.05$) and those who had more confidence in their ability to quit (OR=2.3; 95%CI: 1.4-3.5 $p<0.001$) were also more likely to achieved successful cessation.

Table 8-32 Summary of logistic regression model *(forward stepwise)* to predict successful quitting for 7 days at 6-month follow-up by *intention to treat*[*]

Independent variables	Adjusted OR (95% CI)[**]	P value
Group (referent = control)		
Intervention	2.6 (1.6-4.0)	**<0.001**
Stage of quitting at baseline (referent = pre-contemplation stage)		**<0.01**
Contemplation stage	0.8 (0.4-1.3)	0.32
Preparation stage	0.9 (0.3-2.4)	0.84
Action stage	6.4 (2.0-20.1)	<0.01
Daily cigarette consumption in previous 1 month (referent = daily cigarette consumption of more than 20)		**<0.01**
No consumption	9.6 (1.6-58.7)	<0.05
10 or less	5.0 (1.5-17.4)	<0.01
11-20	3.0 (0.9-10.5)	0.08
Child's frequent morning cough (referent = no)	4.8 (1.1-20.8)	<0.05
Perceived more confidence in quitting (referent = less confidence)	2.3 (1.4-3.5)	<0.001
- 2 log likelihood	**573.54**	
Model chi-square (df=9)	**112.72**	
P	**< 0.001**	
Overall rate of correct classification: 87.2%		

Note: OR = odds ratio; CI= confidence interval
Missing data up to 5.6%
*Results are based on *intention to treat* principle: parents who did not complete the intervention (withdrawn / could not be contacted) were considered as smokers.
** Adjusted for unmatched variables (age distribution, number of years smoked, alcohol dependency and marital efficiency) between intervention and control groups at baseline and all the significant variables in the univariate analysis.

8.10 Summary

This chapter presented the quit rates based on various outcomes analyzed at the 6-month follow-up, the agreement between the main outcome indicator (7-day point prevalence) and the spousal and biochemical validations. The characteristics and predictors for successful quitting were also illustrated. The study results of the two methods of analyses, either by excluding the 113 lost to follow-up or by the intention to treat principle, were very similar. The self-reported quitting was significantly in agreement with the kappa statistics, with both spousal proxy reports and biochemical validations. Self-reported quitting was found to be quite reliable as an indication of quitting among smoking parents.

However, there were higher Kappa agreements in the control group than in the intervention group. It should be noted, however, that there were more lost to follow-up parents in the intervention group and when analysis was done by the intention to treat, where unobtainable spousal proxy reports of smoking status and the lack of biochemical validations were considered as disconfirmed quitting.

There were statistically significant effects in both the 24-hour and 7-day point prevalence of smoking cessation, but not in the 180 days' continuous abstinence in the intervention group compared with the control group, as shown in its crude and adjusted odds ratio. Parents in the intervention group were 1.8 times more likely to achieve successful cessation than the control group in terms of the 7-day outcome indicator of smoking cessation by intention to treat. Given a reduction of 7.1% in the risk of continued smoking for the intervention group

compared with that of the control group, the number needed to treat to get one additional smoking parent to quit was 14.

Five factors were identified as being associated with successful quitting after adjusting for each other: being randomized to the intervention group, being in the action stage at baseline, smoking 10 or fewer cigarettes in the previous month, child having frequent morning cough in the previous six months and having more confidence in their ability to quit. Not smoking in the month before the 6-month follow-up interview and being in the action stage at baseline were the two strongest predictors of quitting, contributing 9 times and 6 times more likelihood of successful quitting respectively.

Chapter 9

Secondary outcome measures
Comparing baseline and 6-month follow-up

9.1 Introduction

This chapter describes the secondary outcome measures comparing changes between the baseline and 6-month follow-up both within and between the intervention and control groups. As it was unlikely and not easy for most parents who entered this trial to achieve smoking cessation, the measures of secondary outcomes to reflect the extent of quitting motivation and the behavioral changes of the smoking parents are useful. The secondary outcome indicators in this study are (1) progression of the smoking parents along the stages of readiness to quit, (2) reduction of cigarette consumption, (3) increases in quit attempts, and (4) improvements of household smoking hygiene practice. The analysis in this chapter is also presented by both the intention to treat principle and by excluding those lost to follow-up.

9.2 Distribution and stage progression in readiness for smoking cessation

Stage progression in readiness for smoking cessation was assessed by Prochaska's stages of readiness to quit smoking (pre-contemplation, contemplation, preparation, action and maintenance) and comparing the changes from the baseline to the 6-month follow-up. The stages of readiness to quit of the smoking parents at the baseline were cross-tabulated against their stages of changes at the 6-month follow-up, excluding those lost to follow-up for analysis (Table 9-1). The bolded diagonal represents the proportion of parents who remained in the same stage at the two time points.

In the control group, 75.8% of the 314 parents initially in the pre-contemplation stage at baseline remained in the same stage at follow-up, whereas 14.3% had

progressed to the contemplation stage, 1.0% to the preparation stage, and 7.6% and 1.3 % to the action and maintenance stages respectively. About half (54.5%) of the 88 smoking parents in the contemplation stage at baseline regressed to the pre-contemplation stage, one-third (30.7%) remained, and 2.3%, 9.1% and 3.4% progressed to the preparation, action and maintenance stages respectively. About 62.5% of the 16 smoking parents in the preparation stage at baseline regressed to pre-contemplation, and 25% to contemplation; 6.3% remained in the same stage, and another 6.3% progressed to the action stage at the 6-month follow-up. 12.5%, 8.3% and 4.2% of the parents who were in the action stage at baseline regressed to the pre-contemplation, contemplation and preparation stages respectively, 16.7% remained in the action stage, and more than half (58.3%) were maintaining abstinence at the 6-month follow-up.

In the intervention group, 65% of 254 parents initially in the pre-contemplation stage at baseline remained the same, while 14.6% and 2.0% progressed to contemplation and preparation respectively. Another 13.0% and 5.5% reached action and maintenance at follow-up. More than half (57.8%) of the 102 parents initially in the contemplation stage regressed to pre-contemplation, 14.7% remained the same, and 4.9%, 17.6% and 4.9% progressed to preparation, action and maintenance respectively. About 20% parents initially in the preparation stage regressed to pre-contemplation and another 20% to contemplation; 25% remained in the action stage, and 30% and 5% reached the action and maintenance stages. About one tenth of 19 parents initially in the action stage at baseline remained in the action stage; 5.3% regressed to pre-contemplation, about 10% each regressed to the contemplation and preparation stages, and

63.2% had reached the maintenance stage at follow-up. The proportions of parents reaching the action or maintenance stages were higher in the intervention group (14.9% and 8.1%) than in the control group (8.4% and 4.8%).

Table 9-1 Distribution of stages of readiness to quit smoking between baseline and 6-month follow-up: analysis by *excluding the lost to follow-up* (N=839)

Stages of quitting at baseline	Stages of quitting at 6-month follow-up					
	Total n (%)	PC n (%)	C n (%)	P n (%)	A n (%)	M n (%)
Control						
PC	314 (100.0)	**238 (75.8)**	45 (14.3)	3 (1.0)	24 (7.6)	4 (1.3)
C	88 (100.0)	48 (54.5)	**27 (30.7)**	2 (2.3)	8 (9.1)	3 (3.4)
P	16 (100.0)	10 (62.5)	4 (25.0)	**1 (6.3)**	1 (6.3)	-
A	24 (100.0)	3 (12.5)	2 (8.3)	1 (4.2)	**4 (16.7)**	14 (58.3)
Total	442 (100.0)	299 (67.6)	78 (17.6)	7 (1.6)	37 (8.4)	21 (4.8)
Intervention						
PC	254 (100.0)	**165 (65.0)**	37 (14.6)	5 (2.0)	33 (13.0)	14 (5.5)
C	102 (100.0)	59 (57.8)	**15 (14.7)**	5 (4.9)	18 (17.6)	5 (4.9)
P	20 (100.0)	4 (20.0)	4 (20.0)	**5 (25.0)**	6 (30.0)	1 (5.0)
A	19 (100.0)	1 (5.3)	2 (10.5)	2 (10.5)	**2 (10.5)**	12 (63.2)
Total	395 (100.0)	229 (58.0)	58 (14.7)	17 (4.3)	59 (14.9)	32 (8.1)

Note: PC = Pre-contemplation, C = Contemplation, P = Preparation, A = Action, M = Maintenance
Parents who were lost to follow-up (withdrawn / could not be contacted) were excluded for analysis.

Table 9-2 shows the same comparison but is analyzed by the intention to treat principle. Parents who did not complete the intervention (withdrawn/could not be contacted) were considered stage unchanged from baseline. The bolded diagonal represents the proportion of parents who remained in the same stage at the two time points. The results are similar to those reported in Table 9-1.

Table 9-2 Distribution of stages of readiness to quit smoking between baseline and 6-month follow-up: analysis by *intention to treat principle* (n=952)

Stages of quitting at baseline	Stages of quitting at 6-month follow-up					
	Total	PC	C	P	A	M
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Control						
PC	342 (100.0)	**266 (77.8)**	45 (13.2)	3 (0.9)	24 (7.0)	4 (1.2)
C	100 (100.0)	48 (48.0)	**39 (39.0)**	2 (2.0)	8 (8.0)	3 (3.0)
P	17 (100.0)	10 (58.8)	4 (23.5)	**2 (11.8)**	1 (5.9)	-
A	26 (100.0)	3 (11.5)	2 (7.7)	1 (3.8)	**6 (23.1)**	14 (53.8)
Total	485 (100.0)	327 (67.4)	90 (18.6)	8 (1.6)	39 (8.0)	21 (4.3)
Intervention						
PC	304 (100.0)	**215 (70.7)**	37 (12.2)	5 (1.6)	33 (10.9)	14 (4.6)
C	118 (100.0)	59 (50.0)	**31 (26.3)**	5 (4.2)	18 (15.3)	5 (4.2)
P	22 (100.0)	4 (18.2)	4 (18.2)	**7 (31.8)**	6 (27.3)	1 (4.5)
A	23 (100.0)	1 (4.3)	2 (8.7)	2 (8.7)	**6 (26.1)**	12 (52.2)
Total	467 (100.0)	279 (59.7)	74 (15.8)	19 (4.1)	63 (13.5)	32 (6.9)

Note: PC = Pre-contemplation, C = Contemplation, P = Preparation, A = Action, M = Maintenance
Parents who did not complete the intervention (withdrawn / could not be contacted) were considered stage unchanged from baseline.

9.2.1 Within-group comparison by McNemar and Friedman chi-square tests

Within-group comparisons of the parents' readiness to quit between the baseline and 6-month follow-up were analyzed by McNemar chi-squared tests (Tables 9-3 and 9-4). Before analysis by the McNemar chi-squared tests for dependent samples, the five stages of readiness to quit were re-categorized into two dichotomies, with '0' indicating that the parents were not ready to quit (pre-contemplation, contemplation and preparation stages) and '1' indicating the readiness of parents to quit (action and maintenance stages).

Table 9-3 shows the association of the smoking parents' readiness to quit at baseline and at the 6-month follow-up both in the control group (χ^2=20.02, df=1, p<0.001;) and in the intervention group (χ^2 =52.2, df=1, p<0.001) by the McNemar test for dependent samples.

Table 9-3 Stage movement within-group comparisons between baseline and 6-month follow-up, based on **intention to treat analysis** (N=952)

Stage of readiness at baseline	Stage of readiness at 6-month follow-up			McNemar χ^2	P value
	Not ready	Ready	*Mean(SD)*		
Control (n=485)					
Not ready	419	40	*0.12*	20.02	<0.001
Ready	8	18	*(0.33)*		
Mean (SD) = 0.05 (0.23)					
Intervention (N=467)					
Not ready	367	77	*0.20*	52.20	<0.001
Ready	9	14	*(0.40)*		
Mean (SD) = 0.05 (0.22)					

Note: stages of readiness to quit were re-categorized into 2 categories: not ready = pre-contemplation, contemplation and preparation; ready = action or maintenance.
Parents who dropped out from the trial were classified as being at the same stage as at baseline.

Table 9-4 shows the same within-group comparisons of stage movement between the baseline and 6-month follow-up, analyzed by excluding the lost to follow-up. The within-group differences of stage movement between baseline and 6-month follow-up were associated at baseline both in the control group (χ^2=23.64, df=1, p<0.001) and the intervention group (χ^2=61.48, df=1, p<0.001) by McNemar's test for dependent samples.

Table 9-4 Stage movement within-group comparisons between baseline and 6-month follow-up: *excluding lost to follow-up* for analysis (N=839)

Stage of readiness at baseline	Stage of readiness at 6-month follow-up			McNemar χ^2	P value
	Not ready	Ready	*Mean(SD)*		
Control (n=444)					
Not ready	378	40	*0.13*	23.64	<0.001
Ready	6	18	*(0.34)*		
Mean (SD) = 0.05 (0.23)					
Intervention (N=395)					
Not ready	299	77	*0.23*	61.48	<0.001
Ready	5	14	*(0.42)*		
Mean (SD) = 0.05 (0.22)					

Note: stages of readiness to quit were re-categorized into 2 categories: not ready = pre-contemplation, contemplation and preparation; ready = action or maintenance

Parents who were lost to follow-up (withdrawn / could not be contacted) were excluded for analysis.

Further analysis was done using the mean difference of stage movements along the stages of readiness to quit by Friedman's chi-squared test, to identify differences within groups from baseline to 6-month follow-up. Before this analysis could be done, the stages of readiness to quit were recoded using '1' for pre-contemplation, '2' for contemplation, '3' for preparation, '4' for action and '5' for the maintenance stage.

Tables 9-5 and 9-6 show that there were significant differences within both the intervention and control groups using both the intention to treat principle and analyzed by excluding those lost to follow-up. By the intention to treat principle (Table 9-5), there were significant improvements in the movement along the stages of readiness to quit in both the control group (χ^2=7.54, df=1, p<0.01) and the intervention group (χ^2=7.54, df=1, p<0.01).

Table 9-5 Differences in the stages of readiness to quit between the baseline and 6-month follow-up within groups by *intention to treat principle analysis (N=952)**

Group assignments and time of interviews	Stage of readiness to quit		Mean rank	Friedman χ^2 statistic (df)	P value
	Mean	SD			
Control (n=485)					
At baseline	1.44	0.80	1.46	7.54	<0.01
At 6-month follow-up	1.63	1.13	1.54	(1)	
Intervention (n=467)					
At baseline	1.49	0.80	1.43	19.70	<0.001
At 6-month follow-up	1.92	1.34	1.57	(1)	

Tables 9-6 shows that there were also significant improvements in the stage of readiness for quitting analyzed by excluding those lost to follow-up both within the control group (χ^2=7.54, df=1, p<0.01) and the intervention group (χ^2=19.69, df=1, p<0.001).

Table 9-6 Differences in the stages of readiness for quitting between baseline and 6-month follow-up within groups by *excluding those lost to follow up (N=839)**

Group assignments and time of interviews	Stage of readiness to quit		Mean rank	Friedman χ^2 statistic (df)	P value
	mean	SD			
Control (n=444)					
At baseline	1.43	0.80	1.46	7.54	<0.01
At 6-month follow-up	1.65	1.16	1.54	(1)	
Intervention (n=395)					
At baseline	1.50	0.80	1.42	19.69	<0.001
At 6-month follow-up	2.01	1.40	1.56	(1)	

Parents who were lost to follow-up (withdrawn / could not be contacted) were excluded for analysis.

9.2.2 Between-group comparison: analysis by chi-square tests

Further analysis of the distribution and changes in the stages of readiness to change was also performed. The stage movements between the baseline interview and the 6-month follow-up interview were estimated by deducting the number representing the stage at baseline from the number at the 6-month follow-up. Numbers denoted by a "-" sign indicate regression of the parental readiness to quit, "0" denotes no change in stage of readiness to quit, and a "+" sign denotes progression in stage of readiness to quit. The number after the sign denotes the magnitude of the movement along the readiness to change scale. For example, 1 means one level of movement and 2 represents two levels of movement along Prochaska's scale of readiness to change.

Table 9-7 shows the stage movements of smoking parents in the two groups (between-group comparison) from baseline to the 6-month follow-up, analyzed by excluding those parents who were lost to follow-up. More than half (54.6%) of the 839 parents who adhered to the program had remained in the same stage of behavioral change. More of the smoking parents in the control group remained in the same stage (61.1%) than those in the intervention group (47.3%). Higher percentages of the parents in the intervention group had progressed to the next stage or higher (15.2%, 6.1% and 9.6%) than those in the control group (14.0%, 2.5% and 6.1%). However, more parents in the control group progressed through 4 levels (3.5%) than in the intervention group (2.2%). The chi-squared test showed a significant difference between the two groups in terms of stage movement, with χ^2=29.03, df=7, p<0.001.

Table 9-7 Stage movement between baseline and 6-month follow-up, analyzed by *excluding parents lost to follow-up* (N=839)

Stage movement	All subjects (n=839)		Control group (n=444)		Intervention group (n=395)		χ^2 statistic (df)
	(n)	%	(n)	%	(n)	%	
-3	4	0.5	3	0.7	1	0.3	29.03***
-2	18	2.2	12	2.7	6	1.5	(7)
-1	118	14.1	53	12.0	65	16.5	
0	**457**	**54.6**	**270**	**61.1**	**187**	**47.3**	
+1	122	14.6	62	14.0	60	15.2	
+2	35	4.2	11	2.5	24	6.1	
+3	65	7.8	27	6.1	38	9.6	
+4	4	0.9	14	3.5	18	2.2	

Parents who were lost to follow-up (withdrawn / could not be contacted) were excluded for analysis.

Total percentage may be more or less than 100 due to rounding of the figures.

The total number is not equal to 839 due to missing data.

Note: "-" indicated that the parental readiness to quit smoking had regressed, "0" denoted the stage remaining unchanged, and "+" denoted progression to the next stage or beyond.

*** P value < 0.001

Table 9-8 shows the stage movements of the two groups (between-group comparison) from baseline to 6-month follow-up, analyzed by intention to treat. By the intention to treat principle, parents who were lost to follow-up were considered as unchanged from their baseline. Thus the total number of zero stage (no movement) parents increased to 572 (60.1%). Among the 952 parents in the trial, 12.8%, 3.7%, 6.8% and 0.8% of them progressed by one, two, three and four stages respectively. There was a significant difference between the control group and the intervention group in terms of (χ^2=21.26, df=7, p<0.01).

Table 9-8 Stage movement between-group comparison from baseline to 6-month follow-up, analyzed *by intention to treat* (N=952)

Stage movement	All subjects (n=952)		Control group (n=485)		Intervention group (n=467)		χ^2 statistic (df)
	(n)	%	(n)	%	(n)	%	
-3	4	0.4	3	0.6	1	0.2	21.26**
-2	18	1.9	12	2.5	6	1.3	(7)
-1	118	12.4	53	10.9	65	13.9	
0	**572**	**60.1**	**313**	**64.5**	**259**	**55.5**	
+1	122	12.8	62	12.8	60	12.8	
+2	35	3.7	11	2.3	24	5.1	
+3	65	6.8	27	5.6	38	8.1	
+4	4	0.8	14	3.0	18	1.9	

Total percentage may be more or less than 100 due to rounding of the figures.

Note: "-" indicates that the parental readiness to quit smoking was regressed, "0" denoted the stage remaining unchanged, and "+" denoted progression to the next stage or beyond.

Parents who did not complete the intervention (withdrawn / could not be contacted) were considered stage unchanged from baseline.

** P value < 0.01

9.2.3 Stage progression: analysis by chi-square and t-tests

The differences in the stages of readiness to quit between the parents across the two time points were estimated by deducting the stage numbers at baseline from those at the 6-month follow-up. The three types of movements were then categorized as 'regression', referring to those who had moved backward to an earlier stage of behavior at the 6-month follow-up, 'unchanged', referring to those parents who remained in the same stage of readiness to quit across the two time points, and 'progression', referring to those who had moved forward to a later stage of behavior at the 6-month follow-up. Finally, the regression and unchanged groups were combined for chi-squared group comparison.

Table 9-9 shows the stage progression by group assignment, excluding those parents lost to follow-up for analysis; this included 104 and 136 parents in the control and intervention groups respectively. The results showed that more parents in the intervention group (136, 56.7%) had progressed into higher stages of readiness to quit than in the control group (104, 43.3%) (χ^2=12.12, df=1, p= 0.001).

Table 9-9 Stage progression comparison between the two groups, analyzed by *excluding those lost to follow-up* (N=839)

Stage progression	Control (n=442)		Intervention (N=395)		value for χ^2 tests (df)
	n	%	n	%	
Regressed and no change[#]	338	56.6	259	43.4	12.12*** (1)
Progressed	104	43.3	136	56.7	

Parents who were lost to follow-up (withdrawn / could not be contacted) were excluded for analysis.

Table 9-10 shows the stage progression by group assignment, analyzed by intention to treat: parents who were lost to follow-up were considered as no change from baseline, which resulted in 104 and 136 parents in the control and intervention groups respectively. About three-quarters of the smoking parents (74.8%) had either remained in the same stage or regressed to an earlier stage, and 25.2% had progressed to later stages at the 6-month follow-up. More parents in the intervention group (29.1%) had progressed to the later stages of behavioral change at the 6-month follow-up than in the control group (21.4%), with statistically significant difference at χ^2=7.44, df=1, and p= 0.01.

Table 9-10: Stage progression by group assignment, analyzed by intention *to treat* (N=952)

Stage progression	Control (n=485)		Intervention (n=467)		value for χ^2 tests (df)
	(n)	%	(n)	%	
Regressed and no change [#]	381	78.6	331	70.9	7.44** (1)
Progressed	104	21.4	136	29.1	

Parents who dropped out from the trial were classified as being at the same stage as at the baseline.

** P value = 0.01

T-tests for independent samples were performed to identify whether there were significant differences in change of stage magnitude between the control and intervention groups from the baseline and at the 6-month follow-up. Table 9-11 shows that there was a significant difference in the magnitude of stage movements between the two groups when analyzed by the intention to treat principle (t=3.05, df=950, p<0.01). The parents in the intervention group had improved an average of 0.23 of a stage more than the control group.

Table 9-11: Mean differences in stage movements between groups from baseline to 6-month follow-up, analyzed by *intention to treat*[*] **(N=952)**

Group assignments	Stage movement		Mean diff.	t statistic (df)	95%CI P value
	Mean	SD			
Control (n=485)	0.20	1.04	-0.23	-3.05	-0.38 - -0.08
Intervention (N = 467)	0.42	1.26		(950)	<0.01
Levene's test for equality of variances: F=28.39, p=<0.001 (equal variance not assumed)					

Parents who dropped out from the trial were classified as being at the same stage as at the baseline.

Table 9-12 shows the mean difference in stage movement, analyzed by excluding those lost to follow-up. A similar result of significant stage progression was observed (with p=0.001), with parents in the intervention group progressing an average of 0.29 of a stage of readiness to quit more than the control group.

Table 9-12 Mean differences in stage movement between groups from baseline to 6-month follow-up, analyzed by *excluding those lost to follow-up*[*] **(N=839)**

Group assignments	Stage movement		Mean diff.	t statistic (df)	95%CI P value
	mean	SD			
Control (n=444)	0.21	1.09	-0.29	-3.39	-0.45- -0.12
Intervention (n=395)	0.50	1.35			=0.001
Levene's test for equality of variances: F=36.42, p=0.000 (equal variance not assumed)					

*Parents who were lost to follow-up (withdrawn / could not be contacted) were excluded for analysis.

9.3 Changes in daily cigarette consumption

The differences in the number of cigarettes consumed by the smoking parents across the two time points were compared by deducting the number of cigarettes smoked at the baseline from the number of cigarettes smoked at the 6-month follow-up. By the intention to treat principle, those lost to follow-up were considered as not having changed the number of cigarettes consumed daily.

Paired t-tests were performed for comparing the within-group differences across the two time points. The mean differences between the two groups were also compared by independent t-tests. Further analysis was done to examine the marked reduction of daily cigarette consumption i.e. those smoking more than 50% fewer cigarettes at the 6-month follow-up than at the baseline.

9.3.1 Within-group comparison: analysis by t-tests

Tables 9-13 and 9-14 show the analysis by intention to treat and by excluding those lost to follow-up. There was an overall reduction in the number of cigarettes smoked per day by parents in both groups. Analyzed by intention to treat, parents from the intervention group reduced their daily consumption by an average 2.63 cigarettes daily ($t=10.18$, $df=466$, $p<0.001$), while parents in the control group had reduced their consumption by an average of 1.66 cigarettes daily ($t=5.31$, $df=484$, $p<0.001$). A significant reduction was also found when the data were analyzed by excluding those lost to follow-up. Parents from the intervention group had reduced their daily cigarette consumption by an average of 5.88 cigarettes ($t=15.52$, $df=392$, $p<0.001$), and those in the control group by an average of 3.42 cigarettes ($t=8.41$, $df=442$, $p<0.001$).

Table 9-13 Mean differences in daily cigarette consumption between baseline and 6-month follow-up, *analyzed within groups by* ***intention to treat**** **(N=952)**

	Cigarettes consumed in the previous 6 months		Mean diff. (95%CI)	t statistic (df)	P value
	Mean	SD			
Control (n=485)					
At baseline	15.16	9.10	1.66	5.31	<0.001
At 6-month follow-up	13.50	7.54	(1.05-2.28)	(484)	
Intervention (N=467)					
At baseline	15.56	8.16	2.63	10.18	<0.001
At 6-month follow-up	12.93	7.67	(2.12-3.13)	(466)	

Table 9-14: Mean differences in daily cigarette consumption between baseline and 6-month follow-up, *analyzed within groups* ***by the number of parents remaining**** **(N=839)**

	Cigarettes consumed in the previous 6 months		Mean diff. (95%CI)	t statistic (df)	P value
	Mean	SD			
Control (n=443)					
At baseline	15.17	9.21	3.42	8.41	<0.001
At 6-month follow-up	11.75	8.18	(2.62-4.22)	(442)	
Intervention (n=393)					
At baseline	15.57	7.99	5.88	15.52	<0.001
At 6-month follow-up	9.69	8.26	(5.13-6.62)	(392)	

9.3.2 Between-group comparison: analyzed by paired t-tests

Between-group comparison was analyzed by independent paired t-tests, again both by the intention to treat principle (Table 9-15) and by excluding those lost to follow-up (Table 9-16). Table 9-15 shows that the parents in the intervention group had reduced their daily consumption by an average of 2.63 cigarettes (SD=5.58), compared to a reduction of 1.66 cigarettes in the control group (SD=6.90), with a mean difference between the two groups of 0.97 (t=2.38, df=950, 95% CI: 0.17 – 1.77, $p<0.05$). A similar but more prominent trend was found if analyzed only by excluding those lost to follow-up (Table 9-16). Parents in the intervention group had reduced their consumption by more (mean: 5.88, SD=7.51) than the control group (mean: 3.42, SD=8.55), with a statistically significant mean difference of 2.46 (t=4.40, df=834, 95% CI: 1.36 - 3.56, $p<0.001$).

Table 9-15 Mean differences in daily cigarette consumption between baseline and 6-month follow-up, analyzed *between groups by* ***intention to treat**** **(N=952)**

Group assignments	Mean diff. of cigarettes consumed in the previous 6 months		Mean diff. (95%CI)	t statistic (df)	P value
	Mean	SD			
Control (n=485)	-1.66	6.90	0.97	2.38	
Intervention (N=467)	-2.63	5.58	(0.17-1.77)	(950)	<0.05
Levene's test for equality of variances: F=0.095, p=0.76 (equal variance assumed)					

Table 9-16 Mean differences in daily cigarette consumption between baseline and 6-month follow-up analyzed *between groups by the number of parents remaining*[*] (N=839)

Group assignments	Mean diff. of cigarettes consumed in the previous 6 months		Mean diff. (95%CI)	t statistic (df)	P value
	Mean	SD			
Control (n=443)	-3.42	8.55	2.46	3.40	
Intervention (n=393)	-5.88	7.51	(1.36-3.56)	(824)	<0.001
Levene's test for equality of variances: F=0.11, p=0.74 (equal variance assumed)					

Further analysis of the achievement of a 50% reduction in daily cigarette consumption between the groups was performed by chi-squared test. Table 9-17 shows the analysis by the intention to treat principle: more parents in the intervention group (29.6% vs. 19.8% in the control group) had reduced their daily cigarette consumption by more than 50% compared with their own baseline cigarette consumption, and the difference was statistically significant (χ^2=12.21, df=1, p< 0.001).

Table 9-17 Achievement of 50% reduction in cigarette consumption by group assignment, *analyzed by intention to treat* **(N=952)**

Reduction status	Control (n=485)		Intervention (N=467)		value for χ^2 tests (df)
	N	%	n	%	
No reduction / reduced by less than 50%	389	80.2	329	70.4	12.21***
Reduced by more than 50%	96	19.8	138	29.6	

*** P value < 0.001

Table 9-18 shows the analysis by excluding those lost to follow-up: here, too, a higher portion of parents in the intervention group (35.1% vs. 21.7%) had reduced their daily cigarette consumption by more than 50% when compared with their baseline consumption, and the difference is statistically significant (χ^2=18.68, df=1, p< 0.001).

Table 9-18 Achievement of 50% reduction in cigarette consumption by group assignment, *analyzed by excluding those lost follow-up* (N=839)

Reduction status	Control (n=444)		Intervention (N=395)		value for χ^2 tests (df)
	N	%	n	%	
No reduction / reduced by less than 50%	347	78.3	255	64.9	18.68***
Reduced by more than 50%	96	21.7	138	35.1	

*** P value < 0.001

9.4 Changes in attempts to quit smoking

To compute the changes of smoking parents' attempts to quit smoking between the two time points, a dichotomous variable of whether parents had attempted to quit in the past 6 months was established. Parents whose attempt at quitting had lasted longer than 24 hours were recoded as "1", and those who had not attempted to quit were recoded as "0". The McNemar chi-squared test was performed to examine the within-group difference.

Table 9-19 shows the within-group comparison using the McNemar test for dependent samples, revealing that both groups had made significantly fewer quit attempts when compared with the baseline. In the control group, the mean value decreased from 0.72 (SD0.45) at baseline to 0.36 (SD0.48) at the 6-month

follow-up (χ^2=127.90, p<0.001), whereas in the intervention group, the mean value decreased from 0.72 (SD0.45) at baseline to 0.41 (SD0.49) at the 6-month follow up (χ^2=92.28, p<0.001).

Table 9-19 Within-group comparison of quit attempts for at least 24 hours *within groups, analyzed by intention to treat* **(N=952)**

Baseline response to "ever attempted to quit for 24 hours"	6-month follow-up response to "ever attempted to quit for 24 hours"		McNemar χ^2	P value
	Mean	SD		
Control (n = 485)				
At baseline	0.72	0.45	127.90	<0.001
At 6-month follow-up	0.36	0.48		
Intervention (n = 467)				
At baseline	0.72	0.45	92.28	<0.001
At 6-month follow-up	0.41	0.49		

Parents who dropped out from the trial were classified as being at the same stage as at the baseline.

Table 9-20 shows the within-group comparison of quit attempts for at least 24 hours analyzed by excluding those lost to follow-up using the McNemar Test for dependent samples. Results are similar to those of Table 9-19, and there were significantly fewer parents in both groups who had attempted quitting at the two time points.

Table 9-20 Within-group comparison of smoking cessation for at least 24 hours, by *excluding those lost to follow-up* **(N=839)**

Baseline response to "ever attempted to quit for 24 hours"	6-month follow-up response to "ever attempted to quit for 24 hours"		McNemar χ^2	P value
	Mean	SD		
Control				
At baseline (n=485)	0.72	0.45	98.42	<0.001
At 6-month follow-up (n=444)	0.39	0.49		
Intervention				
At baseline (n=467)	0.72	0.45	49.36	<0.001
At 6-month follow-up (N=395)	0.48	0.50		

Comparisons of the mean differences of the number of quit attempts at the two time points between groups was performed using independent t-tests. Results show that parents who were in the control group had made more attempts to quit than those in the intervention group (average 0.47 vs. 0.43). However, this difference was not significant (Table 9-21).

Table 9-21 Between-group comparison of number of quit attempts by *intention to treat* (N=952)

Group assignments	Mean (sd)		T -value (df)		95% CI P value
Control (n=485)	0.47	1.59	0.52	(950)	-0.13-0.23
Intervention (n=467)	0.43	1.27			(NS)

Levene's tests for equality of variances: F=0.90 p= 0.34; therefore equal variances assumed

Table 9-22 shows that among the 360 parents who had attempted to quit, parents in the control group had made more attempts than those in the intervention group (2.22 vs. 1.57 times). This difference was not statistically significant.

Table 9-22 Comparison of mean number of quit attempts prior to the 6-month follow-up interview by group assignment, analyzed by *excluding those lost to follow-up* (N=360)

Group assignment	N	Mean (sd)		t -value (df)		**95% CI** P value
Control	170	2.14	2.22	1.69	358	-0.06-0.73
Intervention	190	1.79	1.57			(NS)

Levene's tests for equality of variances: F=0.80 p= 0.37; therefore equal variances assumed

Included only the parents who attempted quitting during the 6-month intervention period

9.5 Changes in parents' household smoking hygiene practice

As mentioned in chapter 6, parental household smoking hygiene practice was categorized into three levels of smoking restriction: (1) complete restriction of smoking at home, (2) smoking at home but not within 3 meters of the child, and (3) no restriction of smoking at home. This section compares the changes in household smoking hygiene within groups by using the McNemar chi-squared tests for dependent samples. Between-group comparisons of the changes in parental household smoking hygiene are done by chi-squared tests.

The parents who smoked at home were coded as "0", and those who did not smoke at home were coded as "1". A higher mean value is a reflection of more parents being able to achieve household smoking restrictions at home. Analysis by intention to treat is shown in Table 9-23. More parents reported not having smoked at home within both groups across the two time points, with p <0.001. The main value of not having smoked at home in the control group increased from 0.16 to 0.28 in the 6 months, while this value in the intervention group increased from 0.13 to 0.32.

Table 9-23 Parental household smoking practice: within-group comparison analyzed by *intention to treat* (N=952)

Household smoking hygiene at baseline interview	Household smoking hygiene at 6-month follow-up interview		McNemar χ^2	P value
	Mean	SD		
Control (n=485)				
At baseline	0.16	0.36	28.09	<0.001
At 6-month follow-up	0.28	0.45		
Intervention (N=467)				
At baseline	0.13	0.33	65.08	<0.001
At 6-month follow-up	0.32	0.47		

[#] Parents who dropped out from the trial were classified as having smoked at home.

Table 9-24 shows household smoking hygiene analyzed by excluding those lost to follow-up. The mean value of not having smoked at home increased from 0.16 at baseline to 0.28 for the control group at the 6-month follow-up. This is a statistically significant difference, with McNemar χ^2=28.09, df=1, p< 0.001 for dependent samples. For the intervention group, the mean value of not having smoked at home increased from 0.13 at baseline to 0.36 at the 6-month follow-up, also with significant difference by the McNemar test for dependent samples (χ^2=65.08, df=1, p< 0.001).

Table 9-24 Parental household smoking practice: within-group comparison analyzed *by excluding those lost to follow-up* **(N=839)**

Smoking hygiene at home at baseline	Smoking hygiene at home at 6-month follow-up interview		McNemar χ^2 statistic	P value
	Mean	SD		
Control				
At baseline (n=485)	0.16	0.36	28.09	<0.001
At 6-month follow-up (n=444)	0.28	0.45		
Intervention				
At baseline (n=467)	0.13	0.33	65.08	<0.001
At 6-month follow-up (n=395)	0.36	0.48		

Comparison of the improvement in parental household smoking hygiene practice was made from the baseline to the 6-month follow-up point. Analysis by intention to treat shows that 27.2% of the smoking parents who improved their household smoking hygiene moving from 'smoked at home' to 'did not smoke at home'. Parents in the intervention group were more likely to change to full restriction of smoking at home (30.4% vs. 24.1%) than those in the control group, with statistically significant difference (χ^2=4.74, df=1, p< 0.05).

Table 9-25 Between-group comparison of household smoking hygiene, analyzed *by intention to treat* **(N=952)**

Improvement of household smoking hygiene	Control		Intervention		Total		χ^2 -value (df)
	n	%	n	%	n	%	
No change /Backward	368	75.9	325	69.6	693	72.8	4.74* (1)
Improved or not smoking	117	24.1	142	30.4	259	27.2	

* P < 0.05

Similarly, analyzed by excluding those lost to follow-up, more parents in the intervention group than in the control group (36.4% vs. 27.7%) had improved from 'smoked at home' at the baseline to 'did not smoke at home' at the 6-month follow-up, with statistically significant difference (χ^2=7.04, df=1, p< 0.01).

Table 9-26 Between-group comparison of household smoking hygiene, analyzed by *excluding those lost to follow-up* **(N=839)**

Improvement of household smoking hygiene	Control		Intervention		Total		χ^2 -value (df)
	n	%	n	%	n	%	
No change /Backward	305	72.3	248	63.6	553	68.1	7.04**
Improved or not smoking at home	117	27.7	142	36.4	259	31.9	

* The total number is not equal to 839 due to missing data in 3.2% of cases.

** P < 0.01

The McNemar test for independent samples was done to compare the changes in household smoking hygiene, specifically not smoking within 3 meters of their child between the two time points. Tables 9-27 and 9-28 show the within-group improvement of parents in terms of not smoking within 3 meters of their child, with p<0.001 for both groups.

Table 9-27 Within-group comparison of parental household smoking hygiene in terms of not smoking within 3 meters of their children, analyzed by *intention to treat* **(N=952)**

Household smoking hygiene within 3 meters of child at baseline interview	Household smoking hygiene within 3 meters of child			McNemar χ^2	P value
	Smoked	Did not smoke	*Mean (SD)*		
Control (n=411)					
Smoked	144	92	*0.57*	10.56	=0.001
Did not smoke	52	123	*0.50*		
Mean (SD) = 0.43 (0.50)					
Intervention (N=414)					
Smoked	135	105	*0.42*	28.25	<0.001
Did not smoke	40	134	*0.61*		
Mean (SD) = 0.42 (0.50)					

parents who dropped out of the trial were classified as having the same parameters as at baseline.

At baseline: missing data in control group=74, intervention group=53.

Table 9-28 Within-group comparison of parental household smoking hygiene in terms of not smoking within 3 meters of their children, analyzed by *excluding those lost to follow-up* **(N=839)**

Household smoking hygiene within 3 meters of child at baseline	Household smoking hygiene within 3 meters of child			McNemar χ^2	P value
	Smoked	Did not smoke	*Mean (SD)*		
Control (n=357)					
Smoked	116	92	*0.58*	10.56	=0.001
Did not smoke	52	97	*0.50*		
Mean (SD) = 0.43 (0.50)					
Intervention (N=342)					
Smoked	93	105	*0.64*	28.25	<0.001
Did not smoke	40	104	*0.48*		
Mean (SD) = 0.42 (0.50)					

At baseline: missing data in control group=74, intervention group=53.

At 6-month follow-up: missing data in control group = 22, in intervention group = 5.

Further analysis on the secondary outcome measures was compared between groups by excluding the parents lost to follow-up for consideration. Table 9-29 shows the between-group comparison of the summarized secondary outcomes. Parents who were assigned to the intervention group had reduced their average cigarette consumption by 50% (OR=2.0 95%CI: 1.4-2.7, p<0.01), achieved a 24-hour quit attempt in the previous 6 months (OR=1.4 95%CI: 1.1-1.9, p<0.01), achieved complete restriction of smoking at home (OR=1.5 95%CI: 1.1-2.0, p<0.01), and progressed to a later stage of readiness to quit smoking (OR=1.7 95%CI: 1.2-2.3 p<0.001). More parents in the intervention group were able to restrict their smoking within 3 meters of their children (64.3% vs. 58.3%), but there was no significant difference (OR=1.3 95%CI: 1.0-1.7 p=0.08).

Table 9-29 Other secondary outcomes *among all the 839 participants remaining at the 6-month follow-up*

Variables	Control (n=444)		Intervention (N=395)		χ^2 (p-value)	OR (95%CI)
	%	n	%	n		
Had reduced the number of cigarettes smoked by at least 50% from the baseline level	21.7	96	35.1	138	18.68 (<0.001)	2.0 (1.4-2.7)
Stopped smoking for at least 24 hours at some point prior to the interview	39.5	174	48.3	190	6.68 (=0.01)	1.4 (1.1-1.9)
Complete restriction of smoking at home	27.6	118	36.3	143	7.09 (<0.01)	1.5 (1.1-2.0)
Able to restrict smoking within 3 meters of the child at home	58.3	246	64.3	252	3.07 (0.08)	1.3 (1.0-1.7)
Stage progressed	23.5	104	34.4	136	12.12 (<0.001)	1.7 (1.2-2.3)

Note: The total number may not add up to the same due to missing data; OR= odds ratio; CI= confidence interval.
* Results are based on number of parents who remained at the 6-month follow-up (those who had withdrawn / could not be contacted were excluded for analysis).

A similar trend was also reported when analyzed by the intention to treat principle (Table 9-30). Parents in the intervention group had reduced the number of cigarettes smoked by at least 50% from their baseline level (OR=1.7 95%CI: 1.3-2.3 p<0.001) and progressed to the later stages of readiness to quit (OR=1.5 95%CI: 1.1-2.0 p<0.01). There were also more parents in the intervention than in the control group who had attempted quitting for at least 24 hours (40.4% vs. 35.9%), reported full restriction of smoking at home (31.7% vs. 26.3%), and reported not having smoked near their children (60.8% vs. 57.1%). None of the differences were statistically significant.

Table 9-30 Changes in other positive outcomes among all the 952 participants over 6 months, *by intention to treat*[*]

Variables	Control (n=485) %	n	Intervention (N=467) %	n	χ^2 statistic (p-value)	OR (95%CI)
Had reduced number of cigarettes smoked by at least 50% from the baseline level	19.8	96	29.6	138	12.2 (<0.001)	1.7 (1.3-2.3)
Had stopped smoking for at least 24 hours at some point prior to the interview	35.9	174	40.7	190	2.33 (0.127)	1.2 (0.9-1.6)
Complete restricted smoking at home	26.3	127	31.7	148	3.36 0.07	1.3 (1.0-1.7)
Able to refrain from smoking within 3 meters of the child at the 6-month time point	57.1	272	60.8	282	1.28 (0.26)	1.2 (0.9-1.5)
Stage progressed	21.4	104	29.1	136	7.44 (<0.01)	1.5 (1.1-2.0)

.Note: The total number may not add up to the same due to missing data; OR= odds ratio; CI= confidence interval.

* Results are based on intention to treat basis: parents who did not complete the intervention (withdrawn / could not be contacted) were considered smokers. Those who had no validation were also considered as smokers.

9.6 Summary

This chapter makes a comparison of the secondary outcomes within and between groups. Tables 9-1 to 9-12 show comparisons of the differences in the stage improvements from the baseline measures to the 6-month follow-up, within groups as well as between groups. Regardless of the method of analysis, either by using intention to treat or by excluding those lost to follow-up, both groups had made significant progression into the later stages of readiness to quit from the baseline stages.

Based on the intention to treat analysis as well as excluding those lost to follow-up, there was a significant reported reduction of daily cigarette consumption within groups. However, study results revealed that parents from both groups have made fewer quit attempts by the 6-month follow-up than at their baseline measures.

Using analysis by the intention to treat principle, the proportion of parents had reduced the number of cigarettes smoked by 50% from the baseline level and progressed to the later stage were statistically significantly higher in the intervention group than the control group.

DISCUSSIONS, LIMITATIONS, IMPLICATIONS AND RECOMMENDATIONS

Chapter 10

Discussion and limitations

10.1 Introduction

This chapter starts with discussing the methodological considerations and the assurance of quality in this trial which affects the interpretation of the findings. There follows with the discussion on this study results including the baseline results, attrition analysis, the primary and secondary outcome measures. Limitations of this study are also illustrated. Recommendations for clinical practice and future study are formulated. Finally, the major findings of the present study are summarized in the conclusion.

10.2 Methodological considerations

In this section, the control of confounders in the randomization process and strategies to minimize crossover contamination of intervention between the intervention and control group are discussed. The conservative approach to analyzing the study results by the intention to treat principle and the benefits of using a proactive telephone approach are highlighted.

10.2.1 Randomized controlled trial (RCT) design

The selection of a RCT for this study was to ensure that all smoking parents had an equal chance of entering either the intervention or control group, so that there could be similar distribution of the smoking parents' characteristics across the two groups. Although this step was taken, there were still differences in the characteristics of the smoking parents in the two groups. Taking this into account, unmatched parameters such as age distribution, marital efficiency and the CAGE score of alcohol abuse identified by descriptive statistics were included in the statistical formula to be adjusted by logistic regression when analyzing for

outcome measures and predictive factors of smoking cessation (effectiveness of intervention).

10.2.2 Analysis by intention to treat principle

It was unavoidable that a number of subjects would be lost to follow-up in a study that was conducted over a length of/period of time. A total of 113 parents were not able to be re-contacted at the 6-month follow-up: it is possible that attrition rate of 12% (113/952) could impede the strength of the study results.

In order not to overestimate the effects of the intervention in this RCT, when inferences were to be made with regard to whether the study intervention could produce successes in smoking cessation and other outcome measures, analysis was done by both the conventional method (excluding the lost to follow-up) as well as by the 'intention to treat' principle (including the lost to follow-up). For the smoking parents who were lost to follow-up, it was assumed that there was no change in their behaviors, and thus their baseline measures were used for analysis as outcomes. It is not possible to ascertain conclusively whether the differences observed in the two groups were by reason of the telephone counseling, but the estimation of effects using the intention to treat principle is a conservative and thus more reliable measure.

10.2.3 Proactive telephone approach

By adopting the telephone counseling approach, the possibility of cross-communication between the smoking parents in the two groups was rendered virtually non-existent. This eliminated one of the major concerns of other studies

in clinical settings, namely that information given to subjects in the intervention group could be shared between group members. The use of the family as a unit of randomization, where both smoking parents (the married couple) were assigned into the same group, was another strategy adopted in this study to prevent cross-contamination of intervention between groups.

The implementation of proactive telephone counseling targeting smoking parents with young children is a unique feature of this study. Proactive telephone counseling is a simple and convenient method of providing minimal assistance extended to those parents who have not sought help for smoking cessation. The objectives of this study were also to assess the acceptability of this approach for smoking cessation, the adherence to the program and the effectiveness of this free, proactive telephone-based smoking cessation counseling. The study results show that this approach was accepted with a participation rate of 67% (952/1420) and utilized with an adherence rate of 88% (839/952) by the parents. This study also examined the characteristics of the targeted population, but did not choose to take part in the smoking cessation intervention.

10.3 Assurance of quality

The detailed means adopted for quality assurance in this program and throughout the study are discussed in this section. Several strategies were adopted throughout this study to prevent possible measurement bias. (1) The questionnaires for this study were adopted and modified from other reliable and validated questionnaires to minimize measurement error, and were piloted to establish the validity and reliability of the final instruments. (2) The self-reported

smoking cessation status was validated by both biochemical and spousal proxy reports. (3) The quality of the interviews and the smoking cessation counseling and data management were carefully monitored. The details of these quality assurance measures are provided below.

10.3.1 Psychometric properties of the questionnaires

The constructs included in the questionnaires for assessing the health status and respiratory symptoms; the Fagerstrom Test for Nicotine Dependence, Prochaska's Transtheoretical Model of stages of readiness to quit smoking; the smoking cessation efficacy scale, the CAGE score on alcohol use and the marital locus of control scale are all instruments that had been validated for use among Chinese subjects (see chapter 5, for more detail). A pilot study was conducted to establish the validity and reliability of the compiled questionnaires. The overall psychometric properties of the questionnaires were good, with a content validity index of 0.94, internal consistency from 0.60-0.86 and test-retest reliability, intra-class correlation coefficient (ICC) at 0.69-1.0. The constructs 'smoking status' and the 'Fagerstrom Test of Nicotine Dependency' were dichotomous in nature: they tested for internal consistency at moderate level, with Cronbach's alpha at 0.62 and 0.60 respectively, and are considered acceptable (Leon, Marzuk, & Portera, 1995). The results from our studied samples showed similar Cronbach's alpha coefficients to those of other studies that have adopted this construct (Pomerleau, Carton, Lutzke, Flessland, & Pomerleau, 1994; Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991). The Cronbach's alpha for other constructs ranged from 0.72 to 0.86, indicating a good internal consistency of the measured constructs (Bland & Altman, 1997).

10.3.2 Validity of self-reported smoking by spousal proxy reports

The findings of the pilot study confirmed that the spousal proxy report is a reliable means of identifying spousal smoking status. The proxy reports of mothers on the father's smoking status were accurate, and there was only a small discrepancy between the mothers' self-reported smoking status and the proxy reports by their husbands (4%, 3 out of 69 mothers). The discrepancy could either be due to the mothers' hiding their smoking habits from their husbands, or to their giving a socially desirable response to the interviewers (Ross & Mirowsky, 1984). The pilot study showed that spousal proxy reports among Hong Kong Chinese parents are reliable, disputing the claim by (Hyland, Cummings, Lynn, Corle, & Giffen, 1997) that Asians in America are likely to provide inconsistent proxy reports of household members' smoking status.

However, the pilot results showed low agreement between self and spousal reports of cigarette consumption. Many couples were not able to give an accurate account of the cigarette consumption of their partners. It was not possible to establish whose reports were more reliable (fathers' or mothers') concerning cigarette consumption: it was either that the smoking mothers had under-reported (i.e. underestimated) their own daily cigarette consumption, or that their consumption was overestimated by their husbands. Results revealed that these parents tended to overestimate their spouses' cigarette consumption but underestimate their own. Thus, it is concluded that proxy reports on smoking status (yes or no) are valid and more reliable than proxy reports on daily cigarette consumption.

This pilot study confirms that the spousal proxy report of smoking status is a feasible and reliable method of identifying smokers. As the majority of smokers in Hong Kong (and in Asia) are males (27.7%), approaching the mothers is a feasible approach for identifying smoking fathers to participate in a proactive intervention study.

10.3.3 Validity of self-reported smoking status by exhaled carbon monoxide test

The agreement between self-reported smoking status and exhaled carbon monoxide was tested in the pilot study with kappa statistics (0.70), and was found to be comparable to the studies conducted among other general populations (Patrick et al., 1994). This study also supported the finding that the exhaled carbon monoxide test has its limitations in differentiating the light, occasional or recent ex-smokers (Secker-Walker, Vacek, Flynn, & Mead, 1997). This limitation results from the short half-life of CO levels after smoking: it can only be detected within 1-4 hours after smoking (Frederiksen & Martin, 1979). Therefore, a complementary urinary cotinine test was indicated and was used in this RCT.

The results of this RCT show that there was significant agreement between the self-reported 7-day point prevalence of smoking cessation as a primary outcome indicator and the spousal proxy reports ($p<0.001$) and bio-chemical validations ($p<0.001$), suggestive of the validity and reliability of self-reported cessation.

10.3.4 Interview guidelines and smoking counseling protocol

The two stages of the smoking cessation intervention in this program included interviewing and counseling. The smoking cessation telephone interview guidelines and counseling protocol developed for this trial provided a reference for the counselors in this study. The counselors could refer to this as the empirical and theoretical basis of the interview and smoking cessation counseling.

The counselors had taken a training course as a preparation for the interview and smoking cessation intervention. They were to use the 5As principle (as outlined in chapter 4) to guide the intervention process and this was considered simple and easy to follow. The counselors appreciated the motivational interviewing empathetic support, as this approach prevented conflicts during the intervention. Understanding and a trusting relationship were established in a positive atmosphere even if they were presumed to be difficult to achieve.

The counselors' performances were monitored through weekly meetings and by inter-counselor reliability tests. An almost perfect inter-rater reliability of the pilot study indicated high agreement in assessing the smoking-related characteristics of the parents between the counselors. A logic check of data entry was also employed to assure the first line reliability of data entry, and variables were then checked with logic agreements between variables. For quality assurance, the records were re-checked or the parents re-contacted for clarification if any disagreement or ambiguity occurred.

The counseling protocol was limited when the counselors needed to deal with difficult parents or those with special needs. The counselors in this study had expressed ambivalence about advising difficult parents: some were reported to be hostile or withdrawn, or experiencing severe psychosocial problems, family conflicts, and financial constraints.

Recruitment and retention of subjects for this study required not only willingness and cooperation from the smoking parents, but also the commitment of all counselors.

The weekly meetings and emergency help-line for sharing, consultations and mutual support among the counselors were crucial for the high performance of the counselors in this study. Difficulties encountered by the counselors were discussed. Both the researcher and the counselors found it useful to have weekly meetings to share the difficulties encountered and to resolve any problems that arose. Immediate feedback and support were given to individual counselors who encountered difficulties and had concerns over handling certain difficult issues during interviewing or in the counseling process.

10.4 Baseline Results

10.4.1 Feasibility and acceptability

This study demonstrated the acceptability of a proactive telephone intervention program for parents with young children by examining the characteristics and predictors of smoking parents who chose and did not choose to participate in this telephone-based smoking cessation program. This analysis filled the gap in the

majority of the intervention trials targeted at smoking parents, which did not provide sufficient details and information on the participants and non-participants (Chilmonczyk, Palomaki, Knight, Williams, & Haddow, 1992; Groner, Ahijevych, Grossman, & Rich, 2000; Mcintosh, Clark, & Howatt, 1994).

The results of the study show that smoking parents were receptive to the telephone interview, in that a majority of parents (80.9%), including those parents who had no intention to quit smoking in the foreseeable future (pre-contemplators), were willing to complete an approximately 15-minute telephone interview related to smoking and health issues.

Although the smoking parents in this study did not initiate the request for smoking cessation intervention, they were receptive to the program offered.

Previous studies had recruited high percentages of smokers into their programs. A high participation rate (95%) was achieved among smoking mothers of newborns in a maternity hospital by the reactive approach (Woodward, Owen, Grgurinovich, Griffith, & Linke, 1987), and among parents with sick babies (71.2%-77.2%) (Woodward, Owen, Grgurinovich, Griffith, & Linke, 1987; Wakefield et al., 2000; Irvine et al., 1999). However, other studies had reported low participation rates, including a prospective cohort study for parents of hospitalized children for respiratory illness (56%) (Winickoff, Hillis, Palfrey, Perrin, & Rigotti, 2003) or parents recruited from a maternity setting (47%) (Greenberg et al., 1994), which presumed that the parents were more motivated.

The response rate of another study, in which subjects were recruited by financial incentives, was also 67% (Hovell et al., 2000a).

The participation rate of 67% in the present study, with subjects recruited through a proactive approach, is considered satisfactory. This proportion of positive responses suggests that the telephone interview is a feasible and proactive way of recruiting smokers to join smoking cessation programs. This approach maximizes the possible contact with the smoking parents, and provides easy access to a large number of smokers, including many of those who would not have been reached, to engage in smoking cessation activities.

10.4.2 Characteristics of participating smoking parents

The participants in this study originated from a population-based 1997 birth cohort that represents about 88% of babies born during the studied period (April-May, 1997). The present study involved re-contacting the 2,311 smoking parents out of the 2,863 parents remaining in the cohort pool at the end of the 18-month follow-up. Between the two time points, 552 smoking parents failed to be re-contacted, and at the beginning of this study, another 510 parents were lost due to invalid contact information. Ultimately, the present study sample represents about 67% of the eligible parents who remained in the pool.

The participating parents were from middle-lower class backgrounds, were currently employed, had had recent medical consultation or hospitalization, were at the contemplation stage, perceived the importance of quitting smoking, and were more likely to be motivated to take action towards smoking cessation.

Generalizability

The study results indicate that the smoking parents were recruited from a wide range of communities, as evidenced by their age distribution, occupation, monthly household income, education attainment and districts of residence (Table 6-1). The smoking and quitting behaviors of the sample in this study also reflected the general population characteristics of this age group of the population in Hong Kong.

When the current study sample is compared to the general population of smokers in Hong Kong, the cigarette smoking patterns of the two groups are very similar (Census and Statistics Department, 2003). The majority of the parents who entered this RCT were daily smokers (92.4%), and about half had started smoking regularly at age 15-19 (51.9%) and consumed 18 cigarettes per day. Similarly, the majority of smokers in the Hong Kong population are daily smokers (94.5%), about half (49.1%) started regularly smoking aged 15-19, and they consume 14 cigarettes per day on average. The proportion of female smokers who entered this trial (14.6%) is also similar to the proportion of female smokers in the general population in Hong Kong (13.2%) (Census and Statistics Department, 2003).

Household smoking hygiene

Although it is generally supported that children should be protected from exposure to household smoking. There were about 30% of Canadian children are exposed to cigarette smoke at home (Ashley & Ferrence, 1998), as do about half

children in United Kingdom (Lader & Meltzer, 2001). Where as in Hong Kong, about 43% of children were exposed to cigarette smoke at home (Peters, Hedley, Lam, Betson, & Wong, 1997). This prevalence rate is comparable with America (43%) (Pirkle et al., 1996).

However, our results show that the proportion of smoking parents who reported smoking at home is high (85.6%) when compared with the smoking parents who smoked at home in Canada (57%) (Ashley & Ferrence, 1998), in Australia (67%) (Borland, Mullins, Trotter, & White, 1999), and in America (49%) (Chilmonczyk et al., 1990). Effective strategies to reduce smoking at homes with young children are urgently needed.

We found no association between children's health and household smoking hygiene. Our study design of baseline interview is cross-sectional. There could be two effects with opposite direction. Restriction would result in reduction of the child's respiratory symptoms (Leung, Ho, & Lam, 2004), but the latter could be a motivation for restriction (ie more symptoms in those with restriction). Previous studies of children with a history of allergies have shown that such children are less likely to be exposed to parental smoking than healthy children (Jordaan, Ehrlich, & Potter, 1999; Jaakkola, Ruotsalainen, & Jaakkola, 1994)

The failure of these parents to protect their children from passive smoking may be also linked to the fact that the toxic materials of smoke-filled environments are not fully recognized (Wakefield, Reid, Roberts, Mullins, & Gillies, 1998).

In Hong Kong, although there is legislation which states all restaurants with 200 or more seats are required to designate at least one-third of the restaurant area as non-smoking, many do not comply and some comply without putting a physical barrier (divided room) between the two areas. The general population is unclear about the requirements, and the policy of no smoking in public places has encountered much difficulty in enforcement. Smokers' insistence on their right to smoke in public places seems to be supported by those who run restaurants and entertainment businesses and other public services.

A possible explanation for the finding that the smoking parents in this study did not refrain from smoking at home is because only a small percentage of the children suffered from frequent respiratory symptoms, and most were seemingly "healthy" with a normal birth weight, and free from health problems. Nevertheless, the failure of these parents to protect their children from passive smoking may be also linked to the fact that it is not fully recognized that a smoke-filled environment contains toxic materials (Wakefield, Reid, Roberts, Mullins, & Gillies, 1998).

The study result shows that high nicotine dependency of smoking parents is a predictive factor of household smoking. Efforts to encourage smoking cessation have limited success, as most smokers are addicted to nicotine and unable to quit despite numerous attempts. Physical symptoms following cessation or reduction of nicotine intake include craving for nicotine, irritability, anxiety, difficulty concentrating, restlessness, sleep disturbances, decreased heart rate and

increased appetite (West & Shiffman, 2001). Smoking cessation counseling with nicotine replacement therapy may be helpful.

10.5 Attrition analysis

10.5.1 Participation in this smoking cessation program

Analysis of the baseline data showed that those parents who were more likely to take part in a smoking cessation program had the following characteristics. They were: mothers, those who had received a secondary school education, were currently employed, were from middle-income households, were living with another smoker who had previously attempted to quit but was not at the pre-contemplation stage of quitting smoking, perceived the importance and difficulty of quitting, suffered from frequent morning coughs and asthmatic symptoms, and had had medical consultations or been hospitalized in the previous 6 months.

A logistic regression identified that the predictors of participation in a proactive smoking cessation program are being from a middle-income household, being currently employed, having recently had a medical consultation or been hospitalized, being at the stage of contemplating a change in behavior, and perceiving the importance of quitting smoking.

Mother smokers (females) in the present study were more likely to take part in the smoking cessation program but this association was not significant after controlling for confounders in the logistic regression model. Parents who were employed were more likely to take part in a smoking cessation program. Perhaps working parents are less likely to be available to attend a face-to-face smoking cessation intervention program (Winickoff, Hibberd, Case, Sinha, & Rigotti,

2001), and considered this proactive telephone-based intervention to be a viable option for them.

The results of this study support the findings of previous studies that smoking parents with young children who perceive there to be benefits from quitting (Hublet, Maes, & Csincsak, 2002), and those who are "ready" to take action to quit smoking will take part in smoking cessation programs (Woods et al., 2002; Pohl, Martinelli, & Antonakos, 1998; Hublet, Maes, & Csincsak, 2002; Cummings, Hellmann, & Emont, 1988; Ahluwalia et al., 2002). Those with health problems that required medical attention were also more likely to participate in a smoking cessation intervention (Cummings, Hellmann, & Emont, 1988).

It is disappointing to note that this study did not find any relationship between a child's health and his/her parents' decision to participate in a smoking cessation program. This implies that a child's health needs do not translate into better awareness on the part of the parents to follow good health practices nor have any influence on their decision to quit smoking. Although it was reported that the parents of sick children are knowledgeable about the signs and symptoms of an illness (Cummings, Hellmann, & Emont, 1988), they do not seem to be aware of the risk factors. Health education efforts for smoking parents should focus on increasing their awareness of environmental exposure to tobacco as a risk to their children's health, and motivating changes in behavior.

10.5.2 Program adherence

Examination of potential predictive factors of quitting did not reveal any difference between the adherent and non-adherent groups to the program. The greater dropout rate for the intervention group in this study may possibly be a result of the demand for more involvement, and this is common among studies of this nature (Steptoe et al., 1999).

10.6 Primary outcomes

This is the first study to provide counseling to smoking parents with young children by a proactive telephone approach. The proactive telephone counseling is more effective than the provision of self-help printed materials only. In the present study, the self-reported and biochemically validated (urine cotinine or exhaled CO or both) 7-day point prevalence quit rate was significantly higher in the intervention group.

10.6.1 Smoking cessation rates

The self-reported 7-day point prevalence quit rate of 17.6% in the intervention group was higher than the reported quit rates of proactive telephone counseling (11.4~14.8%) in the meta-analysis of the US Clinical Practice Guidelines (Fiore et al., 2000). The quit rate of 10.5% in the control group was identical to that in the meta-analysis. The overall point prevalence quit rate of 14% in this study was, however, lower than that found in other studies that were reactive in nature (Borland, Balmford, Segan, Livingston, & Owen, 2003) or conducted among smokers who were more ready to quit smoking at the pre-intervention stage (Rigotti et al., 1997). This might be due to the fact that the majority of the

parents recruited at baseline in this study were pre-contemplators, and that they were contacted using a proactive approach.

The odds ratios of 1.8 (95% CI, 1.2-2.6) for self-reported quit rate and 1.7 (95% CI, 1.1-2.7) for biochemically validated quit rate are consistent with the aggregate odds ratios (OR=1.56; 95% CI 1.38-1.77) reported in the meta-analysis of 13 randomized proactive telephone interventions (Stead & Lancaster, 2002). In another review, proactive telephone counseling as an intervention was associated with an estimated odds ratio for quitting of 1.2 (95% CI 1.1-1.6) (Fiore et al., 2000). The effect size of this proactive telephone counseling among parents of young children is reasonable and may be better than in trials targeting other smokers who are not parents of young children. The absolute risk reduction was 7.1% (95% CI 2.7-11.5%). The number needed to treat to get one additional smoker to quit was 14 (95% CI: 9 to 37). The odds ratio of quitting was 1.8 (95% CI: 1.2-2.6), adjusted for age, number of years smoked, alcohol dependency and marital efficiency. Such an intervention, if adopted in mainland China, could also protect 60% of non-smoking wives and their children who live with smoking fathers (parents) (Loke et al., 2000).

10.6.2 Comparing the smoking cessation rate with those of previous studies

This study was more successful than another where a multi-component smoking cessation program for lower socio-economic African Americans found no improvement at the 6-month follow-up (Resnicow, Royce, Vaughan, Orlandi, & Smith, 1997), or one that provided one week's worth of free nicotine replacement patches for the smoking partners of pregnant women who were

supposed to have higher motivation than the subjects in this study (Stanton, Lowe, Moffatt, & Del Mar, 2004).

Comparison of the findings of this study with those of other successful studies targeting parents with pre-school children shows that the difference in the continuous quit rates between the intervention (6.4%) and the control group (4.6%) was not significant. This might be due to the fact that the initial intervention was not adequate to develop strong motivation among the participating parents, but the feedback and additional counseling provided during the follow-ups at 1 and 3 months encouraged them to quit, thus increasing the short-term quit rates (24-hour point prevalence and 7-day point prevalence) among the parents in the intervention group.

Results also indicated that about 24% of parents in this study progressed into later stages of 'readiness to quit' after three sessions of counseling. Nevertheless, the majority of the parents in the intervention group were in the pre-contemplation stage, suggesting that continuous intervention provided on several occasions might have been more effective to encourage long-term quitting and parents moving to later stages. Given that smokers often make several serious quit attempts before achieving long-term abstinence, even short-term successes can be significant advances in the smoking cessation process.

10.6.3 *Predictive factors of successful cessation*

Parents' were being allocated to the intervention group was the most significant predictor of successful quitting. This result indicates that proactive telephone counseling is an effective intervention for helping smoking parents to quit.

The study results confirm that the stage of behavioral change is a predictor of success in quitting (DiClemente, Prochaska, & Gibertini, 1985; Ferguson et al., 2003), and the study extends the application by using proactive telephone counseling of smoking parents to encourage them to quit. The findings also indicate that parents who consume fewer cigarettes improve their chance of successful quitting (OR: 5.5). Previous studies also found that smokers with lower nicotine dependence (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991) and fewer cigarette consumption (Appel & Aldrich, 2003), were more likely to quit smoking. In this study, parents who had more confidence in their ability to quit were associated with successful quitting (OR: 2.3). Similar findings were reported in previous studies that the higher smoking cessation self efficacy predicted cessation among pregnant smokers (Woodby, Windsor, Snyder, Kohler, & DiClemente, 1999), medical patients (Duncan, Cummings, Hudes, Zahnd, & Coates, 1992), smokers with clear intention of quitting (Gulliver, Hughes, Solomon, & Dey, 1995). Parents with children suffered from frequent morning cough was another predictive factor (OR: 4.0) of cessation. However, this factor was not found in the predictors of participation or parental household smoking restriction, indicating that the child's health condition might only be a motive for successful quitting once the smoker has taken action to quit.

However, this also shows that there is a need to help smoking parents relate their smoking to their children's health.

10.7 Secondary outcomes

As it is difficult for most smoking parents to achieve smoking cessation within 6 months, the measures of secondary outcomes to reflect the extent of quitting motivation and behavioral changes of the smoking parents were deliberated and are useful. The progression of the smoking parents along the stages of readiness to quit and their attempts to quit smoking were measured.

10.7.1 Progression along the stages of readiness to quit

Stage distribution

In the present study, 67.9% of the 952 studied parents were in the pre-contemplation stage, 22.9% in the contemplation stage, 4.1% in the preparation stage and 5.1% in the action stage at baseline. This research reports on the majority of smoking parents who were not ready to quit smoking, i.e. those who were in the pre-contemplation and contemplation stages of smoking cessation. The smoking parents who were in the action stage (recent quitters) were also included in this study for consideration of the recycling module for the many smokers who will relapse after taking action to quit smoking (Pallonen, Murray, Schmid, Pirie, & Luepker, 1990). Comparing the stage distribution with that of smokers in other countries shows that the proportion of pre-contemplators is similar to that among European smokers, about 70%, but much greater than the proportion among average American smokers, which is 40%. As the stage of change reflects smokers' readiness to quit (Etter, Perneger, & Ronchi, 1997), the

large proportion of pre-contemplators in the sample in this study indicates that smoking prevention strategies in Hong Kong should target this serious problem by motivating smoking parents to be more ready to quit. These strategies should aim to prompt these smoking parents to at least think about the possibility of quitting, instead of expecting them to quit once and for all. Measures should be created to increase restrictions on smoking, such as creating smoke-free places, and to increase the economic costs of smoking, such as increasing tobacco tax. In addition, reinforcing the message about the adverse health effects on both smoking parents and their children can increase their motivation and ultimately their readiness to quit.

Stage movement

The smoking parents' motivation for change is another potential factor affecting the benefit gained from the intervention. The evaluation of the stage of change framework was carried out in two ways. First, an analysis of whether the likelihood of achieving cessation was associated with the baseline stage was conducted. At baseline, overall, 67.9% of parents were in the pre-contemplation stage, 22.9% in contemplation, 4.1% in preparation and 5.1% in the action stage. Results show that parents in the action stage at baseline were strongly associated with the prediction of successful quitting (odds ratio: 6.7). However, this association of prediction was not seen in parents in earlier stages at baseline (Table 10-31). In contrast, a consistent prediction of progression from pre-contemplation through contemplation and preparation in quitting smoking was observed in samples in the United Kingdom (Steptoe et al., 1999). The number of smoking parents in the preparation stage (n=39) in this study was too small to

perform a detailed comparison of stage effects. Thus, it limited the evaluation of the value of stage classification in studying smoking parents with young children in Hong Kong.

Stage-matched intervention

The second test of the efficacy of stage-matched counseling evaluated whether the counseling intervention provided benefits to parents in different stages at baseline. Since the counseling provided was matched with the parents' stages of readiness to quit smoking, it was hoped that parents would progress to later stages irrespective of the baseline stage. The results of these analyses illustrate that the stage-matched counseling was effective in helping smoking parents to a forward progression (Table 11-30). The stage-matched counseling showed the greatest advantage over the control group for parents in the contemplation (24% [28/118] vs. 13% [13/100]) and preparation stages (32% [7/22] vs. 5.9% [1/17]) at baseline (Table 11-2). For those in pre-contemplation at baseline, parents in the intervention received a matched discussion of their reasons for not wanting to quit and an exploration of other possible reasons for quitting with reference to their concerns and worries.

The benefit conferred by this matched intervention over the self-help materials only was also identified, with 29% of parents in the intervention group vs. 22% of parents in the control group progressing to the later stages of readiness in quitting. Stage-matched counseling for parents in the action stage focused on reaffirming an agreed plan and providing advice on handling potential triggers: here, the effect difference between the two groups became narrower. Parents in

the action stage at baseline, about 77% of parents in the control group and 78% of parents in the intervention group, remained in the action stage or had progressed to the maintenance stage at the 6-month follow-up. A review of the effectiveness of the stage-matched telephone counseling for smoking cessation shows that it provided significant help at various stages of smoking, especially at the contemplation and preparation stages.

10.7.2 Attempts to quit

The rates of attempts to quit for more than 24 hours during the 6-month intervention period were about the same between the two groups. That the quit rates at the 6-month follow-up were higher among the parents in the intervention group suggests that the telephone counseling provided for this group helped them succeed beyond the first 24 hours of abstinence, which is when most relapses occur (Hughes et al., 1992).

Apart from the quit rates, the study results demonstrate that the changes in most smoking behaviors were significantly improved regardless of group assignments. The indicators include readiness to quit smoking, reduction of daily cigarette consumption, progressing to full restriction of smoking at home, and changing to not smoking near their children. There are three possible reasons for these results. The changes in smoking behaviors in the control group may be due to the effect of the stage-matched printed self-help materials and the interviewer asking about their children's health and their smoking histories. It could also be due to the natural changes in smoking patterns among parents. However, unlike the primary indicator of self-reported quitting, it should be noted that most of the

secondary outcomes were not validated; thus the Hawthorn effect may not be excluded.

Almost 70% of smoking parents were in the pre-contemplation stage and very few in the preparation (4%) and action stages (5%) at baseline. After taking consideration of the within-group improvement, the significant changes in smoking behaviors among the parents in the intervention group were also observed. Apart from the stage progression, a 50% reduction in cigarette consumption was another significant achievement of the parents who were not able to quit by the 6-month follow-up interview. These results indicate that the 3 sessions of telephone counseling were not able to motivate all the smoking parents at various stages to quit, but were able to motivate them to take some significant steps towards quitting. These results also indicate that other kinds of interventions are necessary beyond smoking cessation counseling, especially for the pre-contemplators. To make these interventions more intense, intervention for the family may help.

10.8 Limitations

10.8.1 Validity bias

A limitation of this study may lie in the fact that the counselors who provided the counseling for the intervention group also acted as raters of the intervention effects for both groups. This could therefore have created a bias on the reported effects. This potential bias was minimized by validating the self-reported quitters using spousal proxy reports and biochemical validations. The urine cotinine tests

were performed by two counselors blinded to the parents' identity, and the reported results were given to an independent research assistant for data entry.

Only the self-reported quitting was validated by spousal proxy reports and biochemical validations, thus the other outcomes on the stages of readiness to quit smoking and the other secondary behavioral outcomes may be subject to bias and errors of self-reported bias. However, significant agreements were identified between self-reported quitting (action or maintenance stages) and biochemical validations. This result can be transferred to the reports of earlier stages of readiness in quitting, as the possibility of under-reporting of cessation is low. Other behavioral outcome indicators, including smoking hygiene at home, were proxy validated by the spouses of the participating parents. Agreement between reports was also found.

10.8.2 Classification and assessment of smoking behavior

Difficulties have been encountered in classifying smoking status. This study used 7-day point prevalence, which was shorter than the actual follow-up interval. As the process of reaching full smoking cessation is replete with multiple quit attempts and relapses, the use of a partial and short follow-up reporting interval creates confusion. For example, this result may not accurately reflect how parents succeed in quitting smoking over time, as relapses in the first 3-6 months post intervention are very common (Ockene et al., 2000; Zhu et al., 1996; Stevens, Glasgow, Hollis, Lichtenstein, & Vogt, 1993). Thus, a parent who is not smoking at the end of the 6-month follow-up may have suffered several relapses or may have been completely abstinent over the full interval. The use of short follow-up intervals, therefore, results in incomplete information, as a reliable period of time beyond which relapses are unlikely to occur has not yet been identified.

To date, researchers are still looking for a method to resolve the above limitations. The report of the US Surgeon General (US Department of Health and Human Services, 1990) and other studies have found that point prevalence does not reveal the stability of the outcome (Ockene et al., 2000; Zhu et al., 1996; Stevens, Glasgow, Hollis, Lichtenstein, & Vogt, 1993). However, recent research compared the validity of the four common cessation measures: (1) 24-hour point prevalence abstinence, (2) 7-day point prevalence abstinence, (3) 30-day prolonged abstinence, and (4) 6-month prolonged abstinence, with three population-based smoking cessation studies (Velicer & Prochaska, 2004). This study found an extremely high relationship between all four outcome measures.

The first three measures (24-hour point prevalence, 7-day point prevalence, and 30-day prolonged abstinence) all correlated with each other in excess of 0.98.

This study intended to use a multiple outcome indicator to have a wider look at cessation rates. Basically, the trend of more effective results found in the intervention group was consistent in the 24-hour and 7-day point prevalence, but not in the 180-day continuous abstinence. Significant agreement was also found between the self-reports of cessation, spousal proxy reports and the biochemical validations. Therefore, the use of self-reported cessation is a valid indicator to compare intervention effectiveness. Although some of the self reports were not validated with cotinine tests, validity can be inferred from the consistency found in the significant agreements of the spousal reports. Furthermore, both self reports (Patrick et al., 1994) and spousal reports (Mak, Loke, Lam, & Abdullah, 2005) of smoking behavior have been recognized as being reliable.

10.8.3 Factors hindering the effect of intervention

Three factors that may hinder the effect of intervention should be noted. First, some smokers have co-morbid psychiatric conditions, for example, when an alcoholic smoking parent is also nicotine-dependent, and when parents have anxiety, depression, difficulty concentrating, insomnia, irritability, and restlessness, these conditions can be aggravated by nicotine withdrawal. The children in this study were born in the year in which the political administration of Hong Kong was returned to mainland China, and an economic crisis occurred just before this program commenced. Some parents may have been experiencing stresses as a result of these political and economic changes. The unemployment

and bankruptcy rates were also high. These societal factors were mentioned by some of the studied parents as their reasons for continuing to smoke. However, these psychosocial factors were not the focus of the present study.

Second, as about 17% (46 parents) of the 271 refusals to take part in the study were made by the spouses (usually the wives) of the smoking parents (Table 6-1), the direct parents' consent may have been reduced and a sampling bias may exist. Third, there is a significant benefit of using self-help materials tailor-made for the individual smoker's needs compared with untailored material (OR 1.51, 95% CI 1.13-2.02; $p<0.05$) (Lancaster & Stead, 1998). The intervention effects in this study may have been weakened by comparing the intervention outcomes with outcomes using stage-matched printed self-help materials rather than no intervention or unmatched self-help materials. However, it is believed that it was justified for ethical reasons to provide proved strategies to the parents in the control group for comparison.

Chapter 11

Implications and Recommendations

11.1 Implications for clinical practice and research

After discussing the advantages and disadvantages of the methods used and the effectiveness of this trial, this section discusses the implications for clinicians, health care professionals, educators, researchers and policy makers. Recommendations are made for future study directions related to this public health issue.

11.2 Clinical implications

The benefits of smoking cessation before middle age are substantial. Smoking cessation for parents is especially important for the betterment of the health of their families and young children. Despite these smoking cessation benefits, the prevalence of parental household smoking in the present study suggests that most of the studied parents were not aware of the health hazards of ETS to their children. Obviously, education and the promotion of tobacco control targeting parents with young children, including creating a smoke-free household and protecting children from ETS exposure are urgently indicated.

11.2.1 Nurses play the key role in tobacco control for smoking parents

Previous studies have supported the critical role of nurses and other health professionals in providing effective smoking cessation interventions (Curry et al., 2003a). In the present study, the majority of the smoking parents and their partners were willing to discuss their smoking and their family's health even using a proactive approach. These findings thus have important implications for nurses or other health professionals, who are well-positioned to counsel parents about their smoking and their children's environmental tobacco smoke exposure.

Previous literature has shown that health care professionals admit the adverse effects of active and passive smoking and have a desire to provide cessation advice (Frankowski, Weaver, & Seckerwalker, 1993). However, they are hindered by low self-efficacy with regard to providing such advice, and very few have had any formal training in tobacco control (O'Loughlin et al., 2001). Clinicians with no adequate training in tobacco control are limited to decreasing ETS exposure for the young children in their care (Perez-Stable et al., 2001). In the present study, counselors were provided smoking cessation counselor training along with a smoking cessation counseling protocol. They were also provided with support. The intervention component of 3 sessions of telephone counseling is highly achievable in clinical settings. The efficacy of the smoking cessation counseling was built up gradually by counselors with the accumulating number of counseling sessions conducted. Therefore practicing health care professionals should actively participate in anti-smoking activities to empower themselves to intervene with smoking parents at risk from smoking-related health hazards and whose children are exposed to ETS.

11.2.2 Smoking assessment as a routine practice

Identification of the smoking status of the parents is the foremost step for further smoking cessation intervention (Glynn & Manley, 1989). However, the clinical practice associated with children's health has not considered the parental smoking behavior at home for routine assessment or for assisting with smoking cessation. Nurses and other health professionals have many opportunities to meet parents, both when the parents and children are sick and when they are well. Therefore, it is highly recommended to incorporate the routine identification of

smokers with a brief assessment of their smoking status, smoking history, level of nicotine dependency and stage of readiness to quit smoking. Advice should then be given to all smoking parents to quit. The more health professionals get involved in tobacco control activities, the more beneficial such activities will be to more smoking families, and the greater will be the enhancement of the efficacy of health providers.

11.2.3 Focus parents with high risk for education / Target education at high-risk parents

The findings revealed that smoking parents with the lowest or highest household incomes, those who were unemployed or smoking parents who did not understand the importance of quitting were less likely to take part in a smoking cessation program. This group of parents should be targeted to motivate them to get involved in tobacco control activities. Another important clinical implication is focusing on female parents with higher nicotine dependency and smoking partners for support and tangible help in maintaining not smoking at home. Those are the parents who are most likely to take part in smoking cessation activities but least able to refrain from smoking at home. Additional help is crucial to help those parents who have smoking partners to adhere to smoking cessation activities once they have enrolled.

An important implication arises from the stage of behavioral change distribution, which indicated that about 70% of the parents were pre-contemplators and only 5% were in the action stage. As the action stage is the strongest predictor for quitting, a comprehensive tobacco control program is needed in the community

to move more smokers into the action stage, so that individual proactive counseling can have a greater impact.

The primary aim of this study was to examine the effectiveness of the intervention method provided, but given the difficulties in recruitment to the study, the adherence rate, and the fact that most of the studied parents had not decide to quit smoking in the near future, at least in the coming? 6 months, more extended intervention strategies are urgently required to help smoking parents to quit, especially those who are in the pre-contemplation, contemplation and preparation stages.

11.3 Research implications

In Hong Kong, we are starting to accumulate smoking-related information targeting the local population by cohorts (Ho, Zhan, Tang, Chan, & Woo, 1999; Lam, Leung, & Ho, 2001; Wong, Hu, Lam, Hedley, & Peters, 1999). However, to date, there has been no published report on a randomized controlled trial or controlled trial related to smoking cessation. Therefore, a clearer picture of the effectiveness of smoking cessation intervention in the Hong Kong situation is urgently required. Evidence of effective intervention in helping smokers to quit has to be provided to convince health care professionals and commissioners of the value of supporting local services, education and research targeted at smokers.

11.3.1 Further study of the subjects of the Birth Cohort Study

The present study concluded an effective intervention on short-term abstinence. However, several modes of follow-up of the present cohort should be continued. First, effective strategies of recruitment to smoking cessation interventions should be targeted at parents from higher and lower social classes, those without health problems, and those parents who do not perceive the importance of quitting. Second, as the majority of the studied parents were pre-contemplators, they may have taken longer to experience the cycle of cessation. Further assessment should be made of whether a prolonged abstinence or the pattern of stage movement by this brief telephone counseling approach is effective for longer follow-up. Third, smoking cessation strategies are vital components in reducing smoking-related diseases, and it takes time to see the benefits of cessation. Change of smoking behaviors is the indicator for tobacco control activity. Further comparisons of the health status and occurrence of respiratory symptoms should be made in a longitudinal relationship across time, both within and between smoking and non-smoking parent groups. Fourth, a similar comparison could be applied to study their non-smoking spouses and their children.

11.3.2 Other implications for further research

In addition to follow-up studies of the birth cohort, further research is necessary to substantiate the findings presented in this thesis. There is a need to replicate the randomized trial to other populations and settings, to further compare the results between target groups and other populations. Since smoking parents who were mothers, daily smokers and highly dependent on nicotine were less likely

to restrict smoking at home, further effective studies on helping them to refrain from smoking at home are urgently implicated. Pharmacological adjuncts to behavioral treatments have improved smoking cessation rates in the general smoking population (Fiore et al., 2000). This suggests that intervention should be focused on the physiological aspects of smoking (e.g. withdrawal, craving, and nicotine dependence). Combining the stage-matched counseling interventions together with pharmacological treatments as an effort to increase smoking cessation among highly nicotine-dependent parents is also indicated.

As a large proportion of pre-contemplators was found in our sample, the modified version of Prochaska's readiness to quit scale, which sub-divides the pre-contemplators into three groups, may be useful for our targeted sample of smoking parents in Hong Kong (Crittenden, Manfredi, Warnecke, Cho, & Parsons, 1998). The division describes those smokers with the self-perception that they will never change their smoking habit as the lowest level of pre-contemplators, those seriously thinking of reducing consumption but not quitting as the second level of pre-contemplators, and those seriously thinking of quitting but not within the next 6 months as the higher pre-contemplators. Making use of this finer division of the pre-contemplators may help in matching a more effective intervention to each group of smokers.

The difference in the continuous quit rates between the intervention (6.4%) and control groups (4.6%) was not statistically significant. This might be due to the fact that the three sessions of counseling were not adequate to develop strong motivation among the parents, but had encouraged them by increasing the short-

term quit rates (24-hour point prevalence and 7-day point prevalence) among the intervention group parents. This indicates that more intense intervention could have been more effective in encouraging long-term quitting. A recent systematic review showed that multiple contacts timed around a quit attempt were effective in encouraging smoking cessation (Stead & Lancaster, 2002).

This is relatively a low-cost intervention. Staff time can be utilized effectively by minimal waiting and traveling time for services (Glasgow, Lando, Hollis, Mcrae, & Lachance, 1993). However, the costs and health benefits of different types of intervention should be examined, thus a future study could examine the cost of pharmacological intervention for parents, together with other behavioral interventions in other populations.

An investigation studying the patterns of behavioral change over time and identifying the correlates and predictors of these changes could help future smoking cessation program design, and an examination of parental psychological well-being and the perceived impact of the intervention on family functioning could enrich the scarce information regarding smoking cessation in the family circle. Further studies should also examine the psychosocial factors associated with parents' smoking behaviors, such as depression, child rearing, job strain, heavy workload, and financial constraints, since recent literature has suggested an association between mood and smoking (Breslau, Kilbey, & Andreski, 1993). The impact of the intervention on parental psychosocial well-being can be taken into account in future research.

Finally, there is an indication for exploring the family as a resource in smoking cessation intervention programs: it is suggested that engaging families in the action to help smokers quit may be the direction for further research.

11.4 Recommendations

11.4.1 To clinicians

Education about the health hazards of using tobacco should target all families. Families with infants and children who visit family health centers for immunizations, health assessment and screening from ages 0 to 6 in particular should be targeted. This provides a good opportunity for health professionals to advise parents who smoke to stop (Perry, Griffin, & Murray, 1985). During the child's infancy and early childhood, clinicians should emphasize to parents the relationship between environmental tobacco smoke and the infant's health.

Advice regarding anti-smoking skills should be given to smoking parents, including protecting their children from ETS exposure and attempting to quit. Smoking parents who were mothers, daily smokers and highly dependent on nicotine were less likely to restrict smoking at home. They should be educated to refrain from smoking at home. For school-aged children, reinforcement of anti-smoking messages should be targeted at the children themselves, and at school personnel.

Having a high level of nicotine dependency is a major factor hindering smoking parents from restricting smoking at home, even when they are motivated to take part in a smoking cessation program. Parents who are severely nicotine-

dependent should be specifically targeted for health education about second-hand smoking, and encouraged to refrain from smoking at home.

11.4.2 *To policy makers*

Both policy makers and health professionals should make special efforts to encourage smoking parents to quit and create a smoke-free environment for our children, and for families as a whole. Education and other efforts to promote voluntary smoking restrictions at home should be highly emphasized in both health care settings and in our community.

Partners of smoking parents can play an important role in helping their smoking partners to quit and protect themselves and their children from ETS exposure, as they share a common goal of providing family well-being, focusing on achieving a smoke-free household and ultimately the cessation of smoking. Services and assistance should be readily available to those in need to support their efforts in helping smoking partners to quit.

Further, a previous study has found that smoking restrictions in public places are associated with more smokers quitting smoking and lower cigarette consumption (Farkas, Gilpin, Distefan, & Pierce, 1999; Farrelly, Evans, & Sfekas, 1999). Therefore, the further extension of smoke-free areas in public places is urgently required.

Apart from involving the partners of smoking parents in creating a smoke-free household and ultimately a smoke-free society, families as a whole, including

their children, should be involved in order to maximize support from each other within families. Another recommendation is necessary to make proactive telephone counseling services available to help smoking parents to quit and protect their non-smoking family members from ETS exposure. Strategies for these services involve being ready to anticipate, assess, advise, assist and arrange help and support for all smoking parents and their families.

Both active and passive smoking are important causes of mortality and morbidity in smoking parents and their young children, thus it should be a concern of our government to fully support services, education and research in promoting smoke-free households for our entire population. Hong Kong was just starting to provide its first batch of smoking cessation counselors at the beginning of this study. The topic of tobacco control then started to be included in the formal medical curriculum. The number of certified smoking cessation counselors and medical students with tobacco control exposure is growing. The broader involvement of health care professionals in tobacco control is urgently indicated. Tobacco control education should reach both students and practicing health professionals in order to enhance their self-efficacy to work on this topic.

11.5 Conclusion

This study is the first ever to adopt a proactive telephone counseling approach to help parents to quit smoking in a randomized controlled trial. Above and beyond the objective of examining the effectiveness of the proactive telephone smoking cessation program for smoking parents, this study also developed a counseling protocol that is essential for counselors in smoking cessation, tested the

psychometric properties of the questionnaires, validated the spousal proxy reports and biochemical validations of smoking status, identified the reasons for and predicting factors of participation in telephone interviews as well as in the RCT, examined the attrition of subjects in the RCT, and explored the household smoking hygiene practice of smoking parents.

The prevalence of parental smoking and the ETS exposure of their children is a very serious problem in Hong Kong. About 85.6% of children with at least one smoking parent are exposed to ETS at home, and about 53.3% are exposed to daily parental smoking within 3 meters of them at home. Furthermore, more than half of the studied families had two or more children under 12. The risk increased with increasing exposure if smoking parents were mothers, daily smokers, consumed more cigarettes per day, and had a higher level of nicotine dependency and smoking partners. Smoking parents with children of normal birth weight or more than one child were more prone to smoke at home. Contrary to most parents' self-perceptions of being in good or very good health (95%), more than a tenth (13.2% and 14.0%) reported frequent morning cough and nasal symptoms. More than a quarter (28.6%) even had frequent morning phlegm, and about one fifth (19.2%) had medical problems that required follow-up or hospitalization.

This proactive telephone counseling program has been accepted, highly utilized and effective in helping smoking parents with young children to quit in Hong Kong. This study provides unique findings that the tested questionnaires are valid and reliable instruments to access smoking dependence among Chinese.

The spouse's proxy report of smoking status is a feasible and reliable way of recruiting smoking parents. The validity of the result was strengthened by the high receptiveness, low dropout rate and comparable quitt rates, both in the intervention and control groups, compared with other intensive programs. The results of this study suggest that motivational interviewing is an important approach in establishing rapport with smoking parents who do not initiate smoking cessation.

The stage-matched smoking cessation counseling significantly helped smoking parents to progress to the later stages of readiness to quit smoking, reduce their daily cigarette consumption by 50%, move to voluntary full restriction of smoking at home, and change to not smoking within 3 meters of their children at home. Our results also show that this method of smoking cessation should be useful for smokers in the general population. However, about 70% of the parents were pre-contemplators and only 5% were in the action stage. As the action stage is the strongest predictor for quitting, a comprehensive tobacco control program is needed in the community to move more smokers into the action stage, so that individual proactive counseling can have a greater impact. The findings of this study also have important implications for health care clinicians, health care education, research and policy makers in the area of helping smoking parents to quit and minimizing the parental ETS exposure of their young children.

Reference List

Ahluwalia, J. S., Richter, K., Mayo, M. S., Ahluwalia, H. K., Choi, W. S., Schmelzle, K. H., & Resnicow, K. (2002). African American smokers interested and eligible for a smoking cessation clinical trial: Predictors of not returning for randomization. *Annals of Epidemiology, 12,* 206-212.

Altman, D. G. & Bland, J. M. (1999a). Statistics notes - How to randomise. *British Medical Journal, 319,* 703-704.

Altman, D. G. & Bland, J. M. (1999b). Statistics notes - Treatment allocation in controlled trials: why randomise? *British Medical Journal, 318,* 1209.

Altman, D. G. & Schulz, K. F. (2001). Statistics notes - Concealing treatment allocation in randomised trials. *British Medical Journal, 323,* 446-447.

Appel, D. W. & Aldrich, T. K. (2003). Smoking cessation in the elderly. *Clinics in Geriatric Medicine, 19,* 77-100.

Ashley, M. J. & Ferrence, R. (1998). Reducing children's exposure to environmental tobacco smoke in homes: issues and strategies. *Tobacco Control, 7,* 61-65.

Aveyard, P., Cheng, K. K., Almond, J., Sherratt, E., Lancashire, R., Lawrence, T., Griffin, C., & Evans, O. (1999). Cluster randomised controlled trial of expert system based on the transtheoretical ("stages of change") model for smoking prevention and cessation in schools. *British Medical Journal,319,* 948-53.

Bailey, S. L., Ennett, S. T., & Ringwalt, C. L. (1993). Potential mediators, moderators, or independent effects in the relationship between parents' former and current cigarette use and their children's cigarette use. *Addicive Behaviors, 18,* 601-621.

Bandura, A. (1986). The Explanatory and Predictive Scope of Self-Efficacy Theory. *Journal of Social and Clinical Psychology, 4,* 359-373.

Bandura, A. (1989). *A social learning theory*. Englewood cliff, NJ: Prentice-hall.

Bland, J. M. & Altman, D. G. (1997). Statistics notes: Cronbach's alpha. *British Medical Journal, 314,* 572.

Blokland, E. A., Engels, R., Hale, W., Meeus, W., & Willemsen, M. C. (2004). Lifetime parental smoking history and cessation and early adolescent smoking behavior . *Preventive Medicine, 38,* 359-368.

Borland, R., Balmford, J., Segan, C., Livingston, P., & Owen, N. (2003). The effectiveness of personalized smoking cessation strategies for callers to a Quitline service. *Addiction, 98,* 837-846.

Borland, R., Segan, C. J., Livingston, P. M., & Owen, N. (2001). The effectiveness of callback counselling for smoking cessation: a randomized trial. *Addiction, 96,* 881-889.

Borland, R., Mullins, R., Trotter, L., & White, V. (1999). Trends in environmental tobacco smoke restrictions in the home in Victoria, Australia. *Tobacco Control, 8,* 266-271.

Borrelli, B., McQuaid, E. L., Becker, B., Hammond, K., Papandonatos, G., Fritz, G., & Abrams, D. (2002). Motivating parents of kids with asthma to quit smoking: the PAQS project. *Health Education Research, 17,* 659-669.

Brehm, J. W. (1989). Psychological Reactance - Theory and Applications. *Advances in Consumer Research, 16,* 72-75.

Breslau, N., Kilbey, M. M., & Andreski, P. (1993). Nicotine Dependence and Major Depression - New Evidence from A Prospective Investigation. *Archives of General Psychiatry, 50,* 31-35.

Britt, J., Curry, S. J., Mcbride, C., Grothaus, L., & Louie, D. (1994). Implementation and Acceptance of Outreach Telephone Counseling for Smoking Cessation with Nonvolunteer Smokers. *Health Education Quarterly, 21,* 55-68.

Brook, J. S., Whiteman, M., Czeisler, L. J., Shapiro, J., & Cohen, P. (1997). Cigarette smoking in young adults: Childhood and adolescent personality, familial, and peer antecedents. *Journal of Genetic Psychology, 158,* 172-188.

Burke, L. E., Dunbar-Jacob, J. M., & Hill, M. N. (1997). Compliance with cardiovascular disease prevention strategies: A review of the research. *Annals of Behavioral Medicine, 19,* 239-263.

Calfas, K. J., Long, B. J., Sallis, J. F., Wooten, W. J., Pratt, M., & Patrick, K. (1996). A controlled trial of physician counseling to promote the adoption of physical activity. *Preventive Medicine, 25,* 225-33.

Callaghan, P., Eves, F. F., Norman, P., Chang, A. M., & Lung, C. Y. (2002). Applying the Transtheoretical Model of Change to exercise in young Chinese people. *British Journal of Health Psychology, 7,* 267-282.

Campbell, E., Sanson-Fisher, R., & Walsh, R. (2001). Smoking status in pregnant women - Assessment of self-report against carbon monoxide (CO). *Addictive Behaviors, 26,* 1-9.

Campbell, M. K., Honess-Morreale, L., Farrell, D., Carbone, E., & Brasure, M. (1999). A tailored multimedia nutrition education pilot program for low-income women receiving food assistance. *Health Education Research,14,* 257-67.

Celermajer, D. S., Adams, M. R., Clarkson, P., Robinson, J., McCredie, R., Donald, A., & Deanfield, J. E. (1996). Passive smoking and impaired endothelium-dependent arterial dilatation in healthy young adults. *New England Journal of Medicine, 334,* 150-154.

Census and Statistics Department (2003). *Thematic Household Report*. Hong Kong Special Administration Region.

Chan, S. & Lam, T. H. (2003). Preventing exposure to second-hand smoke. *Seminars in Oncology Nursing, 19,* 284-290.

Chan, S. S. C., Lam, T. H., & Betson, C. L. (1999). Passive smoking exposure of sick children in Hong Kong. *Human & Experimental Toxicology, 18,* 224-228.

Charlton, A. (1994). Children and Passive Smoking - A Review. *Journal of Family Practice, 38,* 267-277.

Charlton, A. (1996). Children and smoking: The family circle. *British Medical Bulletin, 52,* 90-107.

Chen, X. G., Zheng, H., Sussman, S., Gong, J., Stacy, A., Xia, J. A., Gallaher, P., Dent, C., Azen, S., Shan, J. G., Unger, J. B., & Johnson, C. A. (2002). Use of the Fagerstrom Tolerance Questionnaire for measuring nicotine dependence among adolescent smokers in China: A pilot test. *Psychology of Addictive Behaviors, 16,* 260-263.

Chilmonczyk, B. A., Knight, G. J., Palomaki, G. E., Pulkkinen, A. J., Williams, J., & Haddow, J. E. (1990). Environmental Tobacco-Smoke Exposure During Infancy. *American Journal of Public Health, 80,* 1205-1208.

Chilmonczyk, B. A., Palomaki, G. E., Knight, G. J., Williams, J., & Haddow, J. E. (1992). An Unsuccessful Cotinine-Assisted Intervention Strategy to Reduce Environmental Tobacco-Smoke Exposure During Infancy. *American Journal of Diseases of Children, 146,* 357-360.

Cinciripini, P. M., Wetter, D. W., Fouladi, R. T., Blalock, J. A., Carter, B. L., Cinciripini, L. G., & Baile, W. F. (2003). The effects of depressed mood on smoking cessation: Mediation by postcessation self-efficacy. *Journal of Consulting and Clinical Psychology, 71,* 292-301.

Colley, J. R. T., Holland, W. W., & Corkhill, R. T. (1974). Influence of Passive Smoking and Parental Phlegm on Pneumonia and Bronchitis in Early-Childhood. *Lancet, 2,* 1031-1034.

Condiotte, M. M. & Lichtenstein, E. (1981). Self-Efficacy and Relapse in Smoking Cessation Programs. *Journal of Consulting and Clinical Psychology, 49,* 648-658.

Cook, C. L. & Perri, M., III (2004). Single-item vs multiple-item measures of stage of change in compliance with prescribed medications. *Psychological Reports, 94,* 115-124.

Cook, D. G. & Strachan, D. P. (1999). Summary of effects of parental smoking on the respiratory health of children and implications for research. *Thorax, 54,* 357-365.

Crittenden, K. S., Manfredi, C., Warnecke, R. B., Cho, Y. I., & Parsons, J. A. (1998). Measuring readiness and motivation to quit smoking among women in public health clinics: Predictive validity. *Addictive Behaviors, 23,* 191-199.

Cromwell, J., Bartosch, W. J., Fiore, M. C., Hasselblad, V., & Baker, T. (1997a). Cost-effectiveness of the clinical practice recommendations in the AHCPR guideline for smoking cessation. *Jama-Journal of the American Medical Association, 278,* 1759-1766.

Cullari, S., Allyn, & Bacon (2001). *Counselling and psychotherapy - a practical guidebook for students, trainees, and new professionals*. Boston: Allyn & Bacon.

Cummings, K. M., Hellmann, R., & Emont, S. L. (1988). Correlates of Participation in A Worksite Stop-Smoking Contest. *Journal of Behavioral Medicine, 11,* 267-277.

Curry, S. J., Ludman, E. J., Graham, E., Stout, J., Grothaus, L., & Lozano, P. (2003a). Pediatric-based smoking cessation intervention for low-income women - A randomized trial. *Archives of Pediatrics & Adolescent Medicine, 157,* 295-302.

Curry, S. J., Hollis, J., Bush, T., Polen, M., Ludman, E. J., Grothaus, L., & McAfee, T. (2003b). A randomized trial of a family-based smoking prevention intervention in managed care. *Preventive Medicine, 37,* 617-626.

Curry, S. J., McBride, C., Grothaus, L. C., Louie, D., & Wagner, E. H. (1995). A Randomized Trial of Self-Help Materials, Personalized Feedback, and Telephone Counseling With Nonvolunteer Smokers. *Journal of Consulting and Clinical Psychology, 63,* 1005-1014.

Davis, S. W., Cummings, K. M., Rimer, B. K., Sciandra, R., & Stone, J. C. (1992). The Impact of Tailored Self-Help Smoking Cessation Guides on Young Mothers. *Health Education Quarterly, 19,* 495-504.

Dean, A. G., Dean, J. A., Coulombier, D., Brendel, K. A., Smith, D. C., Burton, A. H., Dicker, R. C., Sullivan, K., Fagan, R. F., & Arner, T. G. (2002). Epi Info: a word processing, database, and statistics program for epidemiology on microcomputers. [Computer software]. Altanta, Georgia.

DiClemente, C. C. (1999). Motivation for change: Implications for substance abuse treatment. *Psychological Science, 10,* 209-213.

DiClemente, C. C., Prochaska, J. O., & Gibertini, M. (1985). Self-Efficacy and the Stages of Self-Change of Smoking. *Cognitive Therapy and Research, 9,* 181-200.

DiFranza, J. R., Aligne, C. A., & Weitzman, M. (2004). Prenatal and postnatal environmental tobacco smoke exposure and children's health. *Pediatrics, 113,* 1007-1015.

DiFranza, J. R. & Lew, R. A. (1996). Morbidity and mortality in children associated with the use of tobacco products by other people. *Pediatrics, 97,* 560-568.

Doll, R., Peto, R., Boreham, J., & Sutherland, I. (2004). Mortality in relation to smoking: 50 years' observations on male British doctors. *British Medical Journal, 328,* 1519-1528.

Doll, R., Peto, R., Wheatley, K., Gray, R., & Sutherland, I. (1994). Mortality in Relation to Smoking - 40 Years Observations on Male British Doctors. *British Medical Journal, 309,* 901-911.

Duncan, C. L., Cummings, S. R., Hudes, E. S., Zahnd, E., & Coates, T. J. (1992). Quitting Smoking - Reasons for Quitting and Predictors of Cessation Among Medical Patients. *Journal of General Internal Medicine, 7,* 398-404.

Elder, J. P., Perry, C. L., Stone, E. J., Johnson, C. C., Yang, M. H., Edmundson, E. W., Smyth, M. H., Galati, T., Feldman, H., Cribb, P., & Parcel, G. S. (1996). Tobacco use measurement, prediction, and intervention in elementary schools in four states: The CATCH study. *Preventive Medicine, 25,* 486-494.

Emmons, K. M., Hammond, S. K., Fava, J. L., Velicer, W. F., Evans, J. L., & Monroe, A. D. (2001). A randomized trial to reduce passive smoke exposure in low-income households with young children. *Pediatrics, 108,* 18-24.

Eriksen, W., Sandvik, L., & Bruusgaard, D. (1997). Social support and the smoking behaviour of parents with preschool children. *Scandinavian Journal of Social Medicine, 25,* 93-99.

Eriksen, W., Sorum, K., & Bruusgaard, D. (1996). Effects of information on smoking behaviour in families with preschool children. *Acta Paediatrica, 85,* 209-212.

Etter, J. F., Perneger, T. V., & Ronchi, A. (1997). Distributions of smokers by stage: International comparison and association with smoking prevalence. *Preventive Medicine, 26,* 580-585.

Etzel, R. A., Balk, S. J., Bearer, C. F., Miller, M. D., Shea, K. M., Simon, P. R., Falk, H., Miller, R. W., Rogan, W., & Hendrick, J. G. (1997). Environmental tobacco smoke: A hazard to children. *Pediatrics, 99,* 639-642.

Ewing, J. A. (1984). Detecting Alcoholism - the Cage Questionnaire. *Journal of the American Medical Association, 252,* 1905-1907.

Ezzati, M., Lopez, A. D., Rodgers, A., Vander Hoorn, S., & Murray, C. J. L. (2002). Selected major risk factors and global and regional burden of disease. *Lancet, 360,* 1347-1360.

Farkas, A. J., Distefan, J. M., Choi, W. S., Gilpin, E. A., & Pierce, J. P. (1999). Does parental smoking cessation discourage adolescent smoking? *Preventive Medicine, 28,* 213-218.

Farkas, A. J., Gilpin, E. A., Distefan, J. M., & Pierce, J. P. (1999). The effects of household and workplace smoking restrictions on quitting behaviours. *Tobacco Control, 8,* 261-265.

Farrelly, M. C., Evans, W. N., & Sfekas, A. E. S. (1999). The impact of workplace smoking bans: results from a national survey. *Tobacco Control, 8,* 272-277.

Ferguson, J. A., Patten, C. A., Schroeder, D. R., Offord, K. P., Eberman, K. M., & Hurt, R. D. (2003). Predictors of 6-month tobacco abstinence among 1224 cigarette smokers treated for nicotine dependence. *Addictive Behaviors, 28,* 1203-1218.

Fiore, M. C., Bailey, W. C., Cohen, S. J., Dorfman, S. F., Fox, B. J., Goldstein, M. G., Gritz, E., Hasselblad, V., Heyman, R. B., Jaen, C. R., Jorenby, D., Kottke, T. E., Lando, H. A., Mecklenburg, R. E., Mullen, P. D., Nett, L., Piper, M., Robinson, L., Stitzer, M., Tommasello, A., Welsch, S., Villejo, L., Wewers, M. E., & Baker, T. B. (2000). A clinical practice guideline for treating tobacco use and dependence - A US Public Health Service report. *Journal of the American Medical Association, 283,* 3244-3254.

Fisher, R. A. (1921). On the "Probable Error" of a coefficient of correlation deducted from a small sample. *Metron, 1,* 1-32.

Fitzgibbon, M. L., Prewitt, T. E., Blackman, L. R., Simon, P., Luke, A., Keys, L. C., Avellone, M. E., & Singh, V. (1998). Quantitative assessment of recruitment efforts for prevention trials in two diverse black populations. *Preventive Medicine, 27,* 838-845.

Florey, C. d. V. & Leeder, S. R. Methods for cohort studies of chronic airflow limitation. Geneva, Switzerland: World Health Organisation European series No. 12. Publication MW 616.24 F63. 1992.

Frank, E. (1993). Benefits of Stopping Smoking. *Western Journal of Medicine, 159,* 83-86.

Frankowski, B. L., Weaver, S. O., & Seckerwalker, R. H. (1993). Advising Parents to Stop Smoking - Pediatricians and Parents Attitudes. *Pediatrics, 91,* 296-300.

Frederiksen, L. W. & Martin, J. E. (1979). Carbon-Monoxide and Smoking-Behavior. *Addictive Behaviors, 4,* 21-30.

Gilpin, E. A., Pierce, J. P., Cavin, S. W., Berry, C. C., Evans, N. J., Johnson, M., & Bal, D. G. (1994). Estimates of Population Smoking Prevalence - Self Vs Proxy Reports of Smoking Status. *American Journal of Public Health, 84,* 1576-1579.

Glasgow, R. E., Hollis, J. F., Ary, D. V., & Boles, S. M. (1993). Results of A Year-Long Incentives-Based Worksite Smoking-Cessation Program. *Addictive Behaviors, 18,* 455-464.

Glasgow, R. E., Lando, H., Hollis, J., Mcrae, S. G., & Lachance, P. A. (1993). A Stop-Smoking Telephone Help Line That Nobody Called. *American Journal of Public Health, 83,* 252-253.

Glasgow, R. E., Mccaul, K. D., & Fisher, K. J. (1993). Participation in Worksite Health Promotion - A Critique of the Literature and Recommendations for Future Practice. *Health Education Quarterly, 20,* 391-408.

Glynn, T. J. & Manley, M. W. (1989). *How to help your patients stop smoking: a national cancer institute manual for physicians*. Washington: US Department of Health and Human Services.

Greenberg, R. A., Strecher, V. J., Bauman, K. E., Boat, B. W., Fowler, M. G., Keyes, L. L., Denny, F. W., Chapman, R. S., Stedman, H. C., Lavange, L. M., Glover, L. H., Haley, N. J., & Loda, F. A. (1994). Evaluation of A Home-Based Intervention Program to Reduce Infant Passive Smoking and Lower Respiratory Illness. *Journal of Behavioral Medicine, 17,* 273-290.

Groner, J. A., Ahijevych, K., Grossman, L. K., & Rich, L. N. (2000). The impact of a brief intervention on maternal smoking behavior. *Pediatrics, 105,* 267-271.

Gulliver, S. B., Hughes, J. R., Solomon, L. J., & Dey, A. N. (1995). An Investigation of Self-Efficacy, Partner Support and Daily Stresses As Predictors of Relapse to Smoking in Self-Quitters. *Addiction, 90,* 767-772.

Hackshaw, A. K., Law, M. R., & Wald, N. J. (1997). The accumulated evidence on lung cancer and environmental tobacco smoke. *British Medical Journal, 315,* 980-988.

Harris, K. J., Ahluwalia, J. S., Catley, D., Okuyemi, K. S., Mayo, M. S., & Resnicow, K. (2003). Successful recruitment of minorities into clinical trials: The Kick It at Swope project. *Nicotine & Tobacco Research, 5,* 575-584.

Haustein, K. O., Krause, J., Haustein, H., Rasmussen, T., & Cort, N. (2002). Effects of cigarette smoking or nicotine replacement on cardiovascular risk factors and parameters of haemorheology. *Journal of Internal Medicine, 252,* 130-139.

Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K. O. (1991). The Fagerstrom Test for Nicotine Dependence - A Revision of the Fagerstrom Tolerance Questionnaire. *British Journal of Addiction, 86,* 1119-1127.

Hennrikus, D. J., Jeffery, R. W., Lando, H. A., Murray, D. M., Brelje, K., Davidann, B., Baxter, J. S., Thai, D., Vessey, J., & Liu, J. (2002). The success project: the effect of program format and incentives on participation and cessation in worksite smoking cessation programs. *American Journal of Public Health, 92,* 274-279.

Ho, S. C., Zhan, S. Y., Tang, J. L., Chan, S. G., & Woo, J. (1999). Smoking and mortality in an older Chinese cohort. *J.Am.Geriatr.Soc., 47,* 1445-1450.

Hovell, M. F., Meltzer, S. B., Wahlgren, D. R., Matt, G. E., Hofstetter, R., Jones, J. A., Meltzer, E. O., Bernert, J. T., & Pirkle, J. L. (2002). Asthma management and environmental tobacco smoke exposure reduction in Latino children: A controlled trial. *Pediatrics, 110,* 946-956.

Hovell, M. F., Meltzer, S. B., Zakarian, J. M., Wahlgren, D. R., Emerson, J. A., Hofstetter, C. R., Leaderer, B. P., Meltzer, E. O., Zeiger, R. S., Oconnor, R. D., Mulvihill, M. M., & Atkins, C. J. (1994). Reduction of Environmental Tobacco-Smoke Exposure Among Asthmatic-Children - A Controlled Trial. *Chest, 106,* 440-446.

Hovell, M. F., Zakarian, J. M., Matt, G. E., Hofstetter, C. R., Bernert, J. T., & Pirkle, J. (2000a). Decreasing environmental tobacco smoke exposure among low income children: preliminary findings. *Tobacco Control, 9,* 70-71.

Hovell, M. F., Zakarian, J. M., Matt, G. E., Hofstetter, C. R., Bernert, J. T., & Pirkle, J. (2000b). Effect of counselling mothers on their children's exposure to environmental tobacco smoke: randomised controlled trial. *British Medical Journal, 321,* 337-342.

Hublet, A., Maes, L., & Csincsak, M. (2002). Predictors of participation in two different smoking cessation interventions at school. *Health Education & Behavior, 29,* 585-595.

Hughes, D. M., Mcleod, M., Garner, B., & Goldbloom, R. B. (1991). Controlled Trial of A Home and Ambulatory Program for Asthmatic-Children. *Pediatrics, 87,* 54-61.

Hughes, J. R., Gulliver, S. B., Fenwick, J. W., Valliere, W. A., Cruser, K., Pepper, S., Shea, P., Solomon, L. J., & Flynn, B. S. (1992). Smoking Cessation Among Self-Quitters. *Health Psychology, 11,* 331-334.

Hyland, A., Cummings, K. M., Lynn, W. R., Corle, D., & Giffen, C. A. (1997). Effect of proxy-reported smoking status on population estimates of smoking prevalence. *American Journal of Epidemiology, 145,* 746-751.

Irvine, L., Crombie, I. K., Clark, R. A., Slane, P. W., Feyerabend, C., Goodman, K. E., & Cater, J. I. (1999). Advising parents of asthmatic children on passive smoking randomised controlled trial. *British Medical Journal, 318,* 1456-1459.

Irvine, L., Crombie, I. K., Clark, R. A., Slane, P. W., Goodman, K. E., Feyerabend, C., & Cater, J. I. (1997). What determines levels of passive smoking in children with asthma? *Thorax, 52,* 766-769.

Jaakkola, N., Ruotsalainen, R., & Jaakkola, J. J. K. (1994). What Are the Determinants of Childrens Exposure to Environmental Tobacco-Smoke at Home. *Scandinavian Journal of Social Medicine, 22,* 107-112.

Janghorbani, M., Ho, S. Y., Lam, T. H., & Janus, E. D. (2003). Prevalence and correlates of alcohol use: a population-based study in Hong Kong. *Addiction, 98,* 215-224.

Jarvis, M. J., Tunstallpedoe, H., Feyerabend, C., Vesey, C., & Saloojee, Y. (1987). Comparison of Tests Used to Distinguish Smokers from Nonsmokers. *American Journal of Public Health, 77,* 1435-1438.

Jordaan, E. R., Ehrlich, R. I., & Potter, P. (1999). Environmental tobacco smoke exposure in children: household and community determinants. *Arch.Environ.Health, 54,* 319-327.

Kelaher, M., Gillespie, A. G., Allotey, P., Manderson, L., Potts, H., Sheldrake, M., & Young, M. (1999). The Transtheoretical Model and cervical screening: its application among culturally diverse communities in Queensland, Australia. *Ethnicity & Health.4(4):* 259-76.

King, M. (1986). At Risk Drinking Among General-Practice Attenders - Validation of the Cage Questionnaire. *Psychological Medicine, 16,* 213-217.

Kviz, F. J., Crittenden, K. S., & Warnecke, R. B. (1992). Factors Associated with Nonparticipation Among Registrants for A Self-Help, Community-Based Smoking Cessation Intervention. *Addictive Behaviors, 17,* 533-542.

Lader, D. & Meltzer, H. (2001). *Smoking Related Behaviour and Attitudes: the report on research using the ONS Omnibus Survey produced by the Social Survey Division of the Office for National Statistics on behalf of the Department of Health* London: Office for National Statistics.

Lam, T. H., Chan, B., Ho, S. Y., & Chan, W. M. (2004). Stage of change for general health promotion action and health-related lifestyle practices in Chinese adults. *Preventive Medicine, 38,* 302-308.

Lam, T. H., Chung, S. F., Betson, C. L., Wong, C. M., & Hedley, A. J. (1998). Respiratory symptoms due to active and passive smoking in junior secondary school students in Hong Kong. *International Journal of Epidemiology, 27,* 41-48.

Lam, T. H., Chung, S. F., Wong, C. M., Hedley, A. J., & Betson, C. L. (1994). *The Youth Smoking and Heath Survey* (Rep. No. COSH report No. 1). Department of Community Medicine, The University of Hong Kong.

Lam, T. H., Ho, L. M., Hedley, A. J., Adab, P., Fielding, R., Mcghee, S. M., & Aharonson-Daniel, L. (2000). Environmental tobacco smoke exposure among police officers in Hong Kong. *Journal of the American Medical Association, 284,* 756-763.

Lam, T. H., Ho, S. Y., Hedley, A. J., Mak, K. H., & Peto, R. (2001). Mortality and smoking in Hong Kong: case-control study of all adult deaths in 1998. *British Medical Journal, 323,* 361-362.

Lam, T. H., Leung, G. M., & Ho, L. M. (2001). The effects of environmental tobacco smoke on health services utilization in the first eighteen months of life. *Pediatrics, 107,* E91.

Lancaster, T. & Stead, L. (1998). *Self help interventions for smoking cessation (Cochrane Review)* (Rep. No. Issue 2: update software). Oxford: Cochrane Library.

Landis, J. R. & Koch, G. G. (1977). The measurement of observer agreement for catagorical data. *Biometrics, 33,* 159-174.

Last, J. M. (1986). A Dictionary of Epidemiology. *International Journal of Epidemiology, 15,* 277.

Laupacis, A., Sackett, D. L., & Roberts, R. S. (1988). An assessment of clinically useful measures of the consequences of treatment. *N.Engl.J Med., 318,* 1728-1733.

Lee, Y. J., Ellenberg, J. H., Hirtz, D. G., & Nelson, K. B. (1991). Analysis of Clinical-Trials by Treatment Actually Received - Is It Really An Option. *Statistics in Medicine, 10,* 1595-1605.

Leon, A. C., Marzuk, P. M., & Portera, L. (1995). More reliable outcome measures can reduce sample size requirements. *Arch.Gen Psychiatry, 52,* 867-871.

Leuenberger, P., Schwartz, J., Ackermannliebrich, U., Blaser, K., Bolognini, G., Bongard, J. P., Brandli, O., Braun, P., Bron, C., Brutsche, M., Domenighetti, G., Elsasser, S., Guldimann, P., Hollenstein, C., Hufschmid, P., Karrer, W., Keller, R., Kellerwossidlo, H., Kunzli, N., Luthi, J. C., Martin, B. W., Medici, T., Perruchoud, A. P., Radaelli, A., Schindler, C., Schoeni, M. H., Solari, G., Tschopp, J. M., Villiger, B., Wuthrich, B., Zellweger, J. P., & Zemp, E. (1994). Passive Smoking Exposure in Adults and Chronic Respiratory Symptoms (Sapaldia Study). *American Journal of Respiratory and Critical Care Medicine, 150,* 1222-1228.

Leung, G. M., Ho, L. M., & Lam, T. H. (2004). Secondhand smoke exposure, smoking hygiene, and hospitalization in the first 18 months of life. *Arch.Pediatr.Adolesc.Med., 158,* 687-693.

Lewis, S., Richards, D., Bynner, J., Butler, N., & Britton, J. (1995). Prospective-Study of Risk-Factors for Early and Persistent Wheezing in Childhood. *European Respiratory Journal, 8,* 349-356.

Lichtenstein, E. & Glasgow, R. E. (1992). Smoking Cessation - What Have We Learned Over the Past Decade. *Journal of Consulting and Clinical Psychology, 60,* 518-527.

Lichtenstein, E., Glasgow, R. E., Lando, H. A., OssipKlein, D. J., & Boles, S. M. (1996). Telephone counseling for smoking cessation: Rationales and meta-analytic review of evidence. *Health Education Research, 11,* 243-257.

Loke, A. Y., Lam, T. H., Pan, S. C., Su, Y. L., Gao, X. J., & Song, Y. Y. (2000). Exposure to and actions against passive smoking in non-smoking pregnant women in Guangzhou, China. *Acta Obstetricia et Gynecologica Scandinavica, 79,* 947-952.

Mak, Y. W., Loke, A. Y., Lam, T. H., & Abdullah, A. S. M. (2005).Validity of self reports and reliability of spousal proxy reports on the smoking behavior of Chinese parents with young children. Addictive Behaviors *30,* 841-845.

Martinelli, A. M. (1999). A theoretical model for the study of active and passive smoking in military women: An at-risk population. *Military Medicine, 164,* 475-480.

McDonald, P. W. (1999). Population-based recruitment for quit-smoking programs: An analytic review of communication variables. *Preventive Medicine, 28,* 545-557.

Mcfall, S. L., Michener, A., Rubin, D., Flay, B. R., Mermelstein, R. J., Burton, D., Jelen, P., & Warnecke, R. B. (1993). The Effects and Use of Maintenance Newsletters in A Smoking Cessation Intervention. *Addictive Behaviors, 18,* 151-158.

Mcintosh, N. A., Clark, N. M., & Howatt, W. F. (1994). Reducing Tobacco-Smoke in the Environment of the Child with Asthma - A Cotinine-Assisted, Minimal-Contact Intervention. *Journal of Asthma, 31,* 453-462.

Miller, P. C., Lefcourt, H. M., Holmes, J. G., Ware, E. E., & Saleh, W. E. (1986). Marital Locus of Control and Marital Problem-Solving. *Journal of Personality and Social Psychology, 51,* 161-169.

Miller, P. C., Lefcourt, H. M., & Ware, E. E. (1983). The Construction and Development of the Miller Marital Locus of Control Scale. *Canadian Journal of Behavioural Science-Revue Canadienne des Sciences du Comportement, 15,* 266-279.

Miller, W. R. & Rollnick, S. (1991). *Motivational interviewing - preparing people to change addictive behaviour*. New York: The Guilford Press.

Morera, O. F., Johnson, T. P., Freels, S., Parsons, J., Crittenden, K. S., Flay, B. R., & Warnecke, R. B. (1998). The measure of stage of readiness to change: Some psychometric considerations. *Psychological Assessment, 10,* 182-186.

Murray, R. P., Connett, J. E., Lauger, G. G., & Voelker, H. T. (1993). Error in Smoking Measures - Effects of Intervention on Relations of Cotinine and Carbon-Monoxide to Self-Reported Smoking. *American Journal of Public Health, 83,* 1251-1257.

National Interagency Council on Smoking and Health (1974). *Guidelines for research on the effectiveness of smoking cessation programs: A committee report.* New York: Author.

Naylor, P. J., Simmonds, G., Riddoch, C., Velleman, G., & Turton, P. (1999). Comparison of stage-matched and unmatched interventions to promote exercise behaviour in the primary care setting. *Health Education Research.14(5):653-66.*

Niu, T. H., Chen, C. Z., Ni, J. T., Wang, B. Y., Fang, Z., Shao, H., & Xu, X. P. (2000). Nicotine dependence and its familial aggregation in Chinese. *International Journal of Epidemiology, 29,* 248-252.

O'Loughlin, J., Makni, H., Tremblay, M., Lacroix, C., Gervais, A., Dery, W., Lacroix, C., Gervais, A., Dery, W., Meshefedjian, G., & Paradis, G. (2001). Smoking cessation counseling practices of general practitioners in Montreal. *Preventive Medicine, 33,* 627-638.

Ockene, J., Kristeller, J. L., Goldberg, R., Ockene, I., Merriam, P., Barrett, S., Pekow, P., Hosmer, D., & Gianelly, R. (1992). Smoking Cessation and Severity of Disease - the Coronary-Artery Smoking Intervention Study. *Health Psychology, 11,* 119-126.

Ockene, J. K., Emmons, K. M., Mermelstein, R. J., Perkins, K. A., Bonollo, D. S., Voorhees, C. C., & Hollis, J. F. (2000). Relapse and maintenance issues for smoking cessation. *Health Psychology, 19,* 17-31.

Olsen, J. (1993). Predictors of Smoking Cessation in Pregnancy. *Scandinavian Journal of Social Medicine, 21,* 197-202.

Orleans, C. T., Boyd, N. R., Bingler, R., Sutton, C., Fairclough, D., Heller, D., McClatchey, M., Ward, J., Graves, C., Fleisher, L., & Baum, S. (1998). A self-help intervention for African American smokers: Tailoring cancer information service counseling for a special population. *Preventive Medicine, 27,* S61-S70.

Orleans, C. T., Schoenbach, V. J., Wagner, E. H., Quade, D., Salmon, M. A., Pearson, D. C., Fiedler, J., Porter, C. Q., & Kaplan, B. H. (1991). Self-Help Quit Smoking Interventions - Effects of Self-Help Materials, Social Support Instructions, and Telephone Counseling. *Journal of Consulting and Clinical Psychology, 59,* 439-448.

Ossip-Klein, D. J., Giovino, G. A., Megahed, N., Black, P. M., Emont, S. L., Stiggins, J., Shulman, E., & Moore, L. Effects of a smokers' hotline:results of a 10-county self help trial. Journal of Consulting and Clinical Psychology 59, 325-332. 1991.

Pallonen, U. E., Murray, D. M., Schmid, L., Pirie, P., & Luepker, R. V. (1990). Patterns of self-initiated smoking cessation among young adults. *Health Psychol., 9,* 418-426.

Passaro, K. T., Noss, J., Savitz, D. A., & Little, R. E. (1997). Agreement between self and partner reports of paternal drinking and smoking. *International Journal of Epidemiology, 26,* 315-320.

Patrick, D. L., Cheadle, A., Thompson, D. C., Dishcr, P., Koepsell, T. D., & Kinne, S. (1994). The Validity of Self-Reported Smoking: A Review and Meta-Analysis. *American Journal of Public Health, 84,* 1086-1093.

Perez-Stable, E. J., Juarez-Reyes, M., Kaplan, C. P., Fuentes-Afflick, E., Gildengorin, V., & Millstein, S. G. (2001). Counseling smoking parents of young children - Comparison of pediatricians and family physicians. *Archives of Pediatrics & Adolescent Medicine, 155,* 25-31.

Perry, C. L., Griffin, G., & Murray, D. M. (1985). Assessing needs for youth health promotion. *Prev.Med., 14,* 379-393.

Peters, J., Hedley, A. J., Lam, T. H., Betson, C. L., & Wong, C. M. (1997). A comprehensive study of smoking in primary school children in Hong Kong: Implications for prevention. *Journal of Epidemiology and Community Health, 51,* 239-245.

Peto, R., Lopez, A. D., Boreham, J., Thun, M., & Heath, C. (1992). Mortality from Tobacco in Developed-Countries - Indirect Estimation from National Vital-Statistics. *Lancet, 339,* 1268-1278.

Peto, R., Lopez, A. D., Boreham, J., Thun, M., Heath, C., & Dall, R. (1996). Mortality from smoking worldwide. *British Medical Bulletin, 52,* 12-21.

Petty, R. M. (1972). Role of Undesired Consequences in Arousing Cognitive Dissonance - Interpersonal Replication Testing Self-Perception Theory. *Representative Research in Social Psychology, 3,* 29-38.

Pirkle, J. L., Flegal, K. M., Bernert, J. T., Brody, D. J., Etzel, R. A., & Maurer, K. R. (1996). Exposure of the US population to environmental tobacco smoke - The Third National Health and Nutrition Examination Survey, 1988 to 1991. *Journal of the American Medical Association, 275,* 1233-1240.

Pohl, J. M., Martinelli, A., & Antonakos, C. (1998). Predictors of participation in a smoking cessation intervention group among low-income women. *Addictive Behaviors, 23,* 699-704.

Pomerleau, C. S., Carton, S. M., Lutzke, M. L., Flessland, K. A., & Pomerleau, O. F. (1994). Reliability of the Fagerstrom Tolerance Questionnaire and the Fagerstrom Test for Nicotine Dependence. *Addictive Behaviors, 19,* 33-39.

Prochaska, J. O. & DiClemente, C. C. (1983). Stages and Processes of Self-Change of Smoking - Toward An Integrative Model of Change. *Journal of Consulting and Clinical Psychology, 51,* 390-395.

Prochaska, J. O., DiClemente, C. C., Velicer, W. F., & Rossi, J. S. (1993). Standardized, individualized, interactive, and personalized self-help programs for smoking cessation. *Health Psychol., 12,* 399-405.

Prochaska, J. O. & Goldstein, M. G. (1991). Process of smoking cessation. Implications for clinicians. *Clin.Chest Med, 12,* 727-735.

Prochaska, J. O. & Velicer, W. F. (1997). The transtheoretical model of health behavior change. *American Journal of Health Promotion, 12,* 38-48.

Prochaska, J. O., Velicer, W. F., Fava, J. L., Rossi, J. S., & Tsoh, J. Y. (2001). Evaluating a population-based recruitment approach and a stage-based expert system intervention for smoking cessation. *Addictive Behaviors, 26,* 583-602.

Prochaska, J. O., Velicer, W. F., Rossi, J. S., Goldstein, M. G., Marcus, B. H., Rakowski, W., Fiore, C., Harlow, L. L., Redding, C. A., Rosenbloom, D., & . (1994). Stages of change and decisional balance for 12 problem behaviors. *Health Psychol., 13,* 39-46.

Pukkala, E., Teppo, L., Hakulinen, T., & Rimpela, M. (1983). Occupation and smoking as risk determinants of lung cancer. *International Journal of Epidemiolog, 12,* 290-296.

Rakowski, W., Ehrich, B., Goldstein, M. G., Rimer, B. K., Pearlman, D. N., Clark, M. A., Velicer, W. F., & Woolverton, H., III (1998). Increasing mammography among women aged 40-74 by use of a stage-matched, tailored intervention. *Preventive Medicine, 27,* 748-756.

Rakowski, W., Lipkus, I. M., Clark, M. A., Rimer, B. K., Ehrich, B., Lyna, P. R., & Kornguth, P. J. (2003). Reminder letter, tailored stepped-care, and self-choice comparison for repeat mammography. *American Journal of Preventive Medicine, 25,* 308-314.

Raw, M., McNeill, A., & West, R. (1999). Smoking cessation: evidence based recommendations for the healthcare system. *British Medical Journal, 318,* 182-185.

Reed, G. R., Velicer, W. F., Prochaska, J. O., Rossi, J. S., & Marcus, B. H. (1997). What makes a good staging algorithm: examples from regular exercise. *American Journal of Health Promotion, 12,* 57-66.

Repace, J. L. & Lowrey, A. H. (1985). A Quantitative Estimate of Nonsmokers Lung-Cancer Risk from Passive Smoking. *Environment International, 11,* 3-22.

Repace, J. L. & Lowrey, A. H. (1990). Risk Assessment Methodologies for Passive Smoking-Induced Lung-Cancer. *Risk Analysis, 10,* 27-37.

Resnicow, K., Royce, J., Vaughan, R., Orlandi, M. A., & Smith, M. (1997). Analysis of a multicomponent smoking cessation project: What worked and why. *Preventive Medicine, 26,* 373-381.

Rigotti, N. A., Arnsten, J. H., Mckool, K. M., Wood-Reid, K. M., Pasternak, R. C., & Singer, D. E. (2000). Smoking by patients in a smoke-free hospital: Prevalence, predictors, and implications. *Preventive Medicine, 31,* 159-166.

Rigotti, N. A., Arnsten, J. H., Mckool, K. M., WoodReid, K. M., Pasternak, R. C., & Singer, D. E. (1997). Efficacy of a smoking cessation program for hospital patients. *Archives of Internal Medicine, 157,* 2653-2660.

Rogers, C. R. (1951). *Client-centered therapy, its current practice, implications, and theory* London: Constable.

Rosen, M., Hanning, M., & Wall, S. (1990). Changing smoking habits in Sweden: towards better health, but not for all. *International Journal of Epidemiology, 19,* 316-322.

Rosen, M., Wall, S., Hanning, M., Lindberg, G., & Nystrom, L. (1987). Smoking habits and their confounding effects among occupational groups in Sweden. *Scandinavian Journal of Social Medicine, 15,* 233-240.

Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social-Learning Theory and the Health Belief Model. *Health Education Quarterly, 15,* 175-183.

Ross, C. E. & Mirowsky, J. (1984). Socially-Desirable Response and Acquiescence in A Cross-Cultural Survey of Mental-Health. *Journal of Health and Social Behavior, 25,* 189-197.

Secker-Walker, R. H., Vacek, P. M., Flynn, B. S., & Mead, P. B. (1997). Exhaled carbon monoxide and urinary cotinine as measures of smoking in pregnancy. *Addictive Behaviors, 22,* 671-684.

Severson, H. H., Andrews, J. A., Lichtenstein, E., Wall, M., & Akers, L. (1997). Reducing maternal smoking and relapse: Long-term evaluation of a pediatric intervention. *Preventive Medicine, 26,* 120-130.

Siero, F. W., Broer, J., Bemelmans, W. J., & Meyboom-de Jong, B. M. (2000). Impact of group nutrition education and surplus value of Prochaska-based stage-matched information on health-related cognitions and on Mediterranean nutrition behavior. *Health Education Research, 15,* 635-47.

Spencer, L., Pagell, F., Hallion, M. E., & Adams, T. B. (2002). Applying the transtheoretical model to tobacco cessation and prevention: A review of literature. *American Journal of Health Promotion, 17*, 7-71.

Stanton, W. R., Lowe, J. B., Moffatt, J., & Del Mar, C. B. (2004). Randomised control trial of a smoking cessation intervention directed at men whose partners are pregnant. *Preventive Medicine, 38*, 6-9.

Stead, L. & Lancaster, T. (2002). Telephone counselling for smoking cessation (Cohrane Review). *Cochrane Library* [Announcement posted on the World Wide Web]. 1-6-2003, from the World Wide Web: http://www.cochranelibrary.com

Steptoe, A., Doherty, S., Rink, E., Kerry, S., Kendrick, T., & Hilton, S. (1999). Behavioural counselling in general practice for the promotion of healthy behaviour among adults at increased risk of coronary heart disease: randomised trial. *British Medical Journal, 319*, 943-947.

Stevens, V. J., Glasgow, R. E., Hollis, J. F., Lichtenstein, E., & Vogt, T. M. (1993). A Smoking-Cessation Intervention for Hospital Patients. *Medical Care, 31*, 65-72.

US Department of Health and Human Services (1985). *The Health Consequences of Smoking Cancer. A Report of the Surgeon General.* (Rep. No. AHHS Pub No 86 - 2879). US Department of Health and Human Services, Centers for Disease Control, Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

US Department of Health and Human Services (1990). *The health benefits of smoking cessation* (Rep. No. DHHS Publication No. (CDC) 90-8416). U.S. Department of Healh and Human Services, Public Health Service, Centers for Disease Control, Center for Chronic Disease Preventiion and Health Promotion, Office on Smoking and Health.

US Department of Health and Human Services (2004). *The Health Consequences of Smoking. A Report of the Surgeon General* Atlanta : CDC's Office on Smoking and Health.

VanderArk, W., DiNardo, L. J., & Oliver, D. S. (1997). Factors affecting smoking cessation in patients with head and neck cancer. *Laryngoscope, 107*, 888-892.

Velicer, W. F. & Prochaska, J. O. (2004). A comparison of four self-report smoking cessation outcome measures. *Addictive Behaviors, 29,* 51-60.

Vineis, P., Ronco, G., Ciccone, G., Vernero, E., Troia, B., Dincalci, T., & Gogliani, F. (1993). Prevention of Exposure of Young-Children to Parental Tobacco-Smoke - Effectiveness of An Educational-Program. *Tumori, 79,* 183-186.

Wahlgren, D. R., Hovell, M. F., Meltzer, S. B., Hofstetter, R., & Zakarian, J. M. (1997). Reduction of environmental tobacco smoke exposure in asthmatic children - A 2-year follow-up. *Chest, 111,* 81-88.

Wakefield, M., Banham, D., Martin, J., Ruffin, R., McCaul, K., & Badcock, N. (2000). Restrictions on smoking at home and urinary cotinine levels among children with asthma. *American Journal of Preventive Medicine, 19,* 188-192.

Wakefield, M., Banham, D., McCaul, K., Martin, J., Ruffin, R., Badcock, N., & Roberts, L. (2002). Effect of feedback regarding urinary cotinine and brief tailored advice on home smoking restrictions among low-income parents of children with asthma: A controlled trial. *Preventive Medicine, 34,* 58-65.

Wakefield, M., Reid, Y., Roberts, L., Mullins, R., & Gillies, P. (1998). Smoking and smoking cessation among men whose partners are pregnant: a qualitative study. *Social Science & Medicine, 47,* 657-664.

West, R. & Gossop, M. (1994). Overview - A Comparison of Withdrawal Symptoms from Different Drug Classes. *Addiction, 89,* 1483-1489.

West, R. & Shiffman, S. (2001). Effect of oral nicotine dosing forms on cigarette withdrawal symptoms and craving: a systematic review. *Psychopharmacology, 155,* 115-122.

Whitlock, G., MacMahon, S., Vander Hoorn, S., Davis, P., Jackson, R., & Norton, R. (1998). Association of environmental tobacco smoke exposure with socioeconomic status in a population of 7725 New Zealanders. *Tobacco Control, 7,* 276-280.

Wilson, M. G. (1990). Factors associated with, issues related to, and suggestions for increasing participation in workplace health promotion programs. *Health Values., 14,* 29-36.

Wilson, S. R., Yamada, E. G., Sudhakar, R., Roberto, L., Mannino, D., Mejia, C., & Huss, N. (2001). A controlled trial of an environmental tobacco smoke reduction intervention in low-income children with asthma. *Chest, 120,* 1709-1722.

Winickoff, J. P., Hibberd, P. L., Case, B., Sinha, P., & Rigotti, N. A. (2001). Child hospitalization - An opportunity for parental smoking intervention. *American Journal of Preventive Medicine, 21,* 218-220.

Winickoff, J. P., Hillis, V. J., Palfrey, J. S., Perrin, J. M., & Rigotti, N. A. (2003). A smoking cessation intervention for parents of children who are hospitalized for respiratory illness: The Stop Tobacco Outreach Program. *Pediatrics, 111,* 140-145.

Wong, C. M., Hu, Z. G., Lam, T. H., Hedley, A. J., & Peters, J. (1999). Effects of ambient air pollution and environmental tobacco smoke on respiratory health of non-smoking women in Hong Kong. *International Journal of Epidemiology, 28,* 859-864.

Woodby, L. L., Windsor, R. A., Snyder, S. W., Kohler, C. L., & DiClemente, C. C. (1999). Predictors of smoking cessation during pregnancy. *Addiction, 94,* 283-292.

Woods, M. N., Harris, K. J., Mayo, M. S., Catley, D., Scheibmeir, M., & Ahluwalia, J. S. (2002). Participation of African Americans in a smoking cessation trial: A quantitative and qualitative study. *Journal of the National Medical Association, 94,* 609-618.

Woodward, A., Owen, N., Grgurinovich, N., Griffith, F., & Linke, H. (1987). Trial of An Intervention to Reduce Passive Smoking in Infancy. *Pediatric Pulmonology, 3,* 173-178.

Woolf, S. H. (1999). The need for perspective in evidence-based medicine. *Journal of the American Medical Association, 282,* 2358-2365.

Zhang, D. & Qiu, X. (1993).School-based tobacco-use prevention - People's republic of China. MMWR 42[19], 370-377.

Zhu, S. H., Stretch, V., Balabanis, M., Rosbrook, B., Sadler, G., & Pierce, J. P. (1996). Telephone counseling for smoking cessation: effects of single-session and multiple-session interventions. *Journal of Consulting and Clinical Psychology, 64*, 202-211.

APPENDICES

3-1 Invitation Letter (Chinese version and English version)

3-2 Self-help materials: (Chinese version)

a. For pre-contemplators

b. For contemplators

c. For those ready to quit

3-3 Eligibility Screening Checklist (Chinese version and English version)

3-4 Baseline Questionnaire for smoker (Chinese version and English version)

3-5 Baseline Questionnaire for non-smoker (Chinese version and English version)

3-6 One-month follow-up questionnaire (Chinese version and English version)

3-7 Three-month follow-up questionnaire (Chinese version and English version)

3-8 Six-month follow-up questionnaire for smoker (Chinese version and English version)

3-9 Six-month follow-up questionnaire for non-smoker (Chinese version and English version)

4-1 Introductory statement (Chinese version and English version)

4-2 Call record (English version)

Appendix 3-1

Invitation letter (Explanation of study to potential participants)

Dear Parents,

My name is Mak Yim-wah. I am a research nurse calling from the University of Hong Kong. Thank you very much for your completion of a health survey on living environment in the 97-98 Birth Cohort study. According to the information you provided in the last study, your husband / you smoke. In fact, a lot of parents wish to quit smoking and want to protect their child from passive smoking.
In order to help smoking parent(s) to quit, we are now carrying out a similar study on smoking and health. We would also provide free smoking cessation service to those parents who want to quit smoking. Would you please spare about 2-3 minutes to answer few questions.

Any information that is obtained in connections with this study will be kept strictly confidential and used only for this research purpose. If you decide to participate, you are free to discontinue participation at any time without prejudice. If you have any questions, please feel free to contact me at 2818 .
My address is: Mak Yim-wah, 2/F., South wing, Patrick Manson Building, Department of community medicine, The Hong Kong University. If you have any additional questions, you may also contact Prof. T.H. Lam at the same address and telephone: 2819- .

Thank you very much for your consideration.

Appendix 3-3

Eligibility Screening Checklist

Name of the child:		
Home address:		
Home telephone:		
	Father	Mother
Name:		
Mobile phone Number:		
Smoke in the recent 6 months?	*Yes / no	*Yes / no
Preferred time of contact:	*am/pm (weekday/weekend)	* am/pm(weekday/weekend)

社會醫學系暨行爲科學組
DEPARTMENT OF COMMUNITY MEDICINE
& UNIT FOR BEHAVIOURAL SCIENCES
University of Hong Kong Medical Centre

香港大學
THE UNIVERSITY OF HONG KONG

Patrick Manson Building South Wing
7 Sassoon Road, Hong Kong
Tel: (852) 2819 9280
(852) 2819 9282
Fax: (852) 2855 9528
e-mail: commed@hkucc.hku.hk

親愛的_____家長：　　檔案編號：

你的孩子在1997-1999年間曾參與一個由香港大學社會醫學系和衛生署母嬰健康院合辦的兒童健康生活環境調查，我們十分多謝你的幫忙。當時一共有8345個小孩的父母曾填寫幾份關於小孩健康和家庭環境的問卷，研究結果幫助我們了解到醫療、吸煙和環境因素對小孩健康和成長的影響。

我們知道有吸煙習慣的家長中大部份曾想過戒煙及減少子女接觸二手煙。我們現正研究如何有效地協助家長戒煙和提供免費戒煙服務。而據當時所得的資料，你或你的配偶有吸煙的習慣，爲了進一步了解你及你的家人最近的健康，我們將于稍後時間與你做一個需時兩、三分鐘的簡短電話訪問並介紹詳情。一切個人資料只供醫學研究之用，絕對保密。

我們誠懇希望你參加，如有任何疑問，請向研究員麥艷華護士查詢（電話：9237　　）或致電林大慶醫生(電話：2819　　)。你如果想詢問一些醫學或健康問題，亦可致電給我們。

你的合作，對我們計劃如何促進香港市民和兒童健康十分重要。請立刻填妥並寄回以下的便條(請使用附上的回郵信封，郵資已付)或可致電麥艷華護士回覆以下資料，多謝你的參與。
謹此

祝你及你的家人健康愉快

香港大學社會醫學系
林大慶教授

>.....回條.....<

子/女姓名：		
地址：		
	父親	母親
家長姓名：		
聯絡電話：		
聯絡時間：	*上午/下午/傍晚	*上午/下午/傍晚
請問你在最近六個月內有沒有吸煙?(包括偶然吸)	* 有/沒有	*有/沒有
如已戒煙，請問戒煙多久？	_____年/月/不適用*	_____年/月/不適用*
請問你和你的配偶是否大部份時間在香港共同居住？(即一星期最少有五日計)	*是/不是	*是/不是

*請刪去不適用者　　檔案編號：

This department supports tobacco control and the prevention of smoking in children in Hong Kong.

Head of Department: Professor TH Lam, MD, FFPHM, FFOM, FAFOM, FHKCCM, FHKAM, FRCP
Direct line: (852) 2819 9280

吸煙人士 有權知

「做夢也想不到原來吸煙有這麼多壞處，
我嘗試想還有哪些論點是未列出的。
雖然這不會改變我喜愛吸煙的事實，
但肯定令我開始考慮是否
還想繼續吸煙。」

醫院管理局公共事務部印製（4/99）

吸煙人士 有權知

醫院管理局
HOSPITAL AUTHORITY

吸煙人士有權知

正在閱讀這本小冊子的你，大概也和我一樣，是位煙民；而且，一定曾經有不少人勸你戒煙，以免患上癌症和心臟病。

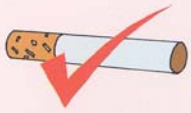
你會發覺，准許吸煙的地方越來越少，甚至，要在工作時吸煙也越來越難。

某天，我和朋友們討論吸煙問題，其中談到我們喜愛吸煙的程度。我們都不禁問：既然我們喜愛吸煙，為什麼要戒掉？

另一個討論題目是：我們是否願意控制自己的行為。當聽到別人說戒煙時，我們往往會更加想吸煙！有時，根本無法分辨吸煙的原因：到底是出於自己喜好還是因為別人的戒煙忠告？

所以，我們決定列出一些關於吸煙的好處和壞處，即是一些支持吸煙和反對吸煙的論點。

以下是我們所得的結論，有些論點確是出乎我們意料之外。



支持吸煙的論點

- ▲帶來愉快舒適的感覺
- ▲鬆弛神經
- ▲手部活動
- ▲增強信心
- ▲令人精神一振
- ▲飲酒或咖啡時吸煙，倍覺享受
- ▲飯後的享受

- ▲解悶
- ▲驅除寂寞

反對吸煙的論點

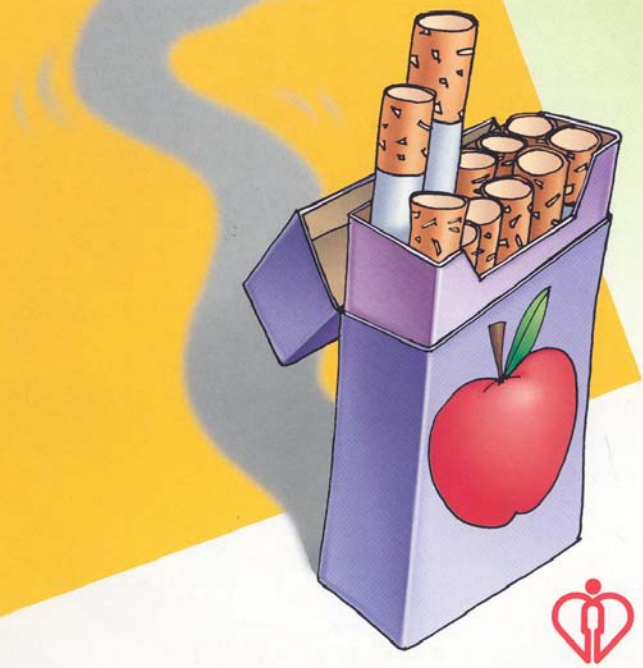
- ■有損健康
- ■煙漬染污牙齒

- ■口腔及衣服均染有煙味
- ■上癮
- ■患上肺癌、心臟病及中風的機會增加
- ■引致咳嗽
- ■導致皺紋產生
- ■非常花錢
- ■引起旁人不快或不適

吸煙與否　選擇在你手

醫院管理局公共事務部印製（1/96）

吸煙與否？
選擇在你手



醫院管理局
HOSPITAL AUTHORITY

吸煙與否 選擇在你手

這本小冊子，是為那些仍未肯定是否應戒煙的人而寫的。對於吸煙，總有令你喜愛的理由；但另一方面，亦有某些地方令你擔心。

吸煙與否，你絕對有權選擇。然而決定之前，先要衡量利弊。印製這本小冊子的目的，是助你分析吸煙的好處和壞處，讓你獲得充份了解之後，才作出最明智的決定。無論如何，選擇權始終在你手。

吸煙的「好」處

對吸煙人士來說，吸煙可能有以下的「好」處：

消除緊張：

當面對壓力或者被繁重的工作迫得透不過氣時，你往往會藉著吸煙來消除精神緊張；久而久之，你會發覺，如果不吸煙便難以應付壓力。要消除白天工作的辛勞，一杯在手再加上一支煙，亦似乎是最有效的方法。

振奮精神：

你亦可能會借助吸煙來提神，每當感到怠倦、提不起勁、煩躁或者渴睡時，你會覺得惟有吸煙才能令你精神一振。

驅除寂寞：

當你感到時間過得很慢，例如在等巴士、火車或者朋友時，你可能依靠吸煙去解悶，助你打發時間。

幫助思考：

當你在思考問題或者嘗試完成某項工作，你往往會依賴吸煙去助你集中精神，面對壓力，和保持頭腦清晰。

加強信心：

當出席社交場合，面對初相識的人和陌生環境，你往往會覺得有點不自然；吸煙可能令你手部有些活動，避免無所事事。此外，當情緒低落時，吸煙亦可能會加強你的自信，助你暫時將問題拋諸腦後。

保持窈窕：

香煙內的尼古丁能抑制食慾，有些人在早上吸煙代替吃早餐；有些人則以香煙代替小食和甜品，藉此控制體重。由於擔心戒煙後體重會增加，不少人因此而繼續吸食下去。

吸煙的壞處

煙癮難驅：

香煙內的尼古丁會令人上癮。如果你在起床後半小時內便吸煙，證明你的煙癮很大。精神壓力增加時，你會更加想吸煙。而且，很多人吸煙不是為了享受，而是為了制止煙癮發作和避免戒煙徵狀出現。吸煙亦可能會成為你飲咖啡、飲酒或使用電話時的慣性動作。

體力不繼：

有時，上樓梯或者行路，你可能都會覺得呼吸困難；因為香煙所含的一氧化碳會減低體內的氧氣含量，令你容易疲倦。如果你心臟有毛病，吸煙導致的氧氣量減低會引起胸口痛；而且，香煙內的焦油，亦會損害肺部組織，影響正常呼吸。

皮膚老化：

吸煙亦會影響皮膚健康。很多吸煙人士面上都會出現皺紋，由上下唇及眼角開始伸展；面頰和下巴會出現一道道深紋，面色亦會變得枯黃，失去光澤。

影響他人：

你會發覺，吸煙越來越不被非吸煙人士所接受。即使不吸煙，只要身處一間煙霧瀰漫的房間，也相等於吸了6至7支煙。就算只是少量的煙，仍足以對小孩子、哮喘病人及氣管敏感人士造成嚴重影響。

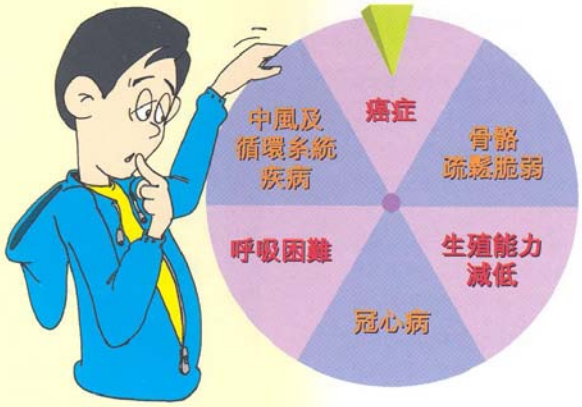
煙味長留：

很多吸煙人士都說不喜歡衣服、頭髮、地氈、傢具、汽車及口腔充滿煙味。此外，吸煙亦會影響你的味覺，令飲食樂趣大減。

全是一場賭博

人們經常忽視了吸煙對健康造成的影響。香港平均每年有3,500人死於與吸煙有關的疾病，足以坐滿35架雙層巴士，看見這些數字，你或許才會感到驚訝。雖然吸煙引致的死亡率是這樣高，但卻很少令人關注。

當你選擇吸煙，便是以健康作賭注。對於香煙內的有害化學物質，身體會作出抵抗，但最終還是免不了受到損害。香煙所含的尼古丁、一氧化碳、氰氰化物、砷和阿摩尼亞，都是有毒物質。所以，為你的健康著想，應下定決心戒煙。



損害健康

冠心病：

經常吸煙，患上心臟病的機會會比平常人高出三倍。心臟病是由於輸送氧氣到心肌的動脈受阻而引起的，吸煙越多，患心臟病的機會便越高。如果在服食避孕藥期間吸煙，患心臟病的機會比非吸煙者高出39倍。不過，只要你停止吸煙，患心臟病的機會自然減低。

中風及循環系統疾病：

中風的成因是腦部血管受阻。如果在服食口服避孕藥期間吸煙，中風的機會比非吸煙者高出22倍。吸煙亦會引致雙腿動脈阻塞（邊周血管病），如果血液循環系統繼續受損，最後會導致壞疽，甚至截除雙腿。不過，只要你停止吸煙，患上這些疾病的機會便會大大減低。

癌症：

如果你沒有吸煙，患上癌症的機會便會大大減低。假設你每天吸20支煙或以上，患上肺癌的機會比非吸煙者高出5至25倍。婦女吸煙較易導致子宮頸癌（子宮的入口），體內大部份器官和組織，甚至生殖系統，都會受尼古丁影響。此外，吸煙亦會引起其他癌症包括喉癌、口腔癌、胃癌、胰臟癌及腎癌。

積極來說，如果你停止吸煙，患上癌症的機會大大減低。在戒煙的第一年，健康即有明顯改善。

肺部 — 呼吸困難：

肺部越健康，氧氣供應越充足，精神便越好。如果你吸煙，會較易患上慢性支氣管炎和肺氣腫。慢性支氣管炎會破壞肺部的呼吸管道，而肺氣腫則會破壞肺組織，令呼吸困難。在戒煙初期，大部份人會咳得更厲害，因為肺部開始清除焦油。當過程完成，呼吸便會改善；隨著氧氣量增加，你會感到精神更加充沛，身體更健康。

骨骼疏鬆脆弱：

停止吸煙會令你骨骼更強健。吸煙會減低體內的雌激素，導致更年期提早來臨，以及令骨骼較易變得疏鬆脆弱。隨著年齡增長，身體會變彎、變矮甚至出現髖部碎骨；此外，吸煙亦會令女性更快衰老。

生殖能力減低及影響懷孕：

吸煙會減低生殖能力，男女也是一樣。男性吸煙會導致更多不正常的精子產生，精液中的精子數量亦會較低，因而影響生殖能力。吸煙亦會阻礙血液供應到陰莖，導致不舉。而女性吸煙者較非吸煙者的受孕能力低一倍，可能需要超過一年才成功受孕。

懷孕期間吸煙尤其值得注意，因為會導致流產、早產或嬰兒體重不足。而一氧化碳、尼古丁及許多其他有害化學物質，亦會透過胎盤輸送給嬰兒，即是說嬰兒在出生前已慣性吸入尼古丁，母親的人奶亦會含有尼古丁。

衡量利弊

吸煙有其好處，但亦有負面影響，先列出兩方面的論點，然後自行分析。列出你喜歡和不喜歡吸煙的事項，想想長遠來說哪方面對你更為重要。

如何取向？

衡量過吸煙的利弊後，你可能仍會冒險一試，繼續吸煙；又或者你會決定戒煙，但在付諸行動之前，仍不免有些疑問。

對吸煙的疑問

「獨自一人時問題不大，但當和朋友一起……看見他們吸煙，令我也很想吸煙。」

想像一下，如果你停止吸煙，你的朋友和同事會有甚麼反應。他們可能會嘗試破壞你的計劃，令自己好過些；又或者用各種方法測試你的信心，例如作出苛刻批評、故意開玩笑或者打賭你可以堅持多久。在開始戒煙的兩三個星期內，你可能要迴避一些朋友，直至信心增加。假如你能堅持目標，向朋友表明你是認真的，他們會慢慢接受你已戒煙，尊重你的選擇。

「我曾經戒煙但不成功。」

戒煙失敗會帶來很大的挫敗感，尤其是當你發覺自己一遇到困難便立即放棄。其實，大部份人都要經過多次戒煙才能成功。嘗試把每次失敗視為學習機會，用行動證明你是不會輕易放棄的。

「我的意志薄弱……」

意志力不是與生俱來的。有沒有意志力，完全視乎你戒煙的決心有多大和信心有多強。

「我想戒煙，但不吸煙時卻感到煩躁及不適。」

當你體內的尼古丁開始消失，戒煙徵狀便會出現。只需3至4天，尼古丁便會完全消失，但身體卻需要10至12天才適出；在這期間，使用尼古丁膠布、多做運動、多食新鮮蔬果以及多飲開水都會有所幫助。與支持你的朋友，或者明白你感受的人傾談，可加強信心。

戒煙的好處

解答了戒煙的疑問後，讓我們看看戒煙的好處。

「戒煙後一星期，我突然發覺很少想起吸煙。」

在戒煙期間，你或者不能完全忘記吸煙。但在戒煙徵狀消失後，你會越來越少想起吸煙。

「我覺得好像重獲新生 — 不受煙癮控制。」

你不再受尼古丁控制，生活完全由自己掌握。這種妙不可言的感覺，在戒煙後兩至三個星期內便會出現。

「我立即感到自己比從前健康。」

戒煙後不久，你便會感到身體更健康、精神更好、呼吸更暢順。有些人會開始多做運動，有助遠離煙癮。

「子女和朋友不再叨叨不休。」

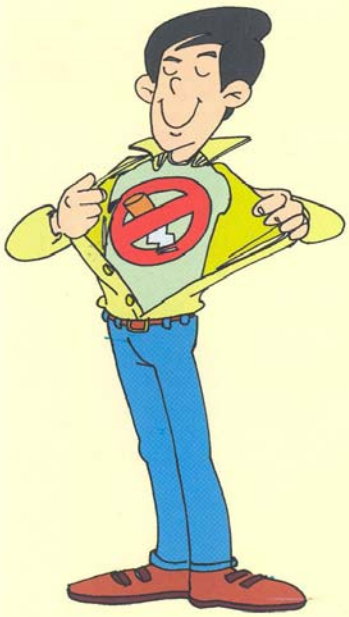
有些人戒煙是基於他人的不停勸諭和忠告，一旦戒煙成功，就像卸下了重擔一樣，朋友和家人不再嘮嘮叨叨。

「難聞的煙味已經消失。」

很多曾吸煙的人都說這是他們察覺到的最大改變。

「開始戒煙時，我每星期都會買一份禮物給自己。」

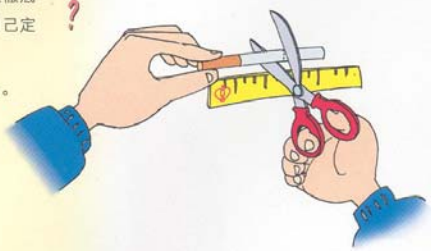
停止吸煙後，你節省的買煙錢越來越多，用這些金錢來獎勵自己，有助你堅持下去。



考慮戒煙？

假如你想戒煙，可以由改變吸煙習慣開始，例如接近中午才吸第一支煙、減少每天吸煙的數目、每支煙只吸一半、改吸其他牌子等。只要每次有少許進展，你的信心便會增加，可能會決定徹底戒煙。在這情況下，你必須為自己定下戒煙日。

在這天，你應嘗試完全停止吸煙。



其他協助

如果你想索取更多關於戒煙的資料，或者想知道在戒煙日過後如何堅持下去，你可向醫生索取「請即行動停止吸煙」小冊子。

香 港 大 學
THE UNIVERSITY OF HONG KONG

幼兒家長戒煙計劃
(吸煙家長)

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

Date: _____
Started time : _____
Ended time : _____
Total time : _____**mins**

姓 名: _____ *母 1／父 2 **幼兒姓名:** _____
SCCP No. : _____ **B C No.** _____
Counselor: _____

B. 基線問卷(吸煙家長)

完成對授訪者（吸煙者）的簡介 **(*請刪去不適用者)**

F1..現在我可唔可以和你傾下呢？

1☐ 可以，*(請開始 FA1)*
2☐ 不可以 ☐F2.請問爲甚麼呢？ (*毋須讀出選擇*)
☐ 2.1 沒時間 ☐ 2.3 曾戒煙失敗，不想再試 ☐ 2.5 其他，請說明_____
☐ 2.2 沒有興趣戒煙 ☐ 2.4 擔心戒煙時的不適
(請按拒絕受訪程序處理)

FA. 以下問題是關於你的健康情況

FA 1. 最近**三個月**，你認爲你自己的健康情況是？
☐ 1 很好 ☐ 2 好 ☐ 3 差 ☐ 4 很差

FB. 以下問題是關於你在**過去六個月內**，有沒有“**經常**”出現以下呼吸道的病徵。經常即一星期有三次或以上。

		1 沒有	2 有
喉部病徵			
FB1	你是否經常有**喉嚨痛**或**喉嚨痕**，或有其他**喉部不適**？	☐	☐
咳嗽		沒有	有
FB2 a	你有沒有經常在**早上起床後咳嗽**？	☐	☐ (如回答‘有’,續答 FB2 b & c)
FB2 b	你有沒有經常在**日間或晚上咳嗽**？	☐	☐ （如回答‘有，續答 FB2 c ）
FB2 c	你每年有沒有這樣地**咳嗽超過 3 個月**？	☐	☐
咳痰		沒有	有
FB3 a	你有沒有經常在**早上起床後**便要**咳痰**？	☐	☐ (如回答‘有’,續答 FB 3 c)
FB3 b	你有沒有經常在**日間或晚上咳痰**？	☐	☐ (如回答‘有’,續答 FB 3 c)
FB3 c	你每年有沒有這樣地**咳痰超過 3 個月**？	☐	☐
扯哈或哮喘		沒有	有
FB4 a	你的胸部或肺部有沒有試過發出扯哈聲或哮喘聲呢？	☐ (如回答‘沒有’,續答 FB5)	☐
FB4 b	你是否經常在日間或晚上有這情形出現？	☐	☐
FB4 c	你有沒有因扯哈或哮喘引起氣促或呼吸困難？	☐	☐
鼻部病徵		沒有	有
FB5	你有沒有經常鼻塞或流鼻水呢？	☐	☐

FB6 在**過去六個月**, 你還有沒有其他疾病或健康問題？
☐ 1 沒有
☐ 2 有

是什麼問題呢	幾時發現有這病或問題呢? (年/月/日)	如何醫治?	現時是否完全康復/繼續治療
			* 完全康復 1/繼續治療 2
			* 完全康復 1/繼續治療 2
			* 完全康復 1/繼續治療 2

FC. 吸煙習慣

FC1. 請問你現在(或最近一星期內)的吸煙習慣怎樣？

☐ 1 每日吸煙(即每日起碼一枝，或每星期至少七枝)
☐ 2 間中吸煙(有時全日不吸煙，即每星期吸少過七枝)
☐ 3 已經完全戒煙。請問戒了幾耐呢？FC1-3_____*年/月/日
☐ 4 曾試過吸，但從未連續六個月每日一枝

FC2. 在過去 **30 日**內，你平均每日吸煙多少枝？

☐ 1 沒有吸煙
☐ 2 間中吸，不是每日吸，每星期吸_____枝香煙(即每日吸 FC2-2_____枝)
☐ 3 每日吸煙 FC2-3_____ (Score 3☐ ≧ 31; Score 2☐ 21 - 30 ; Score 1☐ 11 – 20; Score 0☐ ≦10) 枝

FC3. 在過去**六個月**內，你平均每日吸煙多少枝？

☐ 1 沒有吸煙
☐ 2 間中吸，不是每日吸，每星期吸_____枝香煙(即每日吸 FC3-2_____枝)
☐ 3 每日吸煙 FC3-3_____枝

FC4. 你有沒有吸其他煙草產品的習慣？(即每日最少吸一枝手卷煙、雪茄或一斗煙絲)

☐ 1 沒有
☐ 2 有，每日吸手卷煙/雪茄/煙絲***** FC4-2_____(數量) (*****_請刪去不適用者_)

FC5. 你幾多歲開始有吸煙習慣(即每日食 1 枝或以上)？_____ 歲

FC6. 你起床後幾耐才吸第 1 枝煙？

☐ 1 5 分鐘內(score 3) ☐ 2 6 -30 分鐘(score 2) ☐ 3 31- 60 分鐘(score 1) ☐ 4 60 分鐘後(score 0)

FC7. 你覺得那一枝煙最難戒掉？

☐ 1 早上第 1 枝煙(score 1) ☐ 2 其他(score 0)

FC8. 你會否在起床後數小時內吸煙次數較其他時間頻密？

☐ 1 會(score 1) ☐ 2 不會(score 0)

FC9. 當你有病至不能起床時，你會否吸煙？

☐ 1 會(score 1) ☐ 2 不會(score 0)

FC10 當你身處非吸煙區內（如公共交通上，戲院內，餐廳內・・・），會否感到難於抑壓煙癮？

☐ 1 會(score 1) ☐ 2 不會(score 0)

Fagestrom Test : FC2 + FC6 + FC7 + FC8 + FC9 + FC10 = Total score _____

FC11 你通常在什麼時間／地點吸煙？(_讀出每一項,可選多項_)

時間

☐ 1 鬆弛
☐ 2 沈悶／消磨時間
☐ 3 緊張
☐ 4 想提神
☐ 5 想集中精神
☐ 6 飯後

地點

☐ 7 家中
☐ 8 工作地點
☐ 9 當子女不在身邊的地方
☐ 10 周圍也有吸煙者
☐ 11 社交場合
☐ 12 其他，請說明 FC11-12_____

FC12 你有沒有在家中吸煙？如有，平均每日幾多枝？

☐ 1 沒有(_請轉第 FC14 題_) ☐ 2 有，平均每日吸 FC12-2_____枝

FC13 你有沒有在 (_幼兒_)10 呎(或 3 米)範圍內吸煙？如有，平均每日幾多枝？

☐ 1 沒有 ☐ 2 有，平均每日吸 FC13-2_____枝

FC14 你 *太太 / 丈夫在過往或現時的吸煙習慣怎樣？

☐ 1 她／他從不吸煙(*請轉第 FC17 題*)
☐ 2 有，平均每日吸 FC14-2_____枝
☐ 3 她／他以前曾吸煙，但已戒煙。
請問他戒煙幾耐？FC14-3-1_____*年/月/日，
她／他過往平均每日吸 FC14-3-2_____枝煙
☐ 4 間中吸，不是每日吸，每星期吸 FC14-4_____枝香煙
☐ 5 她／他有吸煙，但不清楚他每日所吸的數量

FC15 她／他有沒有在家中吸煙？如有，平均每日幾多枝？

☐ 1 沒有(*請轉第 FC17 題*)
☐ 2 有，平均每日吸 FC15-2_____枝

FC16 她／他有沒有在(*幼兒*) 10 呎(或 3 米)範圍內吸煙？如有，平均每日幾多枝？

☐ 1 沒有
☐ 2 有，平均每日吸 FC16-2_____枝

FC17 在與(*幼兒*)**同住的人中**，除了幼兒的父母親外有沒有其他吸煙者？

☐ 1 沒有(*請轉 FD 部*)
☐ 2 有，有幾多人呢？FC17-2 _____ 人

FC18 他/他們有沒有在家中吸煙？(如有，*請將他們每日在家吸煙的總數加起來*)？

☐ 1 沒有(*請轉 FD 部*)
☐ 2 有，總共每日吸 FC18-2_____枝

FC19 這些吸煙者(*不包括父母*)有沒有在(*幼兒*) 10 呎(或 3 米)範圍內吸煙？(如有，*請將他們每日在*(*幼兒*) 10 呎*範圍內吸煙的總數加起來*)

☐ 1 沒有
☐ 2 有，總共每日吸 FC19-2_____枝

FD. 戒煙記錄

FD1. 你現在或以前有沒有曾經戒煙？

☐ 1 沒有，(*請轉第 FD8 題*)
☐ 2 有

FD2. 過往，你戒過幾多次煙（*每次最少停止吸煙超過２４小時計*）？_____次

FD3. 最近１次你幾時戒過煙？_____*年/月/日 前

FD4. 最近１次戒煙中，你維持不吸煙幾耐？_____*年/月/日

FD5. 你戒煙的最主要原因是什麼？(*毋須讀出, 可選多項*) ☐=1 ☐=2

☐ 1 醫療人員的建議
☐ 2 認識吸煙對**家人**所帶來的不良影響
☐ 3 認識吸煙所引致的環境污染
☐ 4 爲家人、朋友或親戚所鼓勵
☐ 5 爲其他已戒煙者所鼓勵
☐ 6 被其他非吸煙者排斥 (在公眾場所內或家人)
☐ 7 認識吸煙對**個人**所帶來的不良影響
☐ 8 吸煙違反作爲良好父母的傍樣
☐ 9 節省金錢
☐ 10 政府反吸煙措施影響
☐ 11 其他，請說明 _____

FD6. 請問你以前曾用過什麼的方法戒煙？ (*毋須讀出，可選多項*)

☐ 1 接受醫護人員的幫助
☐ 2 參加戒煙互助小組
☐ 3 無特別方法
☐ 4 用自助戒煙小冊
☐ 5 使用尼古丁補充劑：如戒煙貼、香口膠或吸劑
☐ 6 其他，請說明 _____

FD7. 在你最近一次戒煙經驗中，什麼是**最嚴重**的戒煙反應呢？(*毋須讀出，只選一項*)

☐ 1 煙癮發作
☐ 2 易怒/煩燥
☐ 3 焦慮
☐ 4 集中力困難
☐ 5 思考力減退
☐ 6 不安
☐ 7 饑餓
☐ 8 無耐性
☐ 9 手震/疲倦/
☐ 10 失眠
☐ 11 情緒低落
☐ 12 其他，請說明 _____

FD8. 假如你嘗試戒煙，你估計什麼情況最難應付呢？(*毋須讀出，只選一項*)

☐ 1 身邊有其他吸煙者
☐ 2 感到有壓力(包括工作、社交、財政等)
☐ 3 感到傷心或焦慮時
☐ 4 面對煙癮發作時
☐ 5 感到時間短促
☐ 6 與人爭拗時
☐ 7 同時飲酒或喝咖啡時
☐ 8 其他，請說明 _____

FD9 面對以上的困難，你認爲什麼是最有效的適應方法呢？(*先稍停，不讀出選擇，如果受訪者沒印象便請讀出答案，只選一項*)

☐ 1 與人傾談 (包括自言自語)
☐ 2 轉移思路，例如：看書、看雜誌
☐ 3 鬆弛方法，例如深呼吸
☐ 4 集中注意力戒煙
☐ 5 移走煙灰缸、煙仔及其他吸煙用具
☐ 6 做一些感興趣的事情，例如：運動，包括踏單車、緩步跑、散步
☐ 7 找一些工作以代替吸煙
☐ 8 吃一些小食或無糖香口膠
☐ 9 從新安排每日工作時間表，容許較少的工作量
☐ 10 其他，請說明 _____

FD10 你現在有沒有想戒煙？

☐ 1 沒有（*請轉第 FD14 題*）□ *Pre-contemplation*
☐ 2 有

FD11 你是否已開始戒煙？

☐ 1 不是
☐ 2 是，請問開始戒幾耐呢？_____月／日（*請轉答第 FD14 題*）
≥ 6 months □ maintenance < 6 months □ action

FD12 你有沒有認真地計劃在未來**一個月內**戒煙？

☐ 1 沒有
☐ 2 有（*請轉答第 FD14 題*）
Prior attempt in last year □ preparation ; otherwise □ contemplation

FD13 你有沒有認真地計劃在未來**六個月內**戒煙？

☐ 1 沒有
☐ 2 有
□ stage : * PC1/ C2 / P3 / A4 / M5
□ *Pre-contemplation* □ *contemplation*

FD14 你認爲戒煙成功對你有幾重要？如果要你俾分，由 0 至 100 分，0 分爲毫不重要，100 分爲非常重要，你認爲是？

0 10 20 30 40 50 60 70 80 90 100分
毫不重要 非常重要

FD15 你覺得戒煙有幾困難？如果要你俾分，由 0 至 100 分，0 分爲毫不困難，100 分爲非常困難，你認爲是？

0 10 20 30 40 50 60 70 80 90 100分
毫不困難 非常困難

FD16 你有幾大信心可以從此不再吸煙？如果要你俾分，由 0 至 100 分，0 分爲最少，100 分爲最大，你的估計是？

0 10 20 30 40 50 60 70 80 90 100分
最少信心 最大信心

FD17 在你戒煙計劃中，誰將會給你**最重要**的支持？

☐ 1 *丈夫或太太
☐ 2 朋友
☐ 3 父母
☐ 4 親戚
☐ 5 兄弟姊妹
☐ 6 子女
☐ 7 同事
☐ 8 醫護人員
☐ 9 其他，請說明 _____

FD18 在過去**六個月內**，你有沒有飲酒呢？

☐ 1 從來不飲（**請轉答 FE1**）
☐ 2 以前飲，戒了_____*年／月（**請轉答 FE1**）
☐ 3 每天都飲/每星期有 4-6 日飲
☐ 4 每星期有 1-3 日飲
☐ 5 每月有 1-3 日飲
☐ 6 每月飲少過一次(例如在特別的日子或場合)（**請轉答 FE1**）

FD19 如果飲酒，你最主要飲什麼酒呢？

☐ 1 啤酒
☐ 2 西洋餐酒、西式葡萄酒
☐ 3 西洋烈酒（如威士忌、白蘭地、ＸＯ）
☐ 4 中式米酒（雙蒸、米酒）
☐ 5 沒有特別飲一種酒
☐ 6 其他

FD20 以普通水杯計，你飲酒那天平均飲幾多杯酒？

☐ 1 約１／４杯　　☐ 4 ２－３杯
☐ 2 約１／２杯　　☐ 5 ４杯或以上
☐ 3 約１杯　　☐ 6 不知道

FD21 你有沒有覺得需要減少你的飲酒份量？

☐ 1 沒有　　☐ 2 有(score 1)

FD22 當有人批評你飲酒時，你會不會覺得很煩？

☐ 1 沒有人批評過　　☐ 2 會(score 1)　　☐ 3 不會

FD23 你有沒有因爲你的飲酒習慣而覺得唔開心或內疚呢？

☐ 1 沒有　　☐ 2 有(score 1)

FD24 你有沒有試過一起身就需要飲酒去鎮靜神經？

☐ 1 沒有　　☐ 2 有(score 1)　　cage score: add score FD21-24☐_____

FE. 以下是一些人**對婚姻關係的看法**，請你指出對該看法的同意程度是**十分同意/同意**或**不同意/ 十分不同意**。

(這些問題，純屬個人看法，沒有對錯之分，請儘量作答)	十分同意	同意	不同意	十分不同意
	1	2	3	4
FE1. 你認爲保持良好的婚姻關係，是一種技巧，跟運氣無關。	☐	☐	☐	☐
FE2. 你時常能夠做一些事，去平息你和*丈夫/太太間的爭吵，使你倆都感到好過一點。	☐	☐	☐	☐
FE3. 只要你和*丈夫/太太有決心，你們便能在極其困境下，快樂共處。	☐	☐	☐	☐
FE4. 感情好的夫婦，會不斷地努力去增進兩人的關係。良好的關係，不是無端出現的。	☐	☐	☐	☐
FE5. 無論你怎樣做，在你和*丈夫/太太的婚姻生活中，總有不愉快的時刻。	☐	☐	☐	☐
FE6. 你和*丈夫/太太相處得好不好，很視乎他當天的心情。	☐	☐	☐	☐
FE7. 能成功把子女養育成人，全靠運氣。	☐	☐	☐	☐
FE8. 如果你的婚姻長久和快樂，你會覺得是因爲你好運氣。	☐	☐	☐	☐

FF 個人資料

FF1. (*如已知此資料時,毋須詢問此題,但必須紀錄*) 請問你與(*幼兒*) 的關係?

☐ 1 母親　　☐ 2 父親

FF2. 請問你今年幾歲？_____

FF3. 請問你最高學歷？(*無需讀出選擇*)

☐ 1 未接受過正規教育　　☐ 4 中四至中五　　☐ 7 大專-學位課程或以上
☐ 2 小學或以下　　☐ 5 預科
☐ 3 中一至中三　　☐ 6 大專-非學位課程

FF4. 請問你每月的家庭總收入大約是：

☐ 1 4,000 以下　　☐ 4 20,000 - 29,999
☐ 2 4,000 - 9,999　　☐ 5 30,000 -59,999
☐ 3 10,000 - 19,999　　☐ 6 60,000 或 以上

FF5. 請問你現時職業是:_____

☐ 1 經理及行政人員　　☐ 2 專業人員　　☐ 3 輔助專業人員
☐ 4 文員　　☐ 5 服務工作及商店銷售人員　　☐ 6 非技術工人
☐ 7 漁農業熟練工人員　　☐ 8 手工藝及有關人員　　☐ 9 機台及機器操作員及裝配員
☐ 10 主婦　　☐ 11 全日制學生　　☐ 12 失業

FF6. 請問你居住的區域是

香港	☐ 1 灣仔	☐ 2 東區	☐ 3 中西區	☐ 4 南區
九龍	☐ 5 觀塘	☐ 6 黃大仙	☐ 7 九龍城	☐ 8 深水埗
	☐ 9 油尖旺			
新界	☐ 10 葵青	☐ 11 荃灣	☐ 12 屯門	☐ 13 沙田
	☐ 14 大埔	☐ 15 北區	☐ 16 西貢	☐ 17 元朗
	☐ 18 離島			

FF7. 請問你家中有幾多人同住？(*包括受訪者*)

FF7-1 18 歲或以上有_____ FF7-2 18 歲或以下有_____ 人

人

2.1 * 他 / 他們的年齡是 FF7-2-2_____歲 FF7-2-3_____ 歲

FF7-2-1_____ 歲;

問卷已經完成,非常多謝你的合作。我們非常關注你和你家人的健康，現在可提供一個免費的戒煙服務給你，

FF8. 請問你願唔願意參加這個戒煙計劃呢？

☐ 1 不願意，請問你爲甚麼呢？ ☐ 2 願意，(*請開始* **隨機分組)**

- ☐ 1.1 沒時間
- ☐ 1.2 沒有興趣戒煙
- ☐ 1.3 曾戒煙失敗，不想再試
- ☐ 1.4 擔心戒煙時的不適
- ☐ 1.5 其他，請說明

_____

隨機分組結果

control 1 / intervention 2 /refused 3

For control group

多謝你的參與。我們將會在稍後寄出一些自助戒煙資料給你，亦會在 6 個月後再跟你聯絡。我們希望與你保持聯絡。依家想核對一下你的聯絡地址及電話 (*請將個人資料紀錄於問卷的第一頁*)。祝你成功，再見。

For the intervention group。

我準備提供免費的戒煙輔導比你，依家傾下好唔好。(**輔導內容**)(*如未能即時接受輔導，請另約時間*) 好多謝你的參與，祝你成功。

我們會在一星期內寄出一些自助戒煙資料給你，依家我想同你核對一下你的聯絡地址及電話(*請將個人資料紀錄於問卷的第一頁*)。我們亦會在下個月和第三個月再同你聯絡，傾下戒煙的情況，請問什麼時間與你聯絡較爲方便呢？期間，如有任何戒煙疑難或健康問題，歡迎於上午 9 時至晚上 9 時內打熱線電話:9237 找我們的護士 - 麥艷華 或在辦工時間內打 2819 找林大慶教授。 祝你成功，再見。

香 港 大 學
THE UNIVERSITY OF HONG KONG

Smoking Cessation Intervention BASELINE QUESTIONNAIRE

THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學

Name: _____ _____ _
*Mother 1 / Father 2

SCCP No.: _____

Child's Name: _____

BC No.: _____

Counselor: _____

Date: _____

Started time: _____

Ended time: _____

Total time: _____mins

B. FOR SMOKING PARENT

INTRODUCTION (*Delete if appropriate)

CONSENT FORM

F1. Would you please answer the following questions?

☐1 Yes (**move on to FA1**) ☐2 No

F2. Would you mind to tell me your reason **(do not read out the choices)**?

☐2.1 No time
☐2.2 Not interested in quitting
☐2.3 Tried before and do not want to try again
☐2.4 I'm afraid of the side-effects from quitting
☐2.5 Others, please specify: _____

(Please follow the procedures to handle the refusal case)

FA. Here below are some questions about your physical health.

FA1. What do you think of your health of the recent three months?

☐ 1 Very good ☐ 2 Good ☐ 3 Bad ☐ 4 Very bad

FB. The following questions ask if you usually have any respiratory symptom in the past 6 months.

(The term "usually" used below is defined as 3 or more times per week)

		1 No	2 Yes
THROAT			
FB1.	Do you usually have a **sore or itchy throat** or any other throat discomfort?	☐	☐
COUGH		**No**	**Yes**
FB2a.	Do you usually **cough** upon waking in the morning?	☐	☐
FB2b.	Do you usually **cough** either during the day or at night?	☐	☐
	(If yes at FB2a or FB2b, then answer FB2c)		
FB2c.	Do you usually **cough** like this on most days for as much as three months per year?	☐	☐
PHLEGM		**No**	**Yes**
FB3a.	Do you usually bring up any **phlegm** from your chest upon waking in the morning?	☐	☐
FB3b.	Do you usually bring up any **phlegm** from your chest during the day or at night?	☐	☐
	(If yes at FB3a or FB3b, then answer FB3c)		
FB3c.	Do you bring up **phlegm** like this on most days for as much as three months each year?	☐	☐
WHEEZING		**No**	**Yes**
FB4a.	Does your chest ever give out wheezing or whistling sound?	☐	☐
	(If no, move on to FB5)		
FB4b.	Do you get this on most of days or at nights?	☐	☐
FB4c.	Have you ever had attacks of shortness of breath with wheezing?	☐	☐
NASAL SYMPTOMS		**No**	**Yes**
FB5.	Do you usually have a blocked or running nose?	☐	☐

FB6. Have you ever been suffered from any other illness/health problem(s) in the past 6 months?

☐1 no

☐2 yes, please specify the problem(s)

Problem(s)	When did this problem arise?	Intervention / medications	Outcome(*delete if appropriate)
			* recovered 1/ continued the treatment2
			* recovered 1/ continued the treatment2
			* recovered 1/ continued the treatment2

FC. SMOKING STATUS

FC1. How would you describe your current smoking habit? (in the last week)

☐1 I am a current smoker (at least *one cigarette per day/ 7 per a week*)

☐2 I smokes occasionally (*sometimes do not smoke in a day, meaning less than 7 cigarettes per week*)

☐3 I have stopped. How long have you stopped ? FC1-3_____ *year/months/days

☐4 I have tried but I have never smoked one cigarette per day for the past 6 months

FC2. In the last 30 days, on average how many cigarettes did you smoke per day?

☐1 None

☐2 Occasionally smoke, but not smoke everyday. FC2-2 _____ cig/day

☐3 FC2-3_____ cigarette(s) per day (Score 3☐ ≥ 31; Score 2☐ 21-30; Score 1☐ 11-20; Score 0☐ ≤ 10)

FC3. In the past 6 months, on average how many cigarettes did you smoke per day)?

☐1 None

☐2 Occasionally smoke, but not smoke everyday. FC3-2_____cig/day

☐3 FC3-3_____cigarette(s) per day

FC4. Do you smoke other type of tobacco products? (e.g. hand rolled cigarette,cigar,pipe)

☐1 No

☐2 Yes, (hand rolled cigarette/cigar/pipe* FC4-2_____cigarette(s) per day) (*please delete if not applicable)

FC5. How old were you when you started smoking regularly (smoke at least one cigarette per day?)
_____ years old.

FC6. How soon after you wake up do you smoke your first cigarette?

☐1 within 5 minutes ☐2 6-30 minutes ☐3 31-60 minutes (score 1) ☐4 after 60 minutes (score 0)

FC7. Which cigarette would you think most difficult to give up?

☐1 First in the morning (score 1) ☐2 Any others (score 0)

FC8. Do you smoke more frequently during the first few hours after waking up than during the rest of the day?

☐1 Yes (score 1) ☐2 No (score 0)

FC9. Do you smoke even if you are so ill that you are in bed most of the day?

☐1 Yes (score 1) ☐2 No (score 0)

FC10. Do you find it difficult to refrain from smoking in places where it is forbidden?
(e.g. at public transport, in the cinema, at the workplace, at a restaurant)

☐1 Yes (score 1) ☐2 No (score 0)

Fagestrom Test : FC2 + FC6 + FC7 + FC8 + FC9 + FC10 = Total score_____

☐ =1 ☐ =2

FC11. When / where do you usually smoke? (Read out all the choices, mark all that apply)

when	**Where**
☐1 Relaxing	☐ 7 at home
☐2 Bored / trying to pass the time	☐ 8 at work
☐3 Feeling anxious	☐ 9 in the absence of my children
☐4 Wanting to cheer up	☐10 around other smokers
☐5 Wanting to increase my concentration	☐11 In social gathering
☐6 After meals	☐12 other, please specify FC11-12 _____

FC12. Do you smoke at home?

☐1 No **(move on to FC14)** ☐2 Yes, how many cigarettes per day? FC12-2_____cigarettes a day

FC13. Do you smoke near your child? (within 3 metres or 10 feet)

☐1 Never ☐2 Yes, how many cigarettes per day? FC13-2_____cigarettes a day

FC14. Does your wife/husband smoke?

☐1 No, she/he has never smoked **(move on to FC17)**

☐2 Yes, she/he smokes FC14-2_____cigarette per day

☐3 No, she/he has quit. How long has he/she stop? FC14-3-1 _____*y/m/d and how many cigarettes did he/she usually smoke per day? FC14-3-2_____cig. per day.

☐4 Yes, she/he smokes occasionally (sometimes not a dingle cigarette in a day, meaning less than 7 cigarettes per week = FC14-4_____cig. per day
☐5 Yes, but do not know how many he/she smokes per day.

FC15. Does your wife/husband smoke at home?
☐1 Never **(move on to FC17)** ☐2 Yes, how many cigarettes per day? FC15-2_____cigarettes a day

FC16. Does he/she smoke near your child? (within 3 metres or 10 feet)
☐1 Never ☐2 Yes, how many cigarettes per day? FC16-2_____cigarettes a day

FC17. Are there any other smokers who live with your child? (not counting child's parent)
☐1 None **(move on to FD)** ☐2 Yes, how many ? FC17-2_____ people.

FC18. How many cigarettes do they smoke at home?
☐1 None **(move on to FD)** ☐2 Yes, how many cigarettes per day? FC18-2 _____cigarettes a day.

FC19. (*refer to FC18*) Does this person/these people smoke near your child?(within 3 metres or 10 feet)
☐1 No ☐2 Yes, how many cigarettes per day? FC19-2 _____cigarettes a day.

FD. QUITTING HISTORY

FD1. Have you ever intentionally tried to quit your smoking?
☐1 No **(move on to FD8)** ☐2 Yes

FD2. How many serious attempts (more than 24hours) have you made to quit smoking in your lifetime?
_____ attempt(s)

FD3. When was your last serious attempt to stop smoking?
_____ *y/m/d ago.

FD4. For about how long did you go without smoking at that time?
_____ *y/m/d

FD5. What was **the most important reason** of your last attempt to quit smoking?
(do not read out, tick all that apply) ☐=1 ☐=2

☐ 1 Advised by health professionals to quit
☐ 2 Increased awareness of harmful effect of smoking to family health
☐ 3 Smoking regarded as harmful to our environment
☐ 4 Cessation encouraged by family members/friends/ relatives
☐ 5 Cessation encouraged by other ex-smokers
☐ 6 Rejected by non-smokers (general public/ significant others)
☐ 7 Increased awareness of harmful effect of smoking to own health
☐ 8 Smoking contradicts the view of a caring and responsible parent.
☐ 9 Save money
☐10 Government Anti-smoking Publicities
☐11 Others, please specify _____

FD6. What **cessation method** did you use to quit at that time? (**do not read out, tick all those apply**)
☐1 Ask help from health professionals, e.g. doctor, nurse
☐2 Joining a smoking cessation program
☐3 No special method used
☐4 Using self help smoking cessation material
☐5 Using Nicotine Replacement Therapy (gum/patch)
☐6 Others, please specify _____

FD7. What is **the most severe symptom** have you experienced when you attempted to quit smoking?
(do not read out, choose one only)

☐ 1 Craving of cigarettes/ obsessive thinking of cigarette
☐ 2 Irritability/frustration
☐ 3 Anxiety
☐ 4 Concentrating difficulties
☐ 5 poor memory
☐ 6 Restlessness/nervousness
☐ 7 Hunger
☐ 8 Impatience
☐ 9 Somatic complaints/shakiness/fatigue
☐10 Insomnia
☐11 Depression
☐12 Others, please specify_____

FD8. What will you perceive as **the most difficult situation** if you try to quit smoking?(**do not read out, choose one only**)

☐1 Getting around other smokers
☐2 Being under stress(work, social relationship, finance)
☐3 Feeling sad or frustrated
☐4 Dealing with the withdrawal symptoms
☐5 Being under time pressure
☐6 Getting into an argument
☐7 Drinking alcohol or coffee
☐8 Others, please specify _____

FD9. How do you plan to get through the above situation?
(***pause, if subject has no idea then read out, mark all that apply)***

☐ 1 Talk to someone / self talk
☐ 2 Thinking of some other things e.g. read book / magazines
☐ 3 Relaxation techniques e.g. deep breathing
☐ 4 Concentrate the efforts to tell yourself not to smoke
☐ 5 Remove cigarette / ashtray
☐ 6 Do things that enjoy me e.g. exercise: walking, jogging, and bicycling.
☐ 7 Get busy with a task e.g.work, doing other things with hands as a substitute for smoking.
☐ 8 Take up snacks/ sugarless gum.
☐ 9 Adjust schedule and expectations to allow for lower productivity
☐10 Others, please specify _____

FD10. Are you thinking of quitting smoking?
☐1 No **(move on to FD14)™** pre-contemplation ☐2 Yes

FD11. Have you started quit smoking?
☐1 No ☐2 Yes, how long did you start quit smoking?_____days/months**(move on to FD14)**
≥ 6 months ™maintenance < 6 months ™action

FD12. Are you seriously planning to quit in the next one month?
☐1 No ☐2 Yes™ *Prior attempt in last year ™preparation ; otherwise ™contemplation* **(move on to FD14)**

FD13. Are you seriously planning to quit in the next 6 month?
☐1 No *™pre-contemplation* ☐2 Yes *contemplation* stage : * PC 1/ C 2/ P 3/ A 4/ M 5

FD14. How important is it for you to give up smoking, all together this time? Please score on a scale of "0" to "100", 0 being the least important and 100 being the most important.

Estimation of importance Least 0 10 20 30 40 50 60 70 80 90 100 most %

FD15. How difficult is it to quit smoking? (0 being the least difficult and 100 being the most difficult)

Difficult Least 0 10 20 30 40 50 60 70 80 90 100 most %

FD16. How much confidence do you have that you will be able to quit smoking permanently? (0 being the lowest confidence and 100 being the highest confidence)

Confidence Least 0 10 20 30 40 50 60 70 80 90 100 most %

FD17. Who will be **the most important people** in providing you support in your quit smoking attempt?

☐1 Spouse ☐4 other relatives ☐7 Colleagues
☐2 Friends ☐5 Siblings ☐8 Health care professionals e.g. doctor, nurse
☐3 Parents ☐6 Children ☐9 Others, please specify _____

FD18. Have you had any alcoholic beverages in the past 6 months?

☐1 No **(move on to part FE1)**
☐2 Yes, but quitted for _____ days/weeks **(move on to FE1)**
☐3 I drink daily/4-6 days per week
☐4 I drink 1-3 days per week
☐5 I drink 1-3 days per month
☐6 I drink less than once a month (for special occasion only)**(move on to part FE1)**

FD19. What type of alcohol do you usually drink?

☐1 Beer
☐2 Table wine, red wine / white wine
☐3 Liquor / spirit (whisky, brandy, XO)
☐4 Chinese rice wine
☐5 No special type
☐6 Others, please specify _____

FD20. What is the quantity of wine do you usually drink each time?

☐1 About 1/4 cup ☐3 About 1 cup ☐5 4 cups or above
☐2 About 1/2 cup ☐4 2-3 cups ☐6 Don't know

FD21. Have you ever felt the need to cut down on your drinking?

☐1 No ☐2 Yes

FD22. Have people annoyed you by criticizing your drinking?

☐1 No ☐2 Yes

FD23. Have you ever felt bad or guilty about your drinking?

☐1 No ☐2 Yes

FD24. Have you ever had a drink first thing in the morning to steady your nerves?

☐1 No ☐2 Yes

cage score: add score FD21-24 _____

FE. The following are some statements about how you feel about your *place in your marriage*. Please indicate the extent to which you AGREE OR DISAGREE with the following statements.

There are no right or wrong answers.

SA = strongly agree; A = agree; D = disagree; SD = strongly disagree

		1 SA	2 A	3 D	4 SD
FE1.	It seems to you that maintaining a smooth functioning marriage is simply a skill; things like luck don't come into it.	☐	☐	☐	☐
FE2.	There are always things you can do that will help to end an argument with your spouse that leaves us feeling better.	☐	☐	☐	☐
FE3.	Your spouse and you can get along happily in spite of the most trying circumstances if we decide to.	☐	☐	☐	☐
FE4.	Couples who have a satisfying emotional relationship are constantly trying to improve their relationship; a good relationship doesn't just develop spontaneously.	☐	☐	☐	☐
FE5.	The unhappy times in your marriage just seem to happen regardless of what you're doing.	☐	☐	☐	☐
FE6.	How well you get along with your spouse depends very much on how he is feeling that day.	☐	☐	☐	☐
FE7.	Successful child-rearing is a result of some good fortune along the way.	☐	☐	☐	☐
FE8.	If your marriage were a long, happy one you would say that you must be very lucky.	☐	☐	☐	☐

FF. PERSONAL INFORMATION

FF1. The respondent is (if known from birth cohort study, it is not necessary to ask the question, but must record below)

☐1 Mother of the child ☐2 Father of the child

FF2. What is your age? _____years old

FF3. What is the highest level of education you have achieved?(do not read)

☐1 No formal education ☐4 Higher secondary (F.4–5) ☐7 Tertiary degree course or above
☐2 Primary or below ☐5 Matriculation (F.6/7)
☐3 Lower secondary (F.1-3) ☐6 Tertiary non-degree course

FF4. What is your approximate monthly household income?

☐1 under 4,000 ☐3 10,000 – 19,999 ☐5 30,000 – 59,999
☐2 4,000 – 9,999 ☐4 20,000 – 29,999 ☐6 60,000 and above

FF5. Your current occupation is:

☐1 Manager / administrators ☐6 Skilled agricultural & fishery workers ☐9 Armed forces & occupations not classifiable
☐2 Professionals
☐3 Associate professionals ☐7 Craft & related workers ☐10 Housewife
☐4 Clerk ☐8 Plant & machine operators & assemblers ☐11 Student (full time)
☐5 Service & shop sales workers ☐12 Unemployed

FF6. Which district do you live in?

Hong Kong

☐1 Wan Chai ☐2 Eastern ☐3 Central & West ☐4 Southern

Kowloon

☐5 Kwun Tong ☐7 Kowloon City ☐9 Yaumati, Tsimshatsui, Mongkok

☐6 Wong Tai Sin ☐8 Shamshuipo

New Territories

☐10 Kwai Tsing ☐12 Tuen Mun ☐14 Taipo ☐16 Sai Kung ☐18 Outlying Island

☐11 Tsuen Wan ☐13 Shatin ☐15 Northern ☐17 Yuen Long

FF7. How many people living in your household, including you?

FF7-1 Age 18 or above _____ people

FF7-2 Below 18 _____ people

How old are they? _____ FF7-2-1 _____ FF7-2-2 _____ FF7-2-3 years old

The questionnaire is now done. As you and your family's health is very important to us. We are now conducting a study to help smokers to quit smoking. I would like to invite you to participate in this program too.

CONSENT FORM

FF8. Are you willing to participate in this smoking cessation program?

☐1 No ☐2 Yes (RANDOMIZATION AND START COUNSELING FOR INTERVENTION GROUP)

What is your reason for not willing to participate in the smoking cessation program?

☐1.1 No time ☐1.4 I'm afraid of the side-effect from quitting

☐1.2 Not interested in quitting ☐1.5 Others, please specify:_____

☐1.3 Tried before and do not want to try again

RANDOMIZATION CONTROL 1 / INTERVENTION 2

Randomization: CONTROL / INTERVENTION

For **control group**

All questions are completed. Thank you very much for your co-operation. We would like to send you some self-help materials on how to quit smoking and will phone you again after six months. May I confirm your address and telephone number. **(*Please put the subject's particulars onto the front page*)**

For the intervention group

All the questions are completed. Thank you very much for your co-operation. Now, I'm going to give you a free counseling service to help you quit smoking.

COUNSELING

Thank you very much. May I wish every success on your quitting attempt. In order to give help and support to you, we will contact you next month and 3 month later for the second and the third interview. On both sessions we will discuss your progress and difficulties in quitting smoking and counseling would be given as well. Those interview sessions will take about 15-20 minutes each. May I make an appointment with you on one/two months later. Besides, we will send you some materials on smoking cessation. May I confirm your address and telephone number? (***Please put the subject's particulars onto the front page***). If you have any problems or concerns about your quitting attempt, please feel free to contact Ms.Mak Yim Wah via **hotline XXXXXX from 9Am to 9 Pm**

Smoking Cessation Program for Parents with Young Children rdate

Baseline information (retrieved from *birth cohort study*) **Birth cohort No.**_____

Child's information	Name :	Sex : male/ female
Parents' smoking status	☐1 **mother** smoke only ☐2 **father** smoke only ☐3 **both parents** smoke	

Eligibility screen

	Father	**Mother**
Name of parents :		
Are you smoking cigarette in the recent 6 months? (including occasional smoke)	*Yes/ no	*Yes/ no
If quitted, how long did you quit ?	_____year/month/day*	_____year/month/day*
Do you and your spouse live in Hong Kong most of the time? (ie. At least 5 days a week)	*Yes/ no	*Yes/ no
Contact phone :		
Contact time :	* am/pm/evening	*am/pm/evening
Home Telephone :		
Home address :		

Summary on IMPRESSION OF CLIENT in various contacts

Name of participant:_____ 1mother/ 2father **SCCP No.**_____

***1 control / 2 intervention** **self-help materials sent on** _____

Session	Date	Time	Stage of change PC2	C3	P4	A5	M6	Remarks (next appt. date)	Name of counselor
Baseline interview (mother)			☐	☐	☐	☐	☐		
Baseline interview (father)			☐	☐	☐	☐	☐		
1st counseling			☐	☐	☐	☐	☐		
2nd counseling (one month)			☐	☐	☐	☐	☐		
3rd counseling (3 month)			☐	☐	☐	☐	☐		
Follow-up (six month)			☐	☐	☐	☐	☐		
Proxyl validation mother1/father2									
Final assessment (for self-reported quitters)			CO level :				ppm		

HOTLINE CONSULTATIONS

DATE	Reasons for consultation	Advice / Intervention

香 港 大 學
THE UNIVERSITY OF HONG KONG

幼兒家長戒煙計劃

A. 基線問卷

(非吸煙的家長

一般指母親)

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

姓 名: _____ *母 1／父 2 **幼兒姓名:** _____ **Date:** _____

SCCP No. : _____ **B C No.** _____ **Started time :** _____

Counselor: _____ **Ended time :** _____

Total time : _____**mins**

完成對授訪者（吸煙者）的簡介 **(*請刪去不適用者)**

M1..現在我可唔可以和你傾下呢？

☐ 1 可以，*(請開始 CHA1)*

☐ 2 不可以M2.請問你爲甚麼呢 (*毋須讀出選擇*)？

☐ 2.1 沒時間 ☐ 2.3 曾戒煙失敗，不想再試 ☐ 2.5 其他，請說明_____

☐ 2.2 沒有興趣戒煙 ☐ 2.4 擔心戒煙時的不適

(請按拒絕受訪程序處理)

以下問題是關於(*幼兒姓名*) 的健康情況

CHA.

CHA1. 你認爲他最近三個月的健康情況是怎樣？

☐ 1 很好 ☐ 2 好 ☐ 3 差 ☐ 4 很差

CHB. 病徵: 以下問題是關於(*幼兒姓名*) 在過去六個月內，有沒有“**經常**”出現呼吸道的病徵。

經常即一星期有三次或以上。

		1	2
喉部病徵		沒有	有
CHB1	他是不是經常有喉嚨痛或喉嚨痕，或有其他喉部不適？	☐	☐
咳嗽		沒有	有
CHB2 a	他有沒有經常在早上起床後咳嗽？	☐	☐ (如回答‘有’續答 CHB2b& c)
CHB2 b	他有沒有經常在日間或晚上咳嗽？	☐	☐ (如回答‘有’續答 CHB2 c)
CHB2 c	他每年有沒有這樣地咳嗽超過 3 個月？	☐	☐
咳痰		沒有	有
CHB3 a	他有沒有經常在早上起床後便要咳痰？	☐	☐ (如回答‘有，續答 CHB3b& c)
CHB3 b	他有沒有經常在日間或晚上咳痰？	☐	☐ (如回答‘有，續答 CHB3 c)
CHB3 c	他每年有沒有這樣地咳痰超過 3 個月？	☐	☐
扯哈或哮喘		沒有	有
CHB4 a	他的胸部或肺部有沒有試過發出扯哈聲或哮喘聲呢？	☐	☐ (如回答‘沒有，續答 CHB5)
CHB4 b	他是否經常在日間或晚上有這情形出現？	☐	☐
CHB4 c	他有沒有因扯哈或哮喘引起氣促或呼吸困難？	☐	☐
鼻部病徵		沒有	有
CHB5	他有沒有經常鼻塞或流鼻水呢？	☐	☐

CHC.

CHC1. 在過去<u>六個月</u>內，(*幼兒姓名*)需要見醫生多少次? (包括中、西醫和急症室，但不包括住院)

☐1 沒有 ☐2 有，CHC1-2 ____________次(*請詢問每次求診的資料*)

CHC2. 每次求診的資料:

次數	幼兒的病徵 (可選多於一項)	往那裏求診？ (只選一項)	醫生診斷是甚麽病？	醫生如何建議？ (可選多於一項)	醫藥費
(______)	☐1 呼吸道症狀，如咳、流鼻水 ☐2 腸胃不適，如嘔吐、腹瀉 ☐3 發燒 ☐4 受傷 ☐5 其他，請註明： 5-1____________	☐1 私家醫生(西醫) ☐2 政府普通科門診 ☐3 醫院急症室 ☐4 公立專科門診 ☐5 母嬰健康院 ☐6 中醫 ☐7 在大陸看醫生 ☐8 其他，請註明： 8-1____________	☐1 醫生診斷是： 1-1__________ ☐2 醫生沒有說清楚 ☐3 忘記了醫生如何說 ☐4 不知道	☐1 轉介急症室 ☐2 入住醫院 ☐3 轉介專科門診 ☐4 打針、吃藥、塗藥膏 ☐5 無須藥物治療 ☐6 覆診	☐1 免費 ☐2 1 - 50 元 ☐3 51-100 元 ☐4 101-200 元 ☐5 201-300 元 ☐6 301-400 元 ☐7 多過 400 元，請填寫多少元： 7-1__________
(______)	☐1 呼吸道症狀，如咳、流鼻水 ☐2 腸胃不適，如嘔吐、腹瀉 ☐3 發燒 ☐4 受傷 ☐5 其他，請註明： 5-1____________	☐1 私家醫生(西醫) ☐2 政府普通科門診 ☐3 醫院急症室 ☐4 公立專科門診 ☐5 母嬰健康院 ☐6 中醫 ☐7 在大陸看醫生 ☐8 其他，請註明： 8-1____________	☐1 醫生診斷是： 1-1__________ ☐2 醫生沒有說清楚 ☐3 忘記了醫生如何說 ☐4 不知道	☐1 轉介急症室 ☐2 入住醫院 ☐3 轉介專科門診 ☐4 打針、吃藥、塗藥膏 ☐5 無須藥物治療 ☐6 覆診	☐1 免費 ☐2 1 - 50 元 ☐3 51-100 元 ☐4 101-200 元 ☐5 201-300 元 ☐6 301-400 元 ☐7 多過 400 元，請填寫多少元： 7-1__________
(______)	☐1 呼吸道症狀，如咳、流鼻水 ☐2 腸胃不適，如嘔吐、腹瀉 ☐3 發燒 ☐4 受傷 ☐5 其他，請註明： 5-1____________	☐1 私家醫生(西醫) ☐2 政府普通科門診 ☐3 醫院急症室 ☐4 公立專科門診 ☐5 母嬰健康院 ☐6 中醫 ☐7 在大陸看醫生 ☐8 其他，請註明： 8-1____________	☐1 醫生診斷是： 1-1__________ ☐2 醫生沒有說清楚 ☐3 忘記了醫生如何說 ☐4 不知道	☐1 轉介急症室 ☐2 入住醫院 ☐3 轉介專科門診 ☐4 打針、吃藥、塗藥膏 ☐5 無須藥物治療 ☐6 覆診	☐1 免費 ☐2 1 - 50 元 ☐3 51-100 元 ☐4 101-200 元 ☐5 201-300 元 ☐6 301-400 元 ☐7 多過 400 元，請填寫多少元： 7-1__________
(______)	☐1 呼吸道症狀，如咳、流鼻水 ☐2 腸胃不適，如嘔吐、腹瀉 ☐3 發燒 ☐4 受傷 ☐5 其他，請註明： 5-1____________	☐1 私家醫生(西醫) ☐2 政府普通科門診 ☐3 醫院急症室 ☐4 公立專科門診 ☐5 母嬰健康院 ☐6 中醫 ☐7 在大陸看醫生 ☐8 其他，請註明： 8-1____________	☐1 醫生診斷是： 1-1__________ ☐2 醫生沒有說清楚 ☐3 忘記了醫生如何說 ☐4 不知道	☐1 轉介急症室 ☐2 入住醫院 ☐3 轉介專科門診 ☐4 打針、吃藥、塗藥膏 ☐5 無須藥物治療 ☐6 覆診	☐1 免費 ☐2 1 - 50 元 ☐3 51-100 元 ☐4 101-200 元 ☐5 201-300 元 ☐6 301-400 元 ☐7 多過 400 元，請填寫多少元： 7-1__________
(______)	☐1 呼吸道症狀，如咳、流鼻水 ☐2 腸胃不適，如嘔吐、腹瀉 ☐3 發燒 ☐4 受傷 ☐5 其他，請註明： 5-1____________	☐1 私家醫生(西醫) ☐2 政府普通科門診 ☐3 醫院急症室 ☐4 公立專科門診 ☐5 母嬰健康院 ☐6 中醫 ☐7 在大陸看醫生 ☐8 其他，請註明： 8-1____________	☐1 醫生診斷是： 1-1__________ ☐2 醫生沒有說清楚 ☐3 忘記了醫生如何說 ☐4 不知道	☐1 轉介急症室 ☐2 入住醫院 ☐3 轉介專科門診 ☐4 打針、吃藥、塗藥膏 ☐5 無須藥物治療 ☐6 覆診	☐1 免費 ☐2 1 - 50 元 ☐3 51-100 元 ☐4 101-200 元 ☐5 201-300 元 ☐6 301-400 元 ☐7 多過 400 元，請填寫多少元： 7-1__________
(______)	☐1 呼吸道症狀，如咳、流鼻水 ☐2 腸胃不適，如嘔吐、腹瀉 ☐3 發燒 ☐4 受傷 ☐5 其他，請註明： 5-1____________	☐1 私家醫生(西醫) ☐2 政府普通科門診 ☐3 醫院急症室 ☐4 公立專科門診 ☐5 母嬰健康院 ☐6 中醫 ☐7 在大陸看醫生 ☐8 其他，請註明： 8-1____________	☐1 醫生診斷是： 1-1__________ ☐2 醫生沒有說清楚 ☐3 忘記了醫生如何說 ☐4 不知道	☐1 轉介急症室 ☐2 入住醫院 ☐3 轉介專科門診 ☐4 打針、吃藥、塗藥膏 ☐5 無須藥物治療 ☐6 覆診	☐1 免費 ☐2 1 - 50 元 ☐3 51-100 元 ☐4 101-200 元 ☐5 201-300 元 ☐6 301-400 元 ☐7 多過 400 元，請填寫多少元： 7-1__________

CHC3. 請問在過去六個月（幼兒姓名）有沒有因病住院**留醫**？

☐ 1 沒有　　☐ 2 有，請問幾多次？CHC3-2_____次(*請詢問每次***住院留醫***的資料*)

CHC4. 每次住院留醫的資料

入院日期	出院日期	幼兒的病徵 (可選多於一項)	醫院種類？ (只選一項)	醫生診斷是甚麼病？	醫生如何建議？ (可選多於一項)	住院/醫藥費
___年 ___月	___年 ___月	☐1 呼吸道症狀，如咳、流鼻水 ☐2 腸胃不適，如嘔吐、腹瀉 ☐3 發燒 ☐4 受傷 ☐5 其他，請註明： 5-1_____	☐1 醫管局醫院 ☐2 私家醫院 ☐3 在大陸醫院 ☐4 其他，請註明： 4-1_____	☐1 醫生診斷是： 1-1_____ ☐2 醫生沒有說清楚 ☐3 忘記了醫生如何說 ☐4 不知道	☐1 毋須覆診 ☐2 繼續覆診 ☐3 不知道 ☐4 其他，請註明： 4-1_____	☐1 免費 ☐2 醫管局標準收費 ☐3 請填寫多少元： 3-1_____
___年 ___月	___年 ___月	☐1 呼吸道症狀，如咳、流鼻水 ☐2 腸胃不適，如嘔吐、腹瀉 ☐3 發燒 ☐4 受傷 ☐5 其他，請註明： 5-1_____	☐1 醫管局醫院 ☐2 私家醫院 ☐3 在大陸醫院 ☐4 其他，請註明： 4-1_____	☐1 醫生診斷是： 1-1_____ ☐2 醫生沒有說清楚 ☐3 忘記了醫生如何說 ☐4 不知道	☐1 毋須覆診 ☐2 繼續覆診 ☐3 不知道 ☐4 其他，請註明： 4-1_____	☐1 免費 ☐2 醫管局標準收費 ☐3 請填寫多少元： 3-1_____

CHC5. 請問(*幼兒姓名*)在那一間醫院出生呢？

☐ 1 CHC5-1 _____醫院　　☐ 2 其他:CHC5-2_____

只適用非吸煙的家長

乙. 你的健康情況

MA 1. 最近三個月，你認爲你自己的健康情況是怎樣？

☐ 1 很好　☐ 2 好　☐ 3 差　☐ 4 很差

MA 2. 根據你過往所提供的資料，你的*丈夫／太太 有吸煙的習慣。*他／她現在是否仍然吸煙呢？

☐ 1 是, 每日吸煙 MA2-1_____枝　☐ 2 不是，*他／她 已戒煙 MA2-2_____*年／月／日

☐ 3 間中吸，不是每日吸，每星期吸_____枝香煙(即每日吸 MA2-3_____枝)

(*如已知道此資料，毋須詢問此題，但必須紀錄*)

MA 3. 請問你和(*幼兒*)的關係是？

☐ 1 母親　☐ 2 父親

問卷已經完成,非常多謝你的合作。我們非常關注你和你家人的健康，現在我可提供一個免費的戒煙服務給你丈夫／太太，

MA 4. 我現在可否跟*他／她談談一些關于吸煙和戒煙的問題？

☐ 1 可以　(*開始第二部份訪問*)

☐ 2 *他／她 暫時不便接受訪問。　請問甚麼時間方便與*他／她 談談呢？(*請將預約時間記錄在最前*頁)

☐ 3 不可以，請說明： MA4-3

_____

香 港 大 學
THE UNIVERSITY OF HONG KONG

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

Smoking Cessation Intervention BASELINE QUESTIONNAIRE

Name : _____ *Mother 1 /Father 2

Child's Name: _____
B C No.: _____
Counselor: _____

SCCP No.: _____

Date: _____
Started time: _____
Ended time: _____
Total time: _____mins

A. FOR *NON-SMOKING PARENT*

INTRODUCTION (* Delete if appropriate)

CONSENT FORM

M1. Would you please answer the following questions?
- ☐1 Yes (**move on to CHA1**)
- ☐2 No

M2. Would you mind to tell me your reason? (*do not read out the choices*)
- ☐2.1 No time
- ☐2.2 Not interested in quitting
- ☐2.3 Tried before and do not want to try again
- ☐2.4 I'm afraid of the side-effects from quitting
- ☐2.5 Others, please specify: _____

(*Please follows the procedures to handle refusal case*)

I. Here below are some questions about your child's health

CHA.

CHA1. What do you think of your child's health of the recent three months?
☐ 1 Very good ☐ 2 Good ☐ 3 Bad ☐ 4 Very bad

CHB. The following ask if your child usually has any respiratory symptom in the past 6 months.
(The term "usually" used below is defined as 3 or more times per week)

		No 1	**Yes** 2
THROAT			
CHB1.	Does your child usually have a **sore or itchy throat** or any other throat discomfort?	☐	☐
COUGH			
CHB2a.	Does your child usually **cough** upon waking in the morning?	☐	☐
CHB2b.	Does your child usually **cough** either during the day or at night?	☐	☐
	(If yes at CHB2a or CHB2b, then answer CHB2c)		
CHB2c.	Does your child usually **cough** like this on most days for as much as three months per year?	☐	☐
PHLEGM			
CHB3a.	Does your child usually bring up any **phlegm** from chest upon waking in the morning?	☐	☐
CHB3b.	Does your child usually bring up any **phlegm** from chest during the day or at night?	☐	☐
	(If yes at CHB3a or CHB3b, then answer CHB3c)		
CHB3c.	Does your child bring up **phlegm** like this on most days for as much as three months each year?	☐	☐
WHEEEZING			
CHB4a.	Does your child's chest ever give out wheezing or whistling sound?	☐	☐
	(if no, move on to CHB5)		
CHB4b.	Does your child get this on most of days or at nights?	☐	☐
CHB4c.	Has your child ever had attacks of shortness of breath with wheezing?	☐	☐
NASAL SYMPTOMS			
CHB5.	Does your child usually have a blocked or running nose?	☐	☐

CHC. The following describe the frequency and reasons for medical consultations in the last six months of your child.

CHC1. How many times has your child consulted a doctor (Western or Chinese style)(including accident and emergency department but not in-patient department)?

☐ 1 none (**go to CHC4**)

☐ 2 yes, CHC1-2 ___________ times (*please ask the details of each consultation*)

CHC2. Details of each consultation:

No.	Reason(s) for consultation (4 all that apply)	Types of consultation attended	What was the diagnosis made by the physician？ (4 all that apply)	What was the intervention advised by physician (4 all that apply)	Expenses HK $
( )	☐ Cough / running nose / respiratory tract infection ☐ vomiting / diarrhoea / gastro-intestinal discomfort ☐ Fever ☐ accident / injury ☐ others, please specify ______________________ 5-1	☐ Private doctor ☐ GOPD (HA) ☐ AED (HA) ☐ SOPD (HA) ☐ MCH (HA) ☐ Chinese physician ☐ Physician in mainland China ☐ Other:________8-1	☐ Diagnosis as : 1-1 _________________ ☐ Did not mention by doctor ☐ Forget what did doctor say ☐ Not known	☐ Refer to AED ☐ Admitted to hospital ☐ Refer to SOPD ☐ Medications: injection, Oral drugs, local Application ☐ No treatment given ☐ Follow up	☐ Free ☐ 1 - 50 ☐ 51-100 ☐ 101-200 ☐ 201-300 ☐ 301-400 ☐ > 400 ☐ Other : 7-1 __________
( )	☐ Cough / running nose / respiratory tract infection ☐ vomiting / diarrhoea / gastro-intestinal discomfort ☐ Fever ☐ accident / injury ☐ others, please specify ______________________ 5-1	☐ Private doctor ☐ GOPD (HA) ☐ AED (HA) ☐ SOPD (HA) ☐ MCH (HA) ☐ Chinese physician ☐ Physician in mainland China ☐ Other:________8-1	☐ Diagnosis as : 1-1 _________________ ☐ Did not mention by doctor ☐ Forget what did doctor say ☐ Not known	☐ Refer to AED ☐ Admitted to hospital ☐ Refer to SOPD ☐ Medications: injection, Oral drugs, local Application ☐ No treatment given ☐ Follow up	☐ Free ☐ 1 - 50 ☐ 51-100 ☐ 101-200 ☐ 201-300 ☐ 301-400 ☐ > 400 ☐ Other : 7-1 __________
( )	☐ Cough / running nose / respiratory tract infection ☐ vomiting / diarrhoea / gastro-intestinal discomfort ☐ Fever ☐ accident / injury ☐ others, please specify ______________________ 5-1	☐ Private doctor ☐ GOPD (HA) ☐ AED (HA) ☐ SOPD (HA) ☐ MCH (HA) ☐ Chinese physician ☐ Physician in mainland China ☐ Other:_______8-1	☐ Diagnosis as : 1-1 _________________ ☐ Did not mention by doctor ☐ Forget what did doctor say ☐ Not known	☐ Refer to AED ☐ Admitted to hospital ☐ Refer to SOPD ☐ Medications: injection, Oral drugs, local Application ☐ No treatment given ☐ Follow up	☐ Free ☐ 1 - 50 ☐ 51-100 ☐ 101-200 ☐ 201-300 ☐ 301-400 ☐ > 400 ☐ Other : 7-1 __________
( )	☐ Cough / running nose / respiratory tract infection ☐ vomiting / diarrhoea / gastro-intestinal discomfort ☐ Fever ☐ accident / injury ☐ others, please specify ______________________ 5-1	☐ Private doctor ☐ GOPD (HA) ☐ AED (HA) ☐ SOPD (HA) ☐ MCH (HA) ☐ Chinese physician ☐ Physician in mainland China ☐ Other:_______8-1	☐ Diagnosis as : 1-1 _________________ ☐ Did not mention by doctor ☐ Forget what did doctor say ☐ Not known	☐ Refer to AED ☐ Admitted to hospital ☐ Refer to SOPD ☐ Medications: injection, Oral drugs, local Application ☐ No treatment given ☐ Follow up	☐ Free ☐ 1 – 50 ☐ 51-100 ☐ 101-200 ☐ 201-300 ☐ 301-400 ☐ > 400 ☐ Other : 7-1 __________
( )	☐ Cough / running nose / respiratory tract infection ☐ vomiting / diarrhoea / gastro-intestinal discomfort ☐ Fever ☐ accident / injury ☐ others, please specify ______________________ 5-1	☐ Private doctor ☐ GOPD (HA) ☐ AED (HA) ☐ SOPD (HA) ☐ MCH (HA) ☐ Chinese physician ☐ Physician in mainland China ☐ Other:_______8-1	☐ Diagnosis as : 1-1 _________________ ☐ Did not mention by doctor ☐ Forget what did doctor say ☐ Not known	☐ Refer to AED ☐ Admitted to hospital ☐ Refer to SOPD ☐ Medications: injection, Oral drugs, local Application ☐ No treatment given ☐ Follow up	☐ Free ☐ 1 – 50 ☐ 51-100 ☐ 101-200 ☐ 201-300 ☐ 301-400 ☐ > 400 ☐ Other : 7-1 __________

Denote : GOPD (HA) = General Out Patient Department (Hospital Authority) ; AED (HA) = Accidental and Emergency Department (Hospital Authority) ; SOPD (HA)=Special Out Patient Department (Hospital Authority) ; MCH (DH)= Maternal and Child Health Centre / Family Health services Department (Department of Health)

CHC3. How many times has your child admitted to a hospital?

☐ 1 none

☐ 2 yes, ___________ times (please ask the details of each consultation)

CHC4. Details of each admission:

Date of	Reason(s) for consultation (4 all that apply)	Types of hospital admitted	Diagnosis made by doctor (4 all that apply)	Intervention / advice(s) given by doctor	Expenses HK $
Admission (/ /) ⇓ Discharge (/ /)	1. Cough / running nose / respiratory tract infection 2. vomiting / diarrhoea / gastro-intestinal discomfort 3. Fever 4. accident / injury 5. others, please specify _____ 5-1	1. HA hospital 2. Private hospital 3. Hospital in mainland China 4. Other: 4-1 _____	1. Diagnosis as : 1-1 _____ 2. Did not mention by doctor 3. Forget what did doctor say 4. Not known	1. Follow up not required 2. Follow up required 3. Not known 4. Other: 4-1 _____	1. Free 2. Standard HA charges 3. Other: 3-1 _____
Admission (/ /) ⇓ Discharge (/ /)	1. Cough / running nose / respiratory tract infection 2. vomiting / diarrhoea / gastro-intestinal discomfort 3. Fever 4. accident / injury 5. others, please specify _____ 5-1	1. HA hospital 2. Private hospital 3. Hospital in mainland China 4. Other: 4-1 _____	1. Diagnosis as : 1-1 _____ 2. Did not mention by doctor 3. Forget what did doctor say 4. Not known	1. Follow up not required 2. Follow up required 3. Not known 4. Other: 4-1 _____	1. Free 2. Standard HA charges 3. Other : 3-1 _____

CHC5. What is the name of hospital in which your child was born?

☐1 CHC5-1_____ hospital ☐2 Others, please specify CHC5-2 _____

For non-smoking parent only

II. Information on parent (usually non-smoking mother)

Part A. *** Delete if appropriate**

MA1. What do you think of your health of the recent three months?

☐ 1 Very good ☐ 2 Good ☐ 3 Bad ☐ 4 Very bad

MA2. As we understand from our previous record that *your husband /your wife is a smoker. Is he/she still smoking?

☐1 Yes, *he/she is a current smoker. ™ How many cigarettes does he/she smoke per day?
*He/she smokes MA2-1 _____cpd.

☐2 No , *he/she quitted for MA2-2_____*y/m/d

☐3 Yes, *he/she smokes occasionally ™ How many cigarettes does he/she smoke per day/week?
He/she smokes MA2-3_____cig. per *day/week.

MA3. What's the relationship of the respondent to the child?
(Please do not ask this question if you have already known the answer)

☐1 Mother ☐2 Father

Thank you very much for completing the above information, and we would provide free smoking cessation program if your wife/husband agree to participate.

MA4. Is he/she available to talk with me now.

☐1 Yes (go to questionnaire B)

☐2 No, he is not available at the moment™ would you please tell me when is the best time that I could call him? (*put the information into the front page*)

☐3 No, please specify MA4-3_____

End

香 港 大 學
THE UNIVERSITY OF HONG KONG

幼兒家長戒煙計劃

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

C2Date : _____

姓 名: _____ *母 1／父 2 幼兒姓名： _____ **C2Started time : _____**

SCCP No. : _____ **B C No. _____** **C2Ended time : _____**

C2Counselor: _____ **C2Total time : _____**

一個月跟進問卷

完成對授訪者的簡介 **(*請刪去不適用者)**

你好，我係港大社會醫學系/理工大學的護士(全名)_____。

相信你記得* 我 /劉 /潘護士在◆_____星期前 **(***從上次聯絡起計算的整週數***)** 同你傾談戒煙資料。我依家想了解在過去一個月你的健康及戒煙概況。需時約 **10** 分鐘。參與與否純屬自願，但你的參與和合作對你及你的家人的健康，以至幫助我們了解有效的戒煙方法均非常重要。

A. 以下問題是關於你的健康情況

C2A. 最近一個月，你認爲你自己的健康情況是？
□ 1 很好　□ 2 好　□ 3 差　□ 4 很差

B. 吸煙資料

C2B1. 你對現時的吸煙/戒煙情況是否滿意呢？
□1 非常不滿意　□2 不滿意　□3 滿意　□4 非常滿意

C2B2. 請問你在過去 24 小時內，有沒有吸煙呢（包括吸過一次者）？
□1 無□你停止吸煙幾耐呢？C2B2.1_____ *日/星期(□action□*請轉第* **C2C4** *題*)
□2 有

C2B3. 在過去一**個月**內，你平均每日吸煙多少枝？
□1 間中吸，不是每日吸，每星期吸_____枝香煙（即每日吸 C2B3.1_____枝）
□2 每日吸煙 C2B3.2_____枝

C2B4. 同過去一**個月**比較，你平均每日吸煙量是增加、減少或係差不多呢？
□1 增加了□一個月前，你平均每日吸煙量係幾多枝香煙？每日吸 C2B4.1_____枝
□2 差不多
□3 減少了□一個月前，你平均每日吸煙量係幾多枝香煙？每日吸 C2B4.3_____枝

C. 戒煙資料

C2C1. 在過去一**個月**內，你有沒有停止吸煙超過 24 小時呢？
□1 沒有→請問是什麼原因呢？（*請轉第* **C2C8** *題*）
□ 2.1 沒時間　□ 2.3 曾戒煙失敗，不想再試　□ 2.5 其他，請說明_____
□ 2.2 沒有興趣戒煙　□ 2.4 擔心戒煙時的不適
□2 有在過去一**個月**，你戒過幾多次煙（以超過 24 小時計？）C2C1.2_____次

C2C2. 今次戒煙中，你最耐維持不吸煙幾多日呢？_____日

C2C3. 甚麼原因令你最後再吸煙呢？（*毋須讀出，可選多項*）
□1 身邊有其他吸煙者　□5 感到時間短促
□2 感到有壓力（包括工作、社交、財政等）　□6 與人爭拗時
□3 感到傷心或焦慮時　□7 同時飲酒或喝咖啡時
□4 面對煙癮發作時　□8 其他，請說明_____

C2C4. 你覺得今次戒煙有沒有困難呢？
□1 沒有困難　□2 少許困難　□3 困難　□4 非常困難

C2C5. 在今次戒煙經驗中，有沒有經歷以下的一些症狀？如有，請說出症狀最嚴重時對你的影響。

		完全沒有 1	少許 2	嚴重 3	非常嚴重 4
C2C5.1	渴望吸煙	□	□	□	□
C2C5.2	煩躁	□	□	□	□
C2C5.3	焦慮	□	□	□	□
C2C5.4	難於集中精神	□	□	□	□
C2C5.5	身體不適	□	□	□	□
C2C5.6	難於入睡	□	□	□	□
C2C5.7	其他，請說明 _____				

C2C6. 面對以上的困難，你認爲甚麼是最有效的適應方法呢？(*先稍停，不讀出選擇，如果受訪者沒印象便請讀出答案，只選一項*)

□1 與人傾談（包括自言自語）
□2 轉移思路，例如：看書、看雜誌
□3 鬆弛方法，例如深呼吸
□4 集中注意力戒煙
□5 移走煙灰缸、煙仔及其他吸煙用具
□6 做一些感興趣的事情，例如：運動，包括踏單車、緩步跑、散步
□7 找一些工作以代替吸煙
□8 吃一些小食或無糖香口膠
□9 從新安排每日工作時間表，容許較少的工作量
□10 其他，請說明 _____

C2C7. 除了我們所提供的戒煙服務外，請問你有沒有用過其他的方法戒煙呢？**(*毋須讀出，可選多項*)**
(***請說明所使用方法的詳情***)

□1 接受醫護人員的幫助_____
□2 參加戒煙互助小組_____
□3 無特別方法
□4 用自助戒煙小冊 _____
□5 使用尼古丁補充劑：如戒煙貼、香口膠或吸劑_____
□6 其他，請說明 _____

C2C8. 在過去一**個月**內，你的吸煙習慣有沒有任何改變 (*除>>>外，請讀出每一項*)

□1 有，已作出以下改變：(***可選多項***)
1.1 □>>>完全沒有吸過任何香煙□**(***請轉第*□**C2 stage: action/maintenance)**
1.2 □>>>已經減少吸煙的數量
1.3 □已經沒有在家中吸煙
1.4 □已經沒有在子女周圍吸煙
1.5 □跟其他人談及吸煙的害處□ 請說明與他們的關係: *1 配偶、2 親戚、3 朋友、4 同事、5 其他，請說明：_____
1.6 □沒有跟吸煙的朋友一齊社交
1.7 □不容許其他人在我身旁吸煙
□2 吸煙習慣沒有任何改變
□3 其他，請說明：_____

D. 再次戒煙的意慾

C2D1 你現在有沒有想戒煙？
□1 沒有（*請轉第* **C2E1** *題*）□ *Pre-contemplation* □2 有

C2D2 你有沒有認真地計劃在未來一個月內戒煙？
□1 沒有 □2 有（*請轉答第* **C2E1** *題*）
□*Preparation if did attempt quit for > 24 hours within last year, otherwise contemplation*

C2D3 你有沒有認真地計劃在未來六個月內戒煙？
□1 沒有□ *pre-contemplation* □2 有□ *contemplation*

□ **C2 stage** : * PC1 / C2 / P3 / A4 / M5

E. 其他及支援網絡

C2E1. 你的體重有沒有因今次戒煙或減少吸煙而改變？
□1 有，重了_____*千克／磅
□2 有，輕了 _____*千克／磅
□3 沒有
□4 不知道

C2E2. 你對你現時的體重滿意嗎？

☐1 非常不滿意　☐2 不滿意　☐3 滿意　☐4 非常滿意

C2E3. 你會唔會因增重_____*千克／磅 (*以他在上次的體重的百份七計*)，而感到擔心呢？

☐1 唔會　☐2 會

F. 意見

C2F1. 你對我們這個戒煙計劃滿意嗎？

☐1 非常不滿意　☐2 不滿意　☐3 滿意　☐4 非常滿意

C2F2. 你有沒有收到我們的**自助戒煙資料**呢？

☐1 沒有 (*請轉第* **C2F5** *題*)　☐2 有

C2F3. 你有沒有閱讀過這些**自助戒煙資料**呢？

☐1 沒有(*請轉第* **C2F5** *題*)　☐2 有

C2F4. 你覺得這些**戒煙資料**對你有幫助嗎？

☐1 完全沒有
☐2 少許幫助
☐3 有幫助
☐4 有很大幫助

C2F5. 你有沒有用我們所提供的**戒煙輔導熱線**服務呢？

☐1 沒有(*請轉第* **C2F7** *題*)　☐2 有

C2F6. 你對我們的**戒煙輔導熱線**服務滿意嗎？

☐1 非常不滿意　☐2 不滿意　☐3 滿意　☐4 非常滿意

C2F7. 你對我們所提供的**電話形式**的戒煙**服務**滿意嗎？

☐1 非常不滿意　☐2 不滿意　☐3 滿意　☐4 非常滿意

C2F8. 你對我們的戒煙服務有沒有其他意見或評語？

☐1 沒有　☐2 有，請說明：_____

問卷完畢，多謝你的合作

我已對你在過去一個月的健康及戒煙情況有些了解，很多謝你寶貴的資料，並充心希望你戒煙成功、你及家人健康愉快。我將會在____月(以第一次聯絡起計三個月) 再跟你聯絡以便了解你的進度。期間如有戒煙或健康疑問，歡迎致電：9237　　找 麥艷華護士。 再見。

香 港 大 學
THE UNIVERSITY OF HONG KONG

Smoking Cessation Intervention

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

FOLLOW UP QUESTIONNAIRE 1 month

C2 **Date:** _____

Name: _____ *mother 1 / father2

Child's name: _____

B C No.: _____

SCCP No.: _____

C2 **Counselor:** _____

Started time: _____

Ended time: _____

Total time used: _____

FOR INTERVENTION GROUP ONLY

(please refer to the number of complete week since the initial contact)

Introduction **(*Delete if appropriate)**

Hello, I'm Mak, the nurse of the department of community medicine from the University of Hong Kong. You may recall that Ms.Lau/Ms Poon/ I, interviewed you about _____weeks ago. Now, I'm calling to seek your co-operation to talk about your progress of quitting smoking. It takes about 10 minutes. Once again, participation is voluntary. However, your participation and co-operation are extremely important to both health of you and your family.

♦

CA.♦HEALTH STATUS

C2A. How about your health in the last month?
☐1 Very good ☐2 Good ☐3 Bad ☐4 Very bad

CB. SMOKING STATUS

C2B1. Do you satisfy with your smoking /quitting status ?
☐1 Very dissatifactory ☐2 Dis-satisfactory ☐3 Satisfactory ☐4 Very satisfactory

C2B2. Have you smoked any cigarette for the last 24 hours?
☐1 No How long have you stopped ? C2B2.1 _____* days/week(s) (⇒action⇒move on **to C2C4**)
☐2 Yes

C2B3. In the last ♦_____ weeks, on average how many cigarettes did you smoke per day?
☐1 Occasionally smoke, but do not smoke everyday. C2B3.1.1_____cig/day
☐2 C2B3.2._____cigarette(s) per day

C2B4. Have you cutting down the daily smoking rates during the last ♦_____ weeks?
☐1
☐2
☐3

CC. QUIT ATTEMPT

C2C1. Have you stopped smoking for at least 24 hours since last ♦_____ weeks?
☐1 No (**move on to C2C8**) ☐2 Yes

C2C2. How many times you have quitted smoking for at least 24 hours, since last ♦_____ weeks?
_____times

C2C3. In the last ♦_____ weeks, what was the longest period of not smoking?
_____*days/weeks/month

C2C4. For what reasons did you re-start smoking? (Mark all that apply)
☐1 Getting around other smokers
☐2 Stress (work, social and finance)
☐3 Feeling sad or frustrated

☐4 Uncontrolled craving
☐5 Being under time pressure
☐6 Getting into an argument
☐7 Drinking alcohol or caffeine
☐8 Others, please specify _____

C2C5. How hard was it for you to quit smoking or cut down on smoking this time?
☐1 Not difficult ☐2 Slightly difficult ☐3 Difficult ☐4 Very difficult

C2C6. During the first month (refer to the earliest period if the parent did not start for a month time, but do not the count the past 24 hours) after you have quitted smoking, this time, how severely have you experienced any of the following symptoms? Choose the answer below that best reflects the severity of each symptom, referring to the time your symptoms were most severe.

		Not at all 1	Mild 2	Severe 3	Very severe 4
C2C6	**1.**Craving for cigarettes	☐	☐	☐	☐
C2C6	**2.**Irritability	☐	☐	☐	☐
C2C6	**3.**Nervousness	☐	☐	☐	☐
C2C6	**4.**Difficulty concentrating	☐	☐	☐	☐
C2C6	**5.**Physical symptoms	☐	☐	☐	☐
C2C6	**6.**Difficulty sleeping	☐	☐	☐	☐
C2C6	**7.**Others, please specify: _____				

***C2*C7.** In the last 24 hours, how severely have you experienced any of the following symptoms when you have quitted smoking this time? Choose the answer below that best reflects the severity of each symptom, referring to the time your symptoms were most severe.

		Not at all 1	Mild 2	Severe 3	Very severe 4
C2C7	**1.**Craving for cigarettes	☐	☐	☐	☐
C2C7	**2.**Irritability	☐	☐	☐	☐
C2C7	**3.**Nervousness	☐	☐	☐	☐
C2C7	**4.**Problem on concentration	☐	☐	☐	☐
C2C7	**5.**Physical symptoms	☐	☐	☐	☐
C2C7	**6.**Insomnia	☐	☐	☐	☐
C2C7	**7.**Others, please specify: _____				

C2C8. How did you get through the above situation? (Mark only one)
☐1 Talk to someone / self talk
☐2 Think of some other things eg. Read book or magazines
☐3 Relaxation techniques e.g. deep breathing
☐4 Concentrate the efforts to tell yourself not to smoke
☐5 Remove cigarette / ashtray
☐6 Do things that enjoy me e.g. exercise: walking, jogging, bicycling
☐7 Get busy with a task e.g. work, doing other things with hands as a substitutes for smoking
☐8 Take up snacks/ sugarless gum.
☐9 Adjust schedule and expectations to allow for lower productivity
☐10 Others, please specify _____

C2C9. Have you tried other method(s) to help you quit smoking after talking with our counselor? (Mark all that applicable) **(please specify if any method used i.e. type, dose/frequency, duration)**
☐1 Ask help from health professionals, e.g. doctor, nurse _____
☐2 Joining a smoking cessation program _____
☐3 No special method used
☐4 Using self help smoking cessation material _____
☐5 Using Nicotine Replacement Therapy (gum/patch) _____
☐6 Others, please specify _____

C2C10. Do you happy about your current level of quitted?

☐1 Very unhappy ☐2 Unhappy ☐3 Happy ☐4 Very happy

C2C11. What are the changes that you have made on your smoking habit since our last call? (*situational question, read out every item*)

☐1 No, I did not make any changes of my smoking habit since the last call **(move on to C2D1)**

☐2 Yes, I have made the following changes: (Mark all that applicable)

2.1 ☐ Decreased in number of cigarette
2.2 ☐ Discussed the harmful effects of smoking with friends
2.3 ☐ Discussed the harmful effects of smoking with my spouse
2.4 ☐ Discussed the harmful effects of smoking with other family members
2.5 ☐ Did not go out with friends who are smokers
2.6 ☐ Did not allow others to smoke around me
2.7 ☐ Did not smoke any cigarettes at all (**move on to C2E1**)

☐3 Others, please specify:_____

C2D. DESIRE TO QUIT AGAIN

C2D1. Are you thinking of quitting smoking now?

☐1 No **(move on to C2F1)** ⇒ *pre-contemplation*
☐2 Yes

C2D2. Are you seriously planning to quit in the next one month?

☐1 No
☐2 Yes ⇒ *preparation if did attempt quit for >24 hours within the past year, otherwise contemplation* **(move on to C2E1)**

C2D3. Are you seriously planning to quit in the next 6 months?

☐1 No *pre-contemplation*
☐2 Yes ⇒ *contemplation*

C2 Stage : * PC1 / C 2/ P 3/ A4 / M5

C2E. OTHERS AND SUPPORTING SYSTEM

C2E1. Did you experience any change in your weight after quitted smoking, or cut down on smoking this time?

☐1 Yes, increased about _____kg
☐2 Yes, decreased about _____kg
☐3 No
☐4 I don't kenow

C2E2. How do you think your current body weight?

☐1 Very dis-satisfactory
☐2 Dis-satisfactory
☐3 Satisfactory
☐4 Very satisfactory

C2E3. Are you concerned about the possibility of gaining about _____lb/kg. (please refer to 7 % of the parent"s body weight on the baseline?

☐1 Yes
☐2 No

C2F. PROGRAM EVALUATION

C2F1. How would you rate the overall services of this smoking cessation program?
- ☐1 Very dis-satisfactory
- ☐2 Dis-satisfactory
- ☐3 Satisfactory
- ☐4 Very satisfactory

C2F2. Did you receive the **self-help materials** on quitting smoking, which was mailed to you?
- ☐1 No **(move on to C2F4)**
- ☐2 Yes

C2F3. Did you read the **self-help materials** on quitting smoking?
- ☐1 No **(move on to C2F5)**
- ☐2 Yes

C2F4. How would you rate the usefulness of the **reading materials** on quitting smoking?
- ☐1 No use at all
- ☐2 A little bit useful
- ☐3 Useful
- ☐4 Very useful

C2F5. Did you use our **counselors' hotline service** to receive suggestion / advice on quitting?
- ☐1 No **(move on to C2F7**)
- ☐2 Yes

C2F6. How would you rate the **hotline service** that we provided?
- ☐1 Very dis-satisfactory
- ☐2 Dis-satisfactory
- ☐3 Satisfactory
- ☐4 Very satisfactory

C2F7. How would you rate the **counseling service by telephone** provided to you for quitting smoking?
- ☐1 Very dis-satisfactory
- ☐2 Dis-satisfactory
- ☐3 Satisfactory
- ☐4 Very satisfactory

C2F8. Do you have any other suggestions or comments on the smoking cessation service?
- ☐1 No
- ☐2 Yes, please specify:_____

THE END

香 港 大 學
THE UNIVERSITY OF HONG KONG

幼兒家長戒煙計劃

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

C3**Date :** _____

姓 名: _____ *母 1／父 2 幼兒姓名： _____ **C3Started time :** _____

SCCP No. : _____ **B C No.** _____ **C3Ended time :** _____

C3Counselor: _____ **C3Total time :** _____

三個月跟進問卷

完成對授訪者的簡介 **(*請刪去不適用者)**

你好，我係港大社會醫學系/理工大學的護士(全名)_____。

相信你記得* 我 /劉 /潘護士約在兩個月前 同你傾談戒煙資料。我依家想了解在這段時間內，你的健康及戒煙概況。 需時約 **10** 分鐘。參與與否純屬自願，但你的參與和合作對你及你的家人的健康，以至幫助我們了解有效的戒煙方法均非常重要。

A. 以下問題是關於你的健康情況

C3A. 最近一個月，你認爲你自己的健康情況是？
□ 1 很好　□ 2 好　□ 3 差　□ 4 很差

B. 吸煙資料

C3B1. 你對現時的吸煙/戒煙情況是否滿意呢？
□1 非常不滿意　□2 不滿意　□3 滿意　□4 非常滿意

C3B2. 請問你在過去 24 小時內，有沒有吸煙呢（包括吸過一次者）？
□1 無□你停止吸煙幾耐呢？C3B2.1_____ *日/星期(□action□*請轉第* **C3C4** *題*)
□2 有

C3B3. 在過去**兩個月**內，你平均每日吸煙多少枝？
□1 間中吸，不是每日吸，每星期吸_____枝香煙（即每日吸 C3B3.1_____枝）
□2 每日吸煙 C3B3.2_____枝

C3B4. 同過去**兩個月**比較，你平均每日吸煙量是增加、減少或係差不多呢？
□1 增加了□**兩**個月前，你平均每日吸煙量係幾多枝香煙？每日吸 C3B4.1_____枝
□2 差不多
□3 減少了□**兩**個月前，你平均每日吸煙量係幾多枝香煙？每日吸 C3B4.3_____枝

C. 戒煙資料

C3C1. 在過去**兩個月**內，你有沒有停止吸煙超過 24 小時呢？
□1 沒有→請問是什麼原因呢？（*請轉第* **C3C8** *題*）
□ 2.1 沒時間　□ 2.3 曾戒煙失敗，不想再試　□ 2.5 其他，請說明_____
□ 2.2 沒有興趣戒煙　□ 2.4 擔心戒煙時的不適
□2 有在過去**兩個月**，你戒過幾多次煙（以超過 24 小時計？）C3C1.2_____次

C3C2 今次戒煙中，你最耐維持不吸煙幾多日呢？_____日

C3C3. 甚麼原因令你最後再吸煙呢？（*毋須讀出，可選多項*）
□1 身邊有其他吸煙者　□5 感到時間短促
□2 感到有壓力（包括工作、社交、財政等）　□6 與人爭拗時
□3 感到傷心或焦慮時　□7 同時飲酒或喝咖啡時
□4 面對煙癮發作時　□8 其他，請說明_____

C3C4. 你覺得今次戒煙有沒有困難呢？
□1 沒有困難　□2 少許困難　□3 困難　□4 非常困難

C3C5. 在今次戒煙經驗中，有沒有經歷以下的一些症狀？如有，請說出症狀最嚴重時對你的影響。

		完全沒有 1	少許 2	嚴重 3	非常嚴重 4
C3C5.1	渴望吸煙	□	□	□	□
C3C5.2	煩躁	□	□	□	□
C3C5.3	焦慮	□	□	□	□
C3C5.4	難於集中精神	□	□	□	□
C3C5.5	身體不適	□	□	□	□
C3C5.6	難於入睡	□	□	□	□
C3C5.7	其他，請說明 _____				

C3C6. 面對以上的困難，你認爲甚麼是最有效的適應方法呢？(*先稍停，不讀出選擇，如果受訪者沒印象便請讀出答案，只選一項*)

□1 與人傾談（包括自言自語）
□2 轉移思路，例如：看書、看雜誌
□3 鬆弛方法，例如深呼吸
□4 集中注意力戒煙
□5 移走煙灰缸、煙仔及其他吸煙用具
□6 做一些感興趣的事情，例如：運動，包括踏單車、緩步跑、散步
□7 找一些工作以代替吸煙
□8 吃一些小食或無糖香口膠
□9 從新安排每日工作時間表，容許較少的工作量
□10 其他，請說明 _____

C3C7. 除了我們所提供的戒煙服務外，請問你有沒有用過其他的方法戒煙呢？**(*毋須讀出，可選多項*)**
(***請說明所使用方法的詳情***)

□1 接受醫護人員的幫助_____
□2 參加戒煙互助小組_____
□3 無特別方法
□4 用自助戒煙小冊 _____
□5 使用尼古丁補充劑：如戒煙貼、香口膠或吸劑_____
□6 其他，請說明 _____

C3C8. 在過去**兩個月**內，你的吸煙習慣有沒有任何改變 (*除>>>外，請讀出每一項*)

□1 有，已作出以下改變：(***可選多項***)
1.1 □>>>完全沒有吸過任何香煙□**(***請轉第*□ **C3 stage: action/maintenance)**
1.2 □>>>已經減少吸煙的數量
1.3 □已經沒有在家中吸煙
1.4 □已經沒有在子女周圍吸煙
1.5 □跟其他人談及吸煙的害處□ 請說明與他們的關係: *1 配偶、2 親戚、3 朋友、4 同事、5 其他，請說明：_____
1.6 □沒有跟吸煙的朋友一齊社交
1.7 □不容許其他人在我身旁吸煙
□2 吸煙習慣沒有任何改變
□3 其他，請說明：_____

D. 再次戒煙的意慾

C3D1 你現在有沒有想戒煙？
□1 沒有（*請轉第* **C3E1** *題*）□ *Pre-contemplation* □2 有

C3D2 你有沒有認真地計劃在未來一個月內戒煙？
□1 沒有 □2 有（*請轉答第* **C3E1** *題*）
□*Preparation if did attempt quit for > 24 hours within last year, otherwise contemplation*

C3D3 你有沒有認真地計劃在未來六個月內戒煙？
□1 沒有□ *pre-contemplation* □2 有□ *contemplation*

□ **C3 stage** : * PC1 / C2 / P3 / A4 / M5

E. 其他及支援網絡

C3E1. 你的體重有沒有因今次戒煙或減少吸煙而改變？
□1 有，重了_____*千克／磅
□2 有，輕了 _____*千克／磅
□3 沒有
□4 不知道

C3E2. 你對你現時的體重滿意嗎？
☐1 非常不滿意　☐2 不滿意　☐3 滿意　☐4 非常滿意

C3E3. 你會唔會因增重_____*千克／磅 (*以他在上次的體重的百份七計*)，而感到擔心呢？
☐1 唔會　☐2 會

F. 意見

C3F1. 你對我們這個戒煙計劃滿意嗎？
☐1 非常不滿意　☐2 不滿意　☐3 滿意　☐4 非常滿意

C3F2. 你有沒有收到我們的**自助戒煙資料**呢？
☐1 沒有 (*請轉第* **C3F5** *題*)　☐2 有

C3F3. 你有沒有閱讀過這些**自助戒煙資料**呢？
☐1 沒有(*請轉第* **C3F5** *題*)　☐2 有

C3F4. 你覺得這些**戒煙資料**對你有幫助嗎？
☐1 完全沒有
☐2 少許幫助
☐3 有幫助
☐4 有很大幫助

C3F5. 你有沒有用我們所提供的**戒煙輔導熱線**服務呢？
☐1 沒有(*請轉第* **C3F7** *題*)　☐2 有

C3F6. 你對我們的**戒煙輔導熱線**服務滿意嗎？
☐1 非常不滿意　☐2 不滿意　☐3 滿意　☐4 非常滿意

C3F7. 你對我們所提供的**電話形式**的戒煙**服務**滿意嗎？
☐1 非常不滿意　☐2 不滿意　☐3 滿意　☐4 非常滿意

C3F8. 你對我們的戒煙服務有沒有其他意見或評語？
☐1 沒有　☐2 有，請說明：_____

問卷完畢，多謝你的合作

我已對你在過去兩個月的健康及戒煙情況有些了解，很多謝你寶貴的資料，並充心希望你戒煙成功、你及家人健康愉快。我將會在____月(*以第一次聯絡起計六個月*) 再跟你聯絡以便了解你的進度。期間如有戒煙或健康疑問，歡迎致電：9237　　找 麥艷華護士。 再見。

香 港 大 學
THE UNIVERSITY OF HONG KONG

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

Smoking Cessation Intervention
3 month FOLLOW UP QUESTIONNAIRE

Name : _____ *mother 1 /father2
SCCP No.: _____
Child's name: _____
B C No.: _____
C3 Counselor: _____
***C3* Date:**
Started time: _____
Ended time: _____
Total time used: _____

FOR INTERVENTION GROUP ONLY

Introduction (***Delete if appropriate)**

Hello, I'm Mak, the nurse of the department of community medicine from the University of Hong Kong. You may recall that Ms.Lau/Ms Poon/ I, interviewed you about **3 months ago**. Now, I'm calling to seek your co-operation to talk about your progress of quitting smoking. It takes about 10 minutes. Once again, participation is voluntary. However, your participation and co-operation are extremely important to both health of you and your family.

***C3*A.** How do you think your health in the last month?
☐1 Very good ☐2 Good ☐3 Bad ☐4 Very bad

B. SMOKING STATUS

***C3*B1.** Did you satisfy with your smoking/quitting status?
☐1 Very dis-satisfy ☐2 Dis-satisfy ☐3 Satisfy ☐4 Very satisfy

***C3*B2.** Did you smoke any cigarette for the last 24 hours?
☐1 No How long have you stopped? C3B2.1_____ *days/weeks. (⇒action⇒ **move on to C3C4**)
☐2 Yes

***C3*B3.** In the past 3 months, on average how many cigarettes did you smoke per day?
☐1 Occasionally smoke, but do not smoke everyday. C3B3.1_____cig/day
☐2 C3B3.2_____cigarette(s) per day

***C3*B4.** Compared to the past 3 months, do you smoke more, less or about the same number of cigarettes?
☐1 Smoked more, before the last ♦_____ weeks, I smoked C3B4.1_____ cigarettes per day.
☐2 About the same
☐3 Smoked less, before the last ♦_____weeks, I smoked C3B4.3_____ cigarettes per day.

C. QUIT ATTEMPT

***C3*C1.** Have you stopped smoking for at least 24 hours since the past 3 months?
☐1 No, ⇒What is the reason(s) for not starting to quit smoking? **(move on to C3C10 after mark the answer)**
☐1.1 No time
☐1.2 Not interested in quitting
☐1.3 Tried before and do not want to try again
☐1.4 I'm afraid of the side-effects from quitting
☐1.5 Others, please specify: _____
☐2 Yes, ⇒How many times you have quitted smoking for at least 24 hours, since the past 3 months? C3C1.2_____times

***C3*C2.** In the past 6 months, what was the longest period of not smoking?
_____*days/weeks/month

***C3*C3.** For what reasons did you re-start smoking? (4all that applicable)
☐1 Getting around other smokers
☐2 Stress (work, social and finance)
☐3 Feeling sad or frustrated
☐4 Uncontrolled craving
☐5 Being under time pressure
☐6 Getting into an argument
☐7 Drinking alcohol or caffeine
☐8 Others, please specify _____

***C3*C4.** How hard was it for you to quit smoking or cut down on smoking this time?
☐1 Not difficult ☐2 Slightly difficult ☐3 Difficult ☐4 Very difficult

***C3*C5.** During the first month (refer to the earliest period if the parent did not start for a month time, but do not the count the past 24 hours) after you have quitted smoking, this time, how severely have you experienced any of the following symptoms? Choose the answer below that best reflects the severity of each symptom, referring to the time your symptoms were most severe.

		Not at all 1	Mild 2	Severe 3	Very severe 4
*C3*C5.1	Craving for cigarettes	☐	☐	☐	☐
*C3*C5.2	Irritability	☐	☐	☐	☐
*C3*C5.3	Nervousness	☐	☐	☐	☐
*C3*C5.4	Difficulty in concentrating	☐	☐	☐	☐
*C3*C5.5	Physical symptoms	☐	☐	☐	☐
*C3*C5.6	Difficulty in sleeping	☐	☐	☐	☐
*C3*C5.7	Others, please specify: _____				

***C3*C6.** How did you get through the above situation? (Mark only one)

☐1 Talk to someone / self talk
☐2 Think of some other things e.g. Read book or magazines
☐3 Relaxation techniques e.g. deep breathing
☐4 Concentrate the efforts to tell yourself not to smoke
☐5 Remove cigarette / ashtray
☐6 Do things that I enjoy e.g. exercise: walking, jogging, bicycling
☐7 Get busy with a task e.g. work, doing other things with hands as a substitutes for smoking
☐8 Take up snacks/ sugarless gum.
☐9 Adjust schedule and expectations to allow for lower productivity
☐10 Others, please specify _____

***C3*C7.** Have you tried other method(s) to help you quit smoking after talking with our counselor? (Mark all that applicable) **(please specify if any method used i.e. type, dose/frequency, duration)**

☐1 Ask help from health professionals, e.g. doctor, nurse _____
☐2 Joining a smoking cessation program _____
☐3 No special method used
☐4 Using self help smoking cessation material _____
☐5 Using Nicotine Replacement Therapy (gum/patch) _____
☐6 Others, please specify _____

***C3*C11.** What are the changes that you have made on your smoking habit since our last call? (*situational question, read out every item* except those marked ">>"and 4all that applicable)

☐1 Yes, I have made the following changes:
- 1.1 ☐>> did not smoke any cigarette at all **(move on to C3D1)**
- 1.2 ☐>> decreased in number of cigarette
- 1.3 ☐ did not smoke at home
- 1.4 ☐ did not smoke around children
- 1.5 ☐Discussed the harmful effects of smoking with others
  * 1. spouse/ 2. relatives/ 3.friends/ 4.colleagues/ 5. others : please specify
- 1.6 ☐ Did not go out with friends who are smokers
- 1.7 ☐ Did not allow others to smoke around me

☐2 >>No, I did not make any changes of my smoking habit since the past 3 months
☐3 Others, please specify:_____

DESIRE TO QUIT AGAIN

***C3*D1.** Are you thinking of quitting smoking now?

☐1 No **(move on to C3E1)** ⇒ *pre-contemplation* ☐2 Yes

***C3*D2.** Are you seriously planning to quit in the next one month?

☐1 No
☐2 Yes ⇒ *preparation if did attempt quit for >24 hours within the past year, otherwise contemplation* **(move on to C3E1)**

***C3*D3.** Are you seriously planning to quit in the next 6 months?

☐1 No ⇒*pre-contemplation* ☐2 Yes ⇒ *contemplation*

⇒ C3 Stage : * PC1 / C 2/ P 3/ A4 / M5

OTHERS AND SUPPORTING SYSTEM

***C3*E1.** Did you experience any change in your weight after quitted smoking, or cut down on smoking this time?

☐1 Yes, increased about _____kg

☐2 Yes, decreased about _____kg

☐3 No

☐4 Unknown

***C3*E2.** How do you think your current body weight?

☐1 Very dis-satisfactory ☐2 Dis-satisfactory ☐3 Satisfactory ☐4 Very satisfactory

***C3*E3.** Are you concerned about the possibility of gaining about _____lb/kg. (Please refers to 7 % of the parent's body weight on the baseline?

☐1 Yes ☐2 No

C3F. PROGRAM EVALUATION

***C3*F1.** How would you rate the overall services of this smoking cessation program?

☐1 Very dis-satisfactory ☐2 Dis-satisfactory ☐3 Satisfactory ☐4 Very satisfactory

***C3*F2.** Did you receive the **self-help materials** on quitting smoking, which was mailed to you?

☐1 No **(move on to C3F4)** ☐2 Yes

***C3*F3.** Did you read the **self-help materials** on quitting smoking?

☐1 No **(move on to C3F5)** ☐2 Yes

***C3*F4.** How would you rate the usefulness of the **reading materials** on quitting smoking?

☐1 No use at all ☐2 A little bit useful ☐3 Useful ☐4 Very useful

***C3*F5.** Did you use our **counselors' hotline service** to receive suggestion / advice on quitting?

☐1 No **(move on to C3F7)** ☐2 Yes

***C3*F6.** How would you rate the **hotline service** that we provided?

☐1 Very dis-satisfactory ☐2 Dis-satisfactory ☐3 Satisfactory ☐4 Very satisfactory

***C3*F7.** How would you rate the **counseling service** provided to you for quitting smoking?

☐1 Very dis-satisfactory ☐2 Dis-satisfactory ☐3 Satisfactory ☐4 Very satisfactory

***C3*F8.** Do you have any other suggestions or comments on the smoking cessation service?

☐1 No ☐2 Yes, please specify:_____

THE END

香 港 大 學
THE UNIVERSITY OF HONG KONG

幼兒家長戒煙計劃

六個月後跟進問卷

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

姓 名: _____ *母 1／父 2　　幼兒姓名： _____
SCCP No. : _____　　B C No.: _____
C4Counselor: _____

*C4*Date : _____
Started time : _____
Ended time : _____
Total time : _____

吸煙家長

完成對授訪者（吸煙者）的簡介 (* 請刪去不適用者)
你好，我是港大社會醫學系/理工大學的護士 (全名) _____。 相信你記得*我/__護士約在*六/兩、三個月前同你傾談戒煙資料。我現在想了解在過去幾個月你的健康及戒煙概況。你的參與和合作對你及你的家人的健康，以至幫助我們了解有效的戒煙方法均非常重要。需時約 10 分鐘，現在可否和你傾談一會呢？

以下問題是關於你的健康情況

C4A. 最近三個月，你認爲你自己的健康情況是？
☐ 1 很好　☐ 2 好　☐ 3 差　☐ 4 很差

C4B. 以下問題是關於你在過去六個月內，有沒有“**經常**”出現以下呼吸道的病徵。經常即一星期有三次或以上。

		1 沒有	2 有
喉部病徵			
B1	你是否經常有喉嚨痛或喉嚨痕，或有其他喉部不適？	☐	☐
咳嗽		沒有	有
B2 a	你有沒有經常在早上起床後咳嗽？	☐	☐ （如回答‘有，續答 B2 c ）
B2 b	你有沒有經常在日間或晚上咳嗽？	☐	☐ （如回答‘有，續答 B2 c ）
B2 c	你每年有沒有這樣地咳嗽超過 3 個月？	☐	☐
咳痰		沒有	有
B3 a	你有沒有經常在早上起床後便要咳痰？	☐	☐ (如回答‘有’,續答 B3 c)
B3 b	你有沒有經常在日間或晚上咳痰？	☐	☐ (如回答‘有’,續答 B3 c)
B3 c	你每年有沒有這樣地咳痰超過 3 個月？	☐	☐
扯哈或哮喘		沒有	有
B4 a	你的胸部或肺部有沒有試過發出扯哈聲或哮喘聲呢？	☐ (如回答‘沒有’,續答 B5)	☐
B4 b	你是否經常在日間或晚上有這情形出現？	☐	☐
B4 c	你有沒有因扯哈或哮喘引起氣促或呼吸困難？	☐	☐
鼻部病徵		沒有	有
B5	你有沒有經常鼻塞或流鼻水呢？	☐	☐

B6　在過去六個月, 你還有沒有其他疾病或健康問題？
☐ 1 沒有
☐ 2 有

是什麼問題呢?	幾時發現有這病或問題呢? (年/月/日)	如何醫治?	現時是否完全康復 / 繼續治療
			* 完全康復 1/繼續治療 2
			* 完全康復 1/繼續治療 2
			* 完全康復 1/繼續治療 2
			* 完全康復 1/繼續治療 2

C4C. 吸煙習慣

C4C1. 請問你在過去 24 小時內，有沒有吸煙呢（包括吸過一次者）？
□1 無 ⇒ 你維持不吸煙多久？C4C1.1_____ *日/星期 (⇒ action ⇒ (*請轉第 **C4D4** 題*)
□2 有

C4C2. 在過去**六個月**內，你平均每日吸煙多少枝？
□1 間中吸，不是每日吸，每星期吸_____枝香煙（即每日吸 C4C2.1_____枝）
□2 每日吸煙 C4C2.2_____枝

C4C3. 同**六個月**前比較，你平均每日吸煙量是增加、減少或係差不多呢？
□1 增加了⇒ 六個月前，你平均每日吸多少枝香煙？每日吸 C4C3.1_____枝
□2 差不多
□3 減少了⇒ 六個月前，你平均每日吸多少枝香煙？每日吸 C4C3.3_____枝

C4C4. 過去**六個月**內，你平均每日在家中吸煙多少枝？
□1 完全沒有在家吸煙 (*請轉第 **C4D1** 題*)
□2 間中吸，不是每日吸，每星期吸_____枝香煙（即每日吸 C4C4.1_____枝）
□3 每日吸煙 C4C4.2_____枝

C4C5. 過去**六個月**內，你平均每日在(*幼兒姓名*)10 呎(或 3 米)範圍內吸煙多少枝？
□1 沒有
□2 有，平均每日吸 C4C5.2_____枝

C4D. 戒煙記錄

C4D1. 在過去**六個月**內，你有沒有**停止吸煙超過 24 小時**呢？
□1 沒有→請問是什麼原因呢？(*請紀錄答案並轉第 **C4D13** 題*)
□ 2.1 沒時間　□ 2.3 曾戒煙失敗，不想再試　□ 2.5 其他，請說明_____
□ 2.2 沒有興趣戒煙　□ 2.4 擔心戒煙時的不適
□2 有→在過去**六個月**，你戒過幾多次煙（以超過 24 小時計？）C4D1.2_____次

C4D2. 其中，最耐可維持不吸煙多久？
_____*日/週

C4D3. 甚麼原因令你最後再吸煙呢？（*毋須讀出，可選多項*）
□1 身邊有其他吸煙者
□2 感到有壓力（包括工作、社交、財政等）
□3 感到傷心或焦慮時
□4 面對煙癮發作時
□5 感到時間短促
□6 與人爭拗時
□7 同時飲酒或喝咖啡時
□8 其他，請說明_____

C4D4. 你戒煙的最主要原因是什麼？(*毋須讀出, 可選多項*)　□=1 □=2
□ 1 醫療人員的建議
□ 2 認識吸煙對**家人**所帶來的不良影響
□ 3 認識吸煙所引致的環境污染
□ 4 爲家人、朋友或親戚所鼓勵
□ 5 爲其他已戒煙者所鼓勵
□ 6 被其他非吸煙者排斥 (在公眾場所內或家人)
□ 7 認識吸煙對**個人**所帶來的不良影響
□ 8 吸煙違反作爲良好父母的傍樣
□ 9 節省金錢
□ 10 政府反吸煙措施影響
□ 11 接受本計劃中輔導員的建議
□ 12 其他，請說明 _____

C4D5. 你覺得今次戒煙有沒有困難呢？
□1 沒有困難　□2 少許困難　□3 困難　□4 非常困難

C4D6. 你用甚麼方法戒煙呢？(*先稍停，不讀出選擇，如果受訪者沒印象便請讀出答案*)
□ 1 與人傾談
□ 2 轉移思路，例如：看書、看雜誌
□ 3 鬆弛方法，例如深呼吸
□ 4 集中注意力戒煙

□5 移走煙灰缸、煙仔及其他吸煙用具
□6 做一些感興趣的事情，例如：運動，包括踏單車、緩步跑、散步
□7 找一些工作以代替吸煙
□8 吃一些小食或無糖香口膠
□9 從新安排每日工作時間表，容許較少的工作量
□10 其他，請說明 _____

C4D7. 開始時，你戒煙的目標是什麼？

_____

C4D8 – C4D10 (*適用于已停止吸煙的人士*)

C4D8. 你有沒有因戒煙成功而覺得開心?
□1 沒有
□2 有⇒你覺得最開心的是什麼？
請說明：_____

C4D9. 家人有沒有因你戒煙成功而覺得開心?
□1 沒有
□2 有⇒請問那一位家人呢？_____*他/她覺得最開心的是什麼？
請說明：_____

C4D10. 你戒煙成功的關鍵原因是什麼？

_____

C4D11. 請問你在過去**六個月**內，曾用過什麼的方法戒煙？ (*可選多項*)
□1 接受其他醫護人員的幫助
□2 參加戒煙互助小組
□3 無特別方法
□4 用自助戒煙小冊
□5 使用尼古丁補充劑：如戒煙貼、香口膠或吸劑
□6 接受本計劃輔導員的幫助
□7 其他，請說明 _____

C4D12. 在今次戒煙經驗中，有沒有經歷以下一些症狀？如有，請說出症狀最嚴重時對你的影響。

		完全沒有 1	少許 2	嚴重 3	非常嚴重 4
D12.1	渴望吸煙	□	□	□	□
D12.2	煩躁	□	□	□	□
D12.3	焦慮	□	□	□	□
D12.4	難於集中精神	□	□	□	□
D12.5	身體不適	□	□	□	□
D12.6	難於入睡	□	□	□	□
D12.7	其他，請說明 _____	□	□	□	□

C4D13. 你對現時的*吸煙/戒煙情況是否滿意呢？
□1 非常不滿意 □2 不滿意 □3 滿意 □4 非常滿意

C4D14. 在過去**六個月**內，你的吸煙習慣有沒有任何改變 (*除>>外，請讀出每一項*)
□1 吸煙習慣沒有任何改變
□2 有，已作出以下改變：(***可選多項***)
2.1 □>>完全沒有吸過香煙 (*請轉到* ***C4E1***)
2.2 □>>已經減少吸煙的數量
2.3 □已經沒有在家中吸煙
2.4 □已經沒有在子女周圍吸煙
2.5 □跟其他人談及吸煙的害處 ⇒ 請問你與他們的關係？: *1 配偶、2 親戚、3 朋友、4 同事、5 其他，請說明：_____
2.6 □沒有跟吸煙的朋友一齊社交
2.7 □不容許其他人在我身旁吸煙
□3 其他，請說明：_____

(*適用于**未能**停止吸煙的人士*)

C4D15. 戒煙未能成功，你有沒有不開心？
□1 沒有　　□2 有⇒你覺得最不開心的是什麼？
請說明：_____

C4E. 再次戒煙的意慾

C4E1. 你現在有沒有想戒煙？
□1 沒有（*請轉第**C4F1** 題*）™ *Pre-contemplation*　　□2 有

C4E2. 你有沒有認真地計劃在未來一個月內戒煙？
□1 沒有　　□2 有（*請轉答第**C4F1** 題*）
™Preparation if did attempt quit for > 24 hours within last year, otherwise contemplation

C4E3. 你有沒有認真地計劃在未來六個月內戒煙？
□1 沒有 ⇒ *pre-contemplation*　　□2 有 ⇒ *contemplation*

C4 stage : * PC1 / C2 / P3 / A4 / M5

C4F. 其他及支援網絡

F1. 你有沒有飲酒呢？
□1 從來不飲（*請轉答 F8*）
□2 以前飲，已戒，戒了_____*年／月(*請轉答 F8*)
□3 **每天**都飲/每星期有 4-6 日飲
□4 **每星期**有 1-3 日飲
□5 **每月**有 1-3 日飲
□6 每月飲少過一次 (例如在特別的日子或場合)*請轉答 F8*）

F2. 如果飲酒，你最主要飲什麼酒呢？
□1 啤酒
□2 西洋餐酒、西式葡萄酒
□3 西洋烈酒（如威士忌、白蘭地、ＸＯ）
□4 中式米酒（雙蒸、米酒）
□5 沒有特別飲一種酒
□6 其他

F3. 以普通水杯計，你飲酒那天平均飲多少杯酒？
□1 從不飲
□2 約１／４杯
□3 約１／２杯
□4 約１杯
□5 ２－３杯
□6 ４杯或以上

F4. 你有沒有覺得需要減少你的飲酒份量？
□1 沒有　　□2 有(SCORE 1)

F5. 曾有人批評你飲酒時，你會不會覺得很煩？
□1 沒有人批評過　　□2 會(SCORE 1)　　□3 不會

F6. 你有沒有因爲你的飲酒習慣而覺得唔開心或內疚呢？
□1 沒有　　□2 有(SCORE 1)

F7. 你有沒有試過一起身就需要飲酒去鎮靜神經？
□1 沒有　　□2 有(SCORE 1)

C4C'score: _____ (*Add score F4 – F7*)

F8. 你的體重有沒有因今次戒煙而改變？
□1 有，重了_____*千克／磅
□2 有，輕了 _____*千克／磅
□3 沒有
□4 沒有嘗試戒煙

F9. 你對你現時的體重滿意嗎？
□1 非常不滿意　　□2 不滿意　　□3 滿意　　□4 非常滿意

F10. 你會不會因增重_____*千克／磅 (以上次的體重的百份之七計算)，而感到擔心呢？
□1 不會 □2 會

C4G. 意見

G1. 你有沒有收到我們的**自助戒煙資料**呢？
□1 沒有 **(***請轉第 **C4G4** 題***)** □2 有

G2. 你有沒有閱讀過這些**自助戒煙資料**呢？
□1 沒有**(***請轉第 **C4G4** 題***)** □2 有

G3. 你覺得這些**戒煙資料**對你有幫助嗎？
□1 完全沒有 □3 有幫助
□2 少許幫助 □4 有很大幫助

G4. 你對我們所提供的電話形式戒煙**服務**滿意嗎？
□1 非常不滿意 □2 不滿意 □3 滿意 □4 非常滿意

只適用于 control 組
我已對你在過去數月的健康及戒煙情況有了進一步的了解，很多謝你寶貴的資料，這些資料所得的結果將可幫助我們有效地協助家長戒煙。

***G5 – G6** 只適用于 intervention 組*

G5. 你有沒有用我們所提供的**戒煙輔導熱線**服務呢？
□1 沒有**(***請轉第 **C4G7** 題***)** □2 有

G6. 你對我們的**戒煙輔導熱線**服務滿意嗎？
□1 非常不滿意 □2 不滿意 □3 滿意 □4 非常滿意

G7. 你對我們的戒煙服務有沒有其他意見或評語？
□1 沒有 □2 有，請說明：_____

G8. 你認爲甚麼才是有效的戒煙方法？
□1 沒有 □2 有，請說明：_____

問卷完畢，多謝你的合作

(*適用于*未能*停止吸煙的人士*)
並衷心希望你戒煙成功、你及家人能健康愉快。

邀請(*適用于*已停止吸煙*的人士*)

很多謝你參加此計劃，並祝賀你在此過程中能成功戒煙。這項計劃旨在蒐集有關你及你家人的健康狀況，以及你的吸煙和戒煙情況，此研究結果將可幫助我們有效地協助家長戒煙。爲鼓勵你成功戒煙，我們希望提供妥善的健康輔導及護理，故此，你將會得到以下有關服務：

1. 健康輔導----歡迎詢問有關你及你家人的健康疑難
2. 身體檢查--包括：
   a)身高、體重、血壓、脈搏
   b)小便中的“可的寧”〔 continine〕
   c)血液檢驗：血糖及膽固醇含量

d)一氧化碳呼氣測試

爲方便你接受我們的服務，請選擇日期、時間、地點。*〔或所需的交通費用〕*

爲免妨礙你的寶貴時間，我們可安排在你工餘時間或你的就近地點作以上檢查。

Q1. 你是否願意參加身體檢查？

☐1 不願意　　☐2 願意

請說明原因：_____

Q2. 請選擇地點：

☐1 律敦治醫院(*Mon/Wed/Fri 1800-2100 only*)　　☐2 理工大學

☐3 香港大學醫學院大樓　　☐4 家訪(*only for those not convenience to come over*)

☐5 其他, 請說明：_____

(*Please contact Ms. Mak for arrangement*)

(需要時間)

Q3. 你是否需要的交通津貼？

☐1 不需要　　☐2 需要

請說明所需費用：_____

請選擇日期 ： _____年_____月_____日

時間 ：*上午 / 下午 / 晚上：_____時至_____時

稍後我們會發信給你或致電以確定有關詳情。 期間如需要更改預約時間或在健康方面有疑問，歡迎致電：9237　　與 麥艷華護士 或 2819　　與 林大慶醫生 聯絡。

核對：聯絡地址 / 電話 / 時間

再見。

香 港 大 學
THE UNIVERSITY OF HONG KONG

Smoking Cessation Intervention

FOLLOW UP QUESTIONNAIRE
6 month

THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學

C4 Date:

N a m e : _____ *mother 1 / father2
SCCP No.: _____
Child's name : _____
BC No.: _____
***C4* Counselor:** _____
Started time: _____
Ended time: _____
Total time used: _____

For the Parents of Young Children(SMOKER)

INTRODUCTION (*Delete if appropriate)

Hello, I'm Mak, the nurse of the department of community medicine from the University of Hong Kong. You may recall that Ms.Lau/Ms Poon/ I, interviewed you about 6 months ago. Now, I'm calling to seek your co-operation to talk about your progress of quitting smoking. It takes about 10 minutes. Once again, participation is voluntary. However, your participation and co-operation are extremely important to both health of you and your family.

C4A. How about your health in the last three months?
☐1 Very good ☐2 Good ☐3 Bad ☐4 Very bad

C4B. The following questions can help us realize how usually you had any respiratory symptoms in the past 6 months.
(The term "usually" used below is defined as 3 times or more per week)

	No 1	**Yes** 2
THROAT		
C4B1. Do you usually have a **sore or itchy throat,** or any other throat discomfort?	☐	☐
COUGH		
C4B2a. Do you usually **cough** upon waking up in the morning?	☐	☐
(if yes, move on to C4B2c)		
C4B2b Do you usually **cough** either during the day or at night?	☐	☐
(if yes, move on to C4B2c)		
C4B2c. Do you usually **cough** like this on most days for as much as three months per year?	☐	☐
PHLEGM		
C4B3a. Do you usually bring up any **phlegm** from chest upon waking up in the morning?	☐	☐
(if yes, move on to C4B3c)		
C4B3b Do you usually bring up any **phlegm** from chest during the day or at night?	☐	☐
(if yes, move on to C4B3c)		
C4B3c. Do you bring up **phlegm** like this on most days for as much as three months each year?	☐	☐
WHEEEZING		
C4B4a. Does your chest ever give out wheezing or whistling sound? (if no, move on to C4B5)	☐	☐
C4B4b Do you get this on most of days or at nights?	☐	☐
C4B4c. Have you ever had attacks of shortness of breath with wheezing?	☐	☐
NASAL SYMPTOMS		
C4B5. Do you usually have a blocked or running nose?	☐	☐

C4B6. Have you ever been suffered from any other illness/health problem(s) in the past 6 months?
☐ 1 No
☐ 2 Yes, please specify the problem(s)

Problem(s)	When did this problem arise? (yy/mm/dd)	Intervention / medications	Outcome(*delete if appropriate)
			* recovered 1/ continued the treatment 2
			* recovered 1/ continued the treatment 2
			* recovered 1/ continued the treatment 2

C4C. SMOKING STATUS

C4C1. Did you smoke any cigarette for within the last 24 hours?

☐1 Yes ⇒ How long have you stopped? C4C1.1____ *days/weeks. (⇒action⇒ move on to **C4D4**)
☐2 No

C4C2. In the last 6 months, on average how many cigarettes did you smoke per day?
☐1 Occasionally smoke, but do not smoke everyday. C4C2.1_____cig/day
☐2 C4C2.2_____cigarette(s) per day

C4C3. Compared to the past 6 months, did you smoked more, less or about the same number of cigarettes?
☐1 Smoked more, before the last ♦_____ weeks, I smoked C4C3.1_____ cigarettes per day.
☐2 About the same
☐3 Smoked less, before the last ♦_____weeks, I smoked C4C3.3_____ cigarettes per day.

C4C4. Have you ever smoked at home in the last 6 months ?
☐1 No (move on to **C4D1**)
☐2 Occasionally smoke, but do not smoke everyday. C4C2.1_____cig/day
☐3 Yes C4C4.2_____cigarettes a day

C4C5. Have you ever smoked near your child in the last 6 months ? (within 3 metres or 10 feet)
☐1 Never ☐2 Yes C4C5-2_____cigarettes a day

C4D. QUIT ATTEMPT

C4D1. Have you stopped smoking for at least 24 hours since the past 6 months?
☐1 No, ⇒What is the reason(s) for you did not start to quit smoking?
(move on to C4D13 after marking the answer)
☐1.1 No time
☐1.2 Not interested in quitting
☐1.3 Tried before and do not want to try again
☐1.4 I'm afraid of the side-effects of from quitting
☐1.5 Others, please specify: _____
☐2 Yes, ⇒How many times you have quitted smoking for at least 24 hours, since the last past 6 months?
_____ C4D1.2times

C4D2. How longest you can stop smoking in the last 6 months?
_____ *days/weeks/month

C4D3. For what reasons did you re-start smoking? (do not read out, mark all that applicable)
☐1 Getting around other smokers
☐2 Stress (work, social circle and finance)
☐3 Feeling sad or frustrated
☐4 Uncontrolled craving
☐5 Being under time pressure
☐6 Getting into an argument
☐7 Drinking alcohol or caffeine
☐8 Others, please specify _____

C4D4. What was **the most important reason** of your last attempt to quit smoking?
(do not read out, tick all that applicable) ☐=1 ☐=2
☐1 Advised by health professionals (to quit)
☐2 Increased awareness of harmful effects of smoking to family's health
☐3 Smoking regarded as harmful to our environment
☐4 Cessation encouraged by family members/friends/ relatives
☐5 Cessation encouraged by other ex-smokers
☐6 Rejected by non-smokers (general public or significant others)
☐ 7 Increased awareness of harmful effects of smoking to own health
☐ 8 Smoking contradicts the view of a caring and responsible parent.
☐ 9 Save money
☐10 Government Anti-smoking Publicities
☐11 Take our counselor's advice
☐12 Others, please specify _____

C4D5. How hard was it for you to quit smoking or cut down on smoking this time?
☐1 Not difficult ☐2 Slightly difficult ☐3 Difficult ☐4 Very difficult

C4D6. How do you plan to get through the above situation?
(***pause, if subject has no idea then read out, mark all that applicable*** *)*

- ☐ 1 Talk to someone / self talk
- ☐ 2 Thinking of some other things
  e.g. read book or magazines
- ☐ 3 Relaxation techniques e.g. deep breathing
- ☐ 4 Concentrate the efforts to tell yourself not to smoke
- ☐ 5 Remove cigarette / ashtray
- ☐ 6 Do something you are interested in
  e.g. exercise: walking, jogging, and bicycling.
- ☐ 7 Get involvement to other tasks
- ☐ 8 Take up snacks/ sugarless gum.
- ☐ 9 Readjust Adjust schedule and expectations to allow for lower productivity
- ☐ 10 Others, please specify _____

C4D7. What is your aim of quitting smoking at the beginning ?
_____

C4D8 - C4D10 (suitable for subject who is successful to quit smoking)

C4D8. Are you happy with your successful cessation?
- ☐ 1 No
- ☐ 2 Yes. What makes you feel happy most? Please specify_____

C4D9. Your family members feel happy with your successful cessation?
- ☐ 1 No
- ☐ 2 Yes. Which one? _____. What is s/he happy with? Please specify _____

C4D10. What is the main reason you can be successful to quit smoking?
_____

C4D11. What **cessation method** did you use to quit at that time? (**do not read out, tick all those applicable**)

- ☐ 1 Ask for help from health professionals, e.g. doctor, nurse
- ☐ 2 Joining a smoking cessation program
- ☐ 3 No special method used
- ☐ 4 Using self-help smoking cessation material
- ☐ 5 Using Nicotine Replacement Therapy (gum/patch)
- ☐ 6 getting help from the counselors of smoking cessation program
- ☐ 7 Others, please specify _____

C4D12. In the last 24 hours, how severely have you experienced any of the following symptoms when you have quitted smoking this time? Choose the answer below that can reflect well on the severity of each symptom, referring to the time your symptoms were most severe.

	Not at all 1	Mild 2	Severe 3	Very severe 4
D12. 1 Craving for cigarettes	☐	☐	☐	☐
D12. 2 Irritability	☐	☐	☐	☐
D12. 3 Nervousness	☐	☐	☐	☐
D12. 4 Problem of concentration	☐	☐	☐	☐
D12. 5 Physical symptoms	☐	☐	☐	☐
D12. 6 Insomnia	☐	☐	☐	☐

D12. 7 Others, please specify: _____

C4D13. Are you happy with your current * quantity of smoking / progress of cessation?

☐1 Very unhappy ☐2 Unhappy ☐3 Happy ☐4 Very happy

C4D14. What are the changes that you have made in your smoking habit since our last call?
(*situational question, read out every item* except those marked ">>"and mark all that applicable)

☐1 Yes, I have made the following changes:

1.1 ☐>> have not smoked any cigarette at all **(move on to C4E1)**
1.2 ☐>> have decreased in number of cigarette
1.3 ☐ have not smoked at home
1.4 ☐ have not smoked around children
1.5 ☐Discussed the harmful effects of smoking with others
please specify: * spouse / relatives / friends / colleagues / others
1.6 ☐ have not gone out with friends who are smokers
1.7 ☐ do not allow others to smoke around me

☐2 >>No, I did not make any changes of my smoking habit since the last past 3 months
☐3 Others, please specify:_____

C4D15. Do you feel upset by your unsuccessful cessation?
☐1 No ☐2 Yes What makes you upset most? _____

C4E. DESIRE TO QUIT AGAIN

C4E1. Are you thinking of quitting smoking now?
☐1 No **(move on to C4F1)** ⇒ *pre-contemplation* ☐2 Yes

C4E2. Are you seriously planning to quit in the next one month?
☐1 No ☐ 2 Yes **(move on to C4F1)**
preparation if did attempt quit for > 24 hours within the past year, otherwise contemplation

C4E3. Are you seriously planning to quit in the next 6 months?
☐1 No ⇒ *pre-contemplation* ☐2 Yes ⇒ *contemplation*

⇒ C4Stage : * PC1 / C 2/ P 3/ A4 / M5

C4F. OTHERS AND SUPPORTING SYSTEM

C4F1. Have you had any alcoholic beverages in the past 6 months?
☐1 No **(move on to part F8)**
☐2 Yes, but quitted for _____ days/weeks **(move on to F8)**
☐3 I drink daily/4-6 days per week
☐4 I drink 1-3 days per week
☐5 I drink 1-3 days per month
☐6 I drink less than once a month (for special occasion only) **(move on to part F8)**

C4F2. What type of alcohol do you usually drink?
☐1 Beer
☐2 Table wine, red wine / white wine
☐3 Liquor / spirit (whisky, brandy, XO)
☐4 Chinese rice wine
☐5 No special type
☐6 Others, please specify_____

C4F3. What is the quantity of wine do you usually drink each time?
☐1 Never ☐3 About ½ cup ☐5 2-3 cups
☐2 About ¼ cup ☐4 About 1 cup ☐6 4 cups or above

C4F4. Have you ever felt the need to cut down on your drinking?
☐1 No ☐2 Yes (score 1)

C4F5. Have people annoyed you by criticizing your drinking?
☐1 No ☐2 Yes (score 1) ☐3 Never

C4F6. Have you ever felt bad or guilty about your drinking?
☐1 No ☐2 Yes (score 1)

C4F7. Have you ever had a drink first thing in the morning to steady your nerves?
☐1 No ☐2 Yes (score 1)

C4cage score: (add score F4-F7)_____

C4F8. Did you experience any changes in your weight after quitting, or cutting down on smoking this time?
☐1 Yes, increased about _____kg ☐3 No
☐2 Yes, decreased about _____kg ☐4 I haven't tried to quit

C4F9. How do you think your current body weight?
☐1 Very dis-satisfactory ☐2 Dis-satisfactory ☐3 Satisfactory ☐4 Very satisfactory

C4F10. Are you concerned about the possibility of gaining about _____lb/kg.
(please refer to 7 % of the parent's body weight on the baseline)
☐1 No ☐2 Yes

C4G. PART G- PROGRAM EVALUATION

C4G1. Did you receive the **self-help materials** on quitting smoking, which was mailed to you?
☐1 No**(move on to C4G4)** ☐2 Yes

C4G2. Did you read the **self-help materials** on quitting smoking?
☐1 No**(move on to C4G4)** ☐2 Yes

C4G3. How would you rate the usefulness of the **reading materials** on quitting smoking?
☐1 No use at all ☐2 A little bit useful ☐3 Useful ☐4 Very useful

C4G4. How would you rate the overall services of this telephone based smoking cessation program?
☐1 Very dis-satisfactory ☐2 Dis-satisfactory ☐3 Satisfactory ☐4 Very satisfactory

For control group

I have further realized your progress of smoking cessation.
Thanks for your cooperation since it can help us assist other parents to quit smoking effectively.

For intervention group C4G5 to C4G6)

C4G5. Did you use our **counselors' hotline service** to receive suggestion / advice of on quitting?
☐1 No **(move on to C4G7)** ☐2 Yes

C4G6. How would you rate the **hotline service** that we provided?
☐1 Very dis-satisfactory ☐2 Dis-satisfactory ☐3 Satisfactory ☐4 Very satisfactory

C4G7. How would you rate the **counseling service** provided to you for quitting smoking?
☐1 Very dis-satisfactory ☐2 Dis-satisfactory ☐3 Satisfactory ☐4 Very satisfactory

C4G8. Do you have any other suggestions or comments on the smoking cessation service?
☐1 No ☐2 Yes, please specify:_____

(For unsuccessful cases)

I wish you will be successful in quitting smoking and you and your family are healthy and happy.

Invitation for successful cases

Thanks for your participation and congratulate for your success. The smoking cessation program we provide aims at collecting the information about your family's health and your health condition during smoking and quitting smoking. As a result of it, we can help other parents to quit smoking effectively. To appreciate your success in quitting smoking, we would like to provide a set of health care services for you. It includes:

1. Health consultations: answer any questions about both health of you and your family
2. Body check-up: a) measure body height, weight, blood pressure and pulse.
   b) examine the cotinine level in urine
   c) examine the blood sugar and cholesterol levels
   d) test the exhaled carbon monoxide level

We would like to provide our services for you, depending on your preferred date, time and venue (provide transportation fee if necessary)

Q1. Would you like to receive our heath care service?

☐1 No. Please specify_____

☐2 Yes

Q2. Please choose the venues:

☐ 1 Rutonjee Hospital (only available in Mon/Wed/Fri 1800-2100)

☐ 2 The Hong Kong Polytechnic University

☐ 3 The building of Medical faculty, The Hong Kong University

☐ 4 Home visit (only for those not convenience to come over for the above venues)

☐ 5 Others, please specify_____(Please contact Ms. Mak for arrangement)

(Ask if necessary)

Q3 Do you need the transportation allowance?

☐1 No ☐2 Yes. Please specify_____

Appointment date: _____ time: _____am/pm

We will send you a confirmation letter. If you want to rearrange appointment or have any health problems, please contact with Ms Mak Yim Wah at 9237 or Dr. Lam at 2819 .

Check the contact address/telephone number/ appointment date

Good bye.

THE END

香 港 大 學
THE UNIVERSITY OF HONG KONG

幼兒家長戒煙計劃

六個月後跟進問卷
(幼兒健康)

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

姓 名: _____ ***母 1／父 2** **幼兒姓名：** _____ **PVDate :** _____
SCCP No. : _____ **B C No.:** _____ **C4Started time :** _____
PYcounselor: _____ **C4Ended time :** _____
C4Total time : _____

Proxy Validation

你好，我係港大社會醫學系/理工大學的護士 (全名) _____。 相信你記得*我/劉/潘護士約在*六/兩、三個月前同你傾談戒煙資料。我現在想了解在過去幾個月你和_____(*幼兒姓名*)的健康及你*太太/丈夫戒煙概況。你的參與和合作對你及你的家人的健康，以至幫助我們了解有效的戒煙方法均非常重要，需時約 5 分鐘。請問現在可否開始和你傾談？

以下問題是關於你的健康情況

PVA1. 最近一個月，你認爲你自己的健康情況是？
☐ 1 很好 ☐ 2 好 ☐ 3 差 ☐ 4 很差

以下問題是關於(*幼兒姓名*) 的健康情況

PVA.
PVA2 你認爲他最近<u>三個月</u>的健康情況是怎樣？
☐ 1 很好 ☐ 2 好 ☐ 3 差 ☐ 4 很差

PVB. 病徵:
以下問題是關於(*幼兒姓名*) 在過去六個月內，有沒有“**經常**”出現呼吸道的病徵。
經常即一星期有三次或以上。

		1	2
喉部病徵		沒有	有
C4B1	他是不是經常有喉嚨痛或喉嚨痕，或有其他喉部不適？	☐	☐
咳嗽		沒有	有
C4B2 a	他有沒有經常在早上起床後咳嗽？	☐	☐ (如回答‘有’續答 B2b& c)
C4B2 b	他有沒有經常在日間或晚上咳嗽？	☐	☐ (如回答‘有’續答 B2 c)
C4B2 c	他每年有沒有這樣地咳嗽超過 3 個月？	☐	☐
咳痰		沒有	有
C4B3 a	他有沒有經常在早上起床後便要咳痰？	☐	☐ (如回答‘有，續答 B3b& c)
C4B3 b	他有沒有經常在日間或晚上咳痰？	☐	☐ (如回答‘有，續答 B3 c)
C4B3 c	他每年有沒有這樣地咳痰超過 3 個月？	☐	☐
扯哈或哮喘		沒有	有
C4B4 a	他的胸部或肺部有沒有試過發出扯哈聲或哮喘聲呢？	☐ (如回答‘沒有，續答 B5)	☐
C4B4 b	他是否經常在日間或晚上有這情形出現？	☐	☐
C4B4 c	他有沒有因扯哈或哮喘引起氣促或呼吸困難？	☐	☐
鼻部病徵		沒有	有
C4B5	他有沒有經常鼻塞或流鼻水呢？	☐	☐

PVC.

C4C1. 在過去<u>六個月</u>內，(*幼兒姓名*)需要見醫生多少次? (包括中、西醫和急症室，但不包括住院)

□ 1 沒有　　　　　□ 2 有，C1-2 ____________ 次(*請詢問每次求診的資料*)

C4C2. 每次求診的資料:

次數	幼兒的病徵 (可選多於一項)	往那裏求診？ (只選一項)	醫生診斷是甚麼病？	醫生如何建議？ (可選多於一項)	醫藥費
(______)	□1 呼吸道症狀，如咳、流鼻水 □2 腸胃不適，如嘔吐、腹瀉 □3 發燒 □4 受傷 □5 其他，請註明： 5-1____________	□1 私家醫生(西醫) □2 政府普通科門診 □3 醫院急症室 □4 公立專科門診 □5 母嬰健康院 □6 中醫 □7 在大陸看醫生 □8 其他，請註明： 8-1____________	□1 醫生診斷是： 1-1__________ □2 醫生沒有說清楚 □3 忘記了醫生如何說 □4 不知道	□1 轉介急症室 □2 入住醫院 □3 轉介專科門診 □4 打針、吃藥、塗藥膏 □5 無須藥物治療 □6 覆診	□1 免費 □2 1 - 50 元 □3 51-100 元 □4 101-200 元 □5 201-300 元 □6 301-400 元 □7 多過 400 元，請填寫多少元： 7-1__________
(______)	□1 呼吸道症狀，如咳、流鼻水 □2 腸胃不適，如嘔吐、腹瀉 □3 發燒 □4 受傷 □5 其他，請註明： 5-1____________	□1 私家醫生(西醫) □2 政府普通科門診 □3 醫院急症室 □4 公立專科門診 □5 母嬰健康院 □6 中醫 □7 在大陸看醫生 □8 其他，請註明： 8-1____________	□1 醫生診斷是： 1-1__________ □2 醫生沒有說清楚 □3 忘記了醫生如何說 □4 不知道	□1 轉介急症室 □2 入住醫院 □3 轉介專科門診 □4 打針、吃藥、塗藥膏 □5 無須藥物治療 □6 覆診	□1 免費 □2 1 - 50 元 □3 51-100 元 □4 101-200 元 □5 201-300 元 □6 301-400 元 □7 多過 400 元，請填寫多少元： 7-1__________
(______)	□1 呼吸道症狀，如咳、流鼻水 □2 腸胃不適，如嘔吐、腹瀉 □3 發燒 □4 受傷 □5 其他，請註明： 5-1____________	□1 私家醫生(西醫) □2 政府普通科門診 □3 醫院急症室 □4 公立專科門診 □5 母嬰健康院 □6 中醫 □7 在大陸看醫生 □8 其他，請註明： 8-1____________	□1 醫生診斷是： 1-1__________ □2 醫生沒有說清楚 □3 忘記了醫生如何說 □4 不知道	□1 轉介急症室 □2 入住醫院 □3 轉介專科門診 □4 打針、吃藥、塗藥膏 □5 無須藥物治療 □6 覆診	□1 免費 □2 1 - 50 元 □3 51-100 元 □4 101-200 元 □5 201-300 元 □6 301-400 元 □7 多過 400 元，請填寫多少元： 7-1__________
(______)	□1 呼吸道症狀，如咳、流鼻水 □2 腸胃不適，如嘔吐、腹瀉 □3 發燒 □4 受傷 □5 其他，請註明： 5-1____________	□1 私家醫生(西醫) □2 政府普通科門診 □3 醫院急症室 □4 公立專科門診 □5 母嬰健康院 □6 中醫 □7 在大陸看醫生 □8 其他，請註明： 8-1____________	□1 醫生診斷是： 1-1__________ □2 醫生沒有說清楚 □3 忘記了醫生如何說 □4 不知道	□1 轉介急症室 □2 入住醫院 □3 轉介專科門診 □4 打針、吃藥、塗藥膏 □5 無須藥物治療 □6 覆診	□1 免費 □2 1 - 50 元 □3 51-100 元 □4 101-200 元 □5 201-300 元 □6 301-400 元 □7 多過 400 元，請填寫多少元： 7-1__________
(______)	□1 呼吸道症狀，如咳、流鼻水 □2 腸胃不適，如嘔吐、腹瀉 □3 發燒 □4 受傷 □5 其他，請註明： 5-1____________	□1 私家醫生(西醫) □2 政府普通科門診 □3 醫院急症室 □4 公立專科門診 □5 母嬰健康院 □6 中醫 □7 在大陸看醫生 □8 其他，請註明： 8-1____________	□1 醫生診斷是： 1-1__________ □2 醫生沒有說清楚 □3 忘記了醫生如何說 □4 不知道	□1 轉介急症室 □2 入住醫院 □3 轉介專科門診 □4 打針、吃藥、塗藥膏 □5 無須藥物治療 □6 覆診	□1 免費 □2 1 - 50 元 □3 51-100 元 □4 101-200 元 □5 201-300 元 □6 301-400 元 □7 多過 400 元，請填寫多少元： 7-1__________
(______)	□1 呼吸道症狀，如咳、流鼻水 □2 腸胃不適，如嘔吐、腹瀉 □3 發燒 □4 受傷 □5 其他，請註明： 5-1____________	□1 私家醫生(西醫) □2 政府普通科門診 □3 醫院急症室 □4 公立專科門診 □5 母嬰健康院 □6 中醫 □7 在大陸看醫生 □8 其他，請註明： 8-1____________	□1 醫生診斷是： 1-1__________ □2 醫生沒有說清楚 □3 忘記了醫生如何說 □4 不知道	□1 轉介急症室 □2 入住醫院 □3 轉介專科門診 □4 打針、吃藥、塗藥膏 □5 無須藥物治療 □6 覆診	□1 免費 □2 1 - 50 元 □3 51-100 元 □4 101-200 元 □5 201-300 元 □6 301-400 元 □7 多過 400 元，請填寫多少元： 7-1__________

C4C3. 請問在過去六個月（幼兒姓名）有沒有因病住院**留醫**？

☐1 沒有　　☐2 有，請問幾多次？C3-2_____次(*請詢問每次***住院留醫***的資料*)

C4C4. 每次住院留醫的資料

入院日期	出院日期	幼兒的病徵 (可選多於一項)	醫院種類？ (只選一項)	醫生診斷是甚麼病？	醫生如何建議？ (可選多於一項)	住院/醫藥費
___年 ___月	___年 ___月	☐1 呼吸道症狀，如咳、流鼻水 ☐2 腸胃不適，如嘔吐、腹瀉 ☐3 發燒 ☐4 受傷 ☐5 其他，請註明： 5-1_____	☐1 醫管局醫院 ☐2 私家醫院 ☐3 在大陸醫院 ☐4 其他，請註明： 4-1_____	☐1 醫生診斷是： 1-1_____ ☐2 醫生沒有說清楚 ☐3 忘記了醫生如何說 ☐4 不知道	☐1 毋須覆診 ☐2 繼續覆診 ☐3 不知道 ☐4 其他，請註明： 4-1_____	☐1 免費 ☐2 醫管局標準收費 ☐3 請填寫多少元： 3-1_____
___年 ___月	___年 ___月	☐1 呼吸道症狀，如咳、流鼻水 ☐2 腸胃不適，如嘔吐、腹瀉 ☐3 發燒 ☐4 受傷 ☐5 其他，請註明： 5-1_____	☐1 醫管局醫院 ☐2 私家醫院 ☐3 在大陸醫院 ☐4 其他，請註明： 4-1_____	☐1 醫生診斷是： 1-1_____ ☐2 醫生沒有說清楚 ☐3 忘記了醫生如何說 ☐4 不知道	☐1 毋須覆診 ☐2 繼續覆診 ☐3 不知道 ☐4 其他，請註明： 4-1_____	☐1 免費 ☐2 醫管局標準收費 ☐3 請填寫多少元： 3-1_____

PVD1 請問你的*丈夫/太太在過去 24 小時有沒有吸煙呢？

☐1 無 ⇒ 他/她停止吸煙多久？PVD 1.1_____ *日/星期 **(§)**

☐2 有

PVD2 在過去**六個月**內，*他/她平均每日吸煙多少枝？

☐1 間中吸，不是每日吸，每星期吸_____枝香煙（即每日吸 **PVD2.1**_____枝）

☐2 每日吸煙 **PVD2.2**_____枝

PVD3 在過去**六個月**內，*他/她平均每日在家中吸煙多少枝？

☐1 間中吸，不是每日吸，每星期吸_____枝香煙（即每日吸 **PVD3.1**_____枝）

☐2 每日吸煙 **PVD3.2**_____枝

PVD4 在過去**六個月**內，*他/她有沒有停止吸煙超過 24 小時呢？

☐1 沒有

☐2 有 → 在過去**六個月**，*他/她戒過幾多次煙（以超過 24 小時計？）**PVD4.2**_____次

PVD5 同**六個月**前比較，*他/她平均每日吸煙量是增加、減少或係差不多呢？

☐1 增加了⇒ 六個月前，*他/她平均每日吸幾多枝香煙？每日吸 **PVD5.1**_____枝

☐2 差不多

☐3 減少了⇒ 六個月前，*他/她平均每日吸幾多枝香煙？每日吸 **PVD5. 3**_____枝

§ 問卷已經完成，很多謝你的寶貴資料。

現在戒煙服務給你丈夫／太太，

PVD6. 我現在可否跟你太太/丈夫談談*他/她的戒煙經歷？

☐1 可以　(*開始第二部份訪問*)

☐2 *他／她 暫時不便接受訪問。　請問甚麼時間方便與*他／她 談談呢？(*請將預約時間記錄在最前*頁)

☐3 不可以，請說明： PVD6-3

_____

香 港 大 學
THE UNIVERSITY OF HONG KONG

Smoking Cessation Intervention

FOLLOW UP QUESTIONNAIRE
6 months

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

Name: _____ *1mother /father2 _____ *C4* **Date:**
BC No.: _____ Started time: _____
SCCP No.: _____ ***C4* Counselor:** _____ Ended time: _____
Total time used: _____

For the Parents of Young Children (proxy validation)

Introduction (***Delete if appropriate)**

Hello, I'm the nurse Mak from the department of community medicine, the University of Hong Kong. You may recall that I have/(Ms. Lau/Ms. Poon has) interviewed you about **6 months ago**. Now, I'm calling to seek your co-operation to talk about your spousal progress of quitting smoking. It takes about 5 minutes. Once again, participation is voluntary. However, your participation and co-operation are extremely important to both better health's of yourself and your family.

PVA1 How about your health in the last three months?
☐1 Very good ☐2 Good ☐3 Bad ☐4 Very bad

PVA2 How do you think your child's health in the last month?
☐1 Very good ☐2 Good ☐3 Bad ☐4 Very bad

PVB Symptom

The following ask if your child usually has any respiratory symptom in the past 6 months.
(The term "usually" used below is defined as 3 or more times per week)

		No 1	**Yes** 2
THROAT			
B1	Does your child usually have a **sore or itchy throat** or any other throat discomfort?	☐	☐
COUGH			
B2a	Does your child usually **cough** upon waking in the morning?	☐	☐
B2b	Does your child usually **cough** either during the day or at night?	☐	☐
	(If yes at B2a or B2b, then move on to B2c)		
B2c	Does your child usually **cough** like this on most days for as much as three months per year?	☐	☐
PHLEGM			
B3a	Does your child usually bring up any **phlegm** from chest upon waking in the morning?	☐	☐
B3b	Does your child usually bring up any **phlegm** from chest during the day or at night?	☐	☐
	(If yes at B3a or B3b, then move on to B3c)		
B3c	Does your child bring up **phlegm** like this on most days for as much as three months each year?	☐	☐
WHEEEZING			
B4a	Does your child's chest ever give out wheezing or whistling sound?	☐	☐
	(if no, move on to B5)		
B4b	Does your child get this on most of days or at nights?	☐	☐
B4c	Has your child ever had attacks of shortness of breath with wheezing?	☐	☐
NASAL SYMPTOMS			
B5	Does your child usually have a blocked or running nose?	☐	☐

PVC. The following describe the frequency and reasons for medical consultations in the last six months of your child.

C1. How many times has your child consulted a doctor (Western or Chinese style)(including accident and emergency department but not in-patient department)?

☐ 1 none (**move on to CHC4**)

☐ 2 yes, C1-2 ____________ times (*please ask the details of each consultation*)

C2. Details of each consultation:

No.	Reason(s) for consultation (4 all that apply)	Types of consultation attended	What was the diagnosis made by the physician ? (4 all that apply)	What was the intervention advised by physician (4 all that apply)	Expenses HK $
( )	☐ Cough / running nose / respiratory tract infection ☐ vomiting / diarrhoea / gastro-intestinal discomfort ☐ Fever ☐ accident / injury ☐ others, please specify 5-1____________________	☐ Private doctor ☐ GOPD (HA) ☐ AED (HA) ☐ SOPD (HA) ☐ MCH (HA) ☐ Chinese physician ☐ Physician in mainland China ☐ Other: 8-1________	☐ Diagnosis as : 1-1 ________________ ☐ Did not mention by doctor ☐ Forget what did doctor say ☐ Not known	☐ Refer to AED ☐ Admitted to hospital ☐ Refer to SOPD ☐ Medications: injection, Oral drugs, local Application ☐ No treatment given ☐ Follow up	☐ Free ☐ 1 – 50 ☐ 51-100 ☐ 101-200 ☐ 201-300 ☐ 301-400 ☐ > 400 ☐ Other : 7-1 ____________
( )	☐ Cough / running nose / respiratory tract infection ☐ vomiting / diarrhoea / gastro-intestinal discomfort ☐ Fever ☐ accident / injury ☐ others, please specify 5-1____________________	☐ Private doctor ☐ GOPD (HA) ☐ AED (HA) ☐ SOPD (HA) ☐ MCH (HA) ☐ Chinese physician ☐ Physician in mainland China ☐ Other: 8-1________	☐ Diagnosis as : 1-1 ________________ ☐ Did not mention by doctor ☐ Forget what did doctor say ☐ Not known	☐ Refer to AED ☐ Admitted to hospital ☐ Refer to SOPD ☐ Medications: injection, Oral drugs, local Application ☐ No treatment given ☐ Follow up	☐ Free ☐ 1 – 50 ☐ 51-100 ☐ 101-200 ☐ 201-300 ☐ 301-400 ☐ > 400 ☐ Other : 7-1 ____________
( )	☐ Cough / running nose / respiratory tract infection ☐ vomiting / diarrhoea / gastro-intestinal discomfort ☐ Fever ☐ accident / injury ☐ others, please specify 5-1____________________	☐ Private doctor ☐ GOPD (HA) ☐ AED (HA) ☐ SOPD (HA) ☐ MCH (HA) ☐ Chinese physician ☐ Physician in mainland China ☐ Other: 8-1________	☐ Diagnosis as : 1-1 ________________ ☐ Did not mention by doctor ☐ Forget what did doctor say ☐ Not known	☐ Refer to AED ☐ Admitted to hospital ☐ Refer to SOPD ☐ Medications: injection, Oral drugs, local Application ☐ No treatment given ☐ Follow up	☐ Free ☐ 1 – 50 ☐ 51-100 ☐ 101-200 ☐ 201-300 ☐ 301-400 ☐ > 400 ☐ Other : 7-1 ____________
( )	☐ Cough / running nose / respiratory tract infection ☐ vomiting / diarrhoea / gastro-intestinal discomfort ☐ Fever ☐ accident / injury ☐ others, please specify 5-1____________________	☐ Private doctor ☐ GOPD (HA) ☐ AED (HA) ☐ SOPD (HA) ☐ MCH (HA) ☐ Chinese physician ☐ Physician in mainland China ☐ Other: 8-1________	☐ Diagnosis as : 1-1 ________________ ☐ Did not mention by doctor ☐ Forget what did doctor say ☐ Not known	☐ Refer to AED ☐ Admitted to hospital ☐ Refer to SOPD ☐ Medications: injection, Oral drugs, local Application ☐ No treatment given ☐ Follow up	☐ Free ☐ 1 – 50 ☐ 51-100 ☐ 101-200 ☐ 201-300 ☐ 301-400 ☐ > 400 ☐ Other : 7-1 ____________
( )	☐ Cough / running nose / respiratory tract infection ☐ vomiting / diarrhoea / gastro-intestinal discomfort ☐ Fever ☐ accident / injury ☐ others, please specify 5-1____________________	☐ Private doctor ☐ GOPD (HA) ☐ AED (HA) ☐ SOPD (HA) ☐ MCH (HA) ☐ Chinese physician ☐ Physician in mainland China ☐ Other: 8-1________	☐ Diagnosis as : 1-1 ________________ ☐ Did not mention by doctor ☐ Forget what did doctor say ☐ Not known	☐ Refer to AED ☐ Admitted to hospital ☐ Refer to SOPD ☐ Medications: injection, Oral drugs, local Application ☐ No treatment given ☐ Follow up	☐ Free ☐ 1 – 50 ☐ 51-100 ☐ 101-200 ☐ 201-300 ☐ 301-400 ☐ > 400 ☐ Other : 7-1 ____________

Denote : GOPD (HA) = General Out Patient Department (Hospital Authority) ; AED (HA) = Accidental and Emergency Department (Hospital Authority) ; SOPD (HA)=Special Out Patient Department (Hospital Authority) ; MCH (DH)= Maternal and Child Health Centre / Family Health services Department (Department of Health)

C3. How many times has your child admitted to a hospital?

☐ 1 none

☐ 2 yes, _____ times (please ask the details of each consultation)

C4. Details of each admission:

Date of	Reason(s) for consultation (4 all that apply)	Types of hospital admitted	Diagnosis made by doctor (4 all that apply)	Intervention / advice(s) given by doctor	Expenses HK $
Admission (/ /) ⇓ Discharge (/ /)	1. Cough / running nose / respiratory tract infection 2. vomiting / diarrhoea / gastro-intestinal discomfort 3. Fever 4. accident / injury 5. others, please specify _____ 5-1	1. HA hospital 2. Private hospital 3. Hospital in mainland China 4. Other: 4-1 _____	1. Diagnosis as : 1-1 _____ 2. Did not mention by doctor 3. Forget what did doctor say 4. Not known	1. Follow up not required 2. Follow up required 3. Not known 4. Other: 4-1 _____	1. Free 2. Standard HA charges 3. Other: 3-1 _____
Admission (/ /) ⇓ Discharge (/ /)	1. Cough / running nose / respiratory tract infection 2. vomiting / diarrhoea / gastro-intestinal discomfort 3. Fever 4. accident / injury 5. others, please specify _____ 5-1	1. HA hospital 2. Private hospital 3. Hospital in mainland China 4. Other: 4-1 _____	1. Diagnosis as : 1-1 _____ 2. Did not mention by doctor 3. Forget what did doctor say 4. Not known	1. Follow up not required 2. Follow up required 3. Not known 4. Other: 4-1 _____	1. Free 2. Standard HA charges 3. Other : 3-1 _____

SMOKING STATUS

PVD1. Did your spouse smoke any cigarette for the last 24 hours?

☐1 No ⇒How long has he/she stopped? PVD1.1_____ *days/weeks.

☐2 Yes

PVD2. In the past 6 months, on average how many cigarettes did your spouse smoke per day?

☐1 Occasionally smoke, but do not smoke everyday. PVD2.1_____cig/day

☐2 PVD2.2_____cigarette(s) per day

PVD3. In the past 6 months, on average how many cigarettes did your spouse smoke per day at home?

☐1 Never smoke at home. (move on to PVD5)

☐2 Occasionally smoke, but do not smoke everyday.
PVD3.2._____cig/day

☐3 PVD3.2_____cigarette(s) per day

PVD4. In the past 6 months, on average how many cigarettes did your spouse smoke next to your child within 3 metre per day?

☐1 Never

☐2 PVD4.2_____cigarette(s) per day

PVD5. In the past 6 months, did your spouse has not smoke more than 24 houtd?

☐1 No

☐2 Yes, ⇒How Long has he/ she quitted smoking for at least 24 hours?

PVD6. Compared to the past 6 months, did your spouse smoked more, less or about the same number of cigarettes?

☐1 Smoked more, before the past 6 months he/she smoked PVD6.1_____ cigarettes per day.

☐2 About the same

☐3 Smoked less, before the past 6 months he/she smoked PVD6.3_____ cigarettes per day.

QUIT ATTEMPT

PVD7. Has your spouse attempted to quit smoking in the past 6 months?

☐1 No

☐2

☐3

THE END

Introductory statement

(Good morning/good afternoon/good evening). I am a nurse calling from the Department of Community Medicine, the University of Hong Kong. My name is Mak yim-wah. May I speak to (*child's parents*)? Thank you for your completion of a birth cohort study conducted by our University and the Department of Health on parents' smoking habit in 1997–98. According to the information you provided in the last study, your husband/You smoked. I have a lot of mothers who wish their husband to quit smoking and to avoid their children's exposure to passive smoking. We are now conducting a study in helping people to quit smoking. We would provide free smoking cessation program if you and your spouse agree to participate. Before I talk to the father, I would like to ask you a few questions about situations of you and your child. It takes about 5-10 minutes to finish. All information obtained in this survey will remain strictly confidential. Your valuable information will be useful to guide the design of future smoking prevention activities and the services of promoting health for all. (mother's consent)

Interview

This interview is completed. Thank you very much

Is it possible that I can now talk to the father?

(If the target person is not available, put the below information onto the front page)

When is the best time I could call him?

Telephone no: _____

Contact time : _____(morning/afternoon/evening)

Or he can call me at 2766 . I shall phone him/her at that time. Thank you very much.

Introduction to the target parent (smoker)

I am a nurse calling from the Department of Community Medicine, the University of Hong Kong. My name is Mak yim-wah. Your wife/husband had completed a birth cohort study conducted by the University of Hong Kong and the Department of Health on parents' smoking habit in 1997–98. She has also completed an interview about the health situation of herself and your child. According to the information she/he provided you smoked cigarette. We are now conducting a study to help smokers to quit.

We would help you to quit smoking **free of charge** if you agree to participate. And now I would like to invite you again in participate in this program. All information obtained in this survey will remain strictly confidential. Your valuable information will be useful to guide the design of future smoking prevention activities and the services of promoting health for all.

If you have any questions, please feel free to call me at 2766 . If you have any additional questions, you may also contact Professor Lam TH at 2819 in the Department of Community Medicine, the University of Hong Kong.

CONSENT FORM
Are you willing to participate this smoking cessation programmme?

☐ Yes (START INTERVIEW)
☐ No

What is your reason for not willing to participate in the smoking cessation program?
☐ No time
☐ Not interested in quitting
☐ Tried before and do not want to try again
☐ I'm afraid of the side-effect from quitting
☐ Others, please specify:_____

Randomization: CONTROL / INTERVENTION

For **control group**

All questions are completed. Thank you very much for your co-operation. We would like to send you some self-help materials on how to quit smoking and will phone you again after six months. May I confirm your address and telephone number. (***Please put the subject's particulars onto the front page***)

For the intervention group

All the questions are completed. Thank you very much for your co-operation. Now, I'm going to give you a free counseling service to help you quit smoking.

COUNSELING (*According to Prochaska's stage of change*):

Maintenance (if C1 = 3/4)

Action (if C2 = 1)

Contemplation (if C3 = 1)

Preparation (if C4 = 1)

Thank you very much. May every success on your quitting attempt. In order to give help and support to you, we will contact you next month and 3 month later for the second and the third interview . On both sessions we will discuss your progress and difficulties in quitting smoking and counseling would be given as well. Those interview sessions will take about 15-20 minutes each. Besides, we will send you some materials on smoking cessation. May I confirm your address and telephone number? When is the best time to call you back? (***Please put the subject's particulars onto the front page***). If you have any problems or concerns about your quitting attempt, please feel free to contact Ms.Mak Yim Wah via **hotline XXXXXX from 9Am to 9 Pm**

Smoking Cessation Programme for Parents with Young Child

Call Record

Participant's name:________________ serial number:__________________ **Group**: control/intervention

Please circle the appropriate and fill in the details:

Trial	Reason x call*	Date	Weekday	Time	Outcome code	Remarks	Interviewer	Action	Next appt.
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
______									
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
______									
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____
____	I.C1.C2.C3.FU	___/___	(平/六/日)	9-10-11-12-1-2-3-4-5-6-7-8-9-10-11	(_____)	____________	__________	6 / ™ / 4	___/_____

*I: initial interview C1: 1st counseling ; C2: 2nd counseling ; C3: 3rd counseling ; FU: follow-up

Outcome codes

C.I. : completed interview
N.A. : no answer / Fax / Busy signal / Answering machine
C.B. : Call back (please specify) (Not at home, received by _________)
W.N. : Wrong no.
D.S. : Disconnected
R.F. : Refused ™ Completed R.F. record

Remarks: