

The natural history of unassisted smoking cessation in Australian ex-smokers

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A thesis submitted to fulfil requirements for the degree of Doctor of Philosophy

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Dedication

This thesis is dedicated to my late mother, Ethne Isobel Smith.

She always believed in me even when I did not believe in myself.

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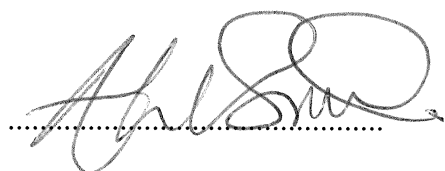
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Candidate's declaration

I, Andrea Smith, hereby declare that the work described in this thesis is my own. I am the principal researcher of all work contained in this thesis, including work conducted in association with my PhD supervisors and the chief investigators on the National Health and Medical Council of Australia grant that funded this research. This thesis does not contain written or published materials prepared by others except where acknowledged within the text, and has not been submitted to any other university or institution as a part or whole requirement for any higher degree.

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Andrea Smith

Date: 1 February 2018

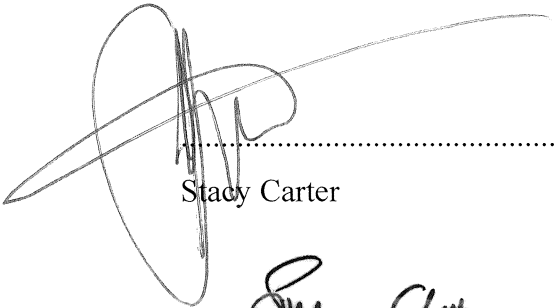
Contributions, publications and presentations

Associate Professor Stacy Carter was my primary supervisor. Emeritus Professor Simon Chapman and Dr Sally Dunlop were my associate supervisors. Dr Becky Freeman was a chief investigator on the research team. All three supervisors and Dr Freeman made conceptual, analytic and editorial contributions to the work in this thesis and co-authored publications. A statement outlining the particular contributions of each author prefaces each chapter that contains a publication. The final editorial authority remains my own.



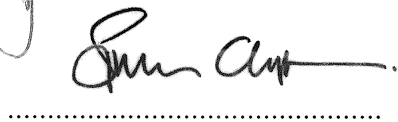
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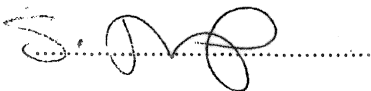
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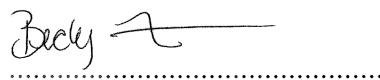
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Becky Freeman

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Peer-reviewed publications

Some of the chapters and appendices in this thesis (Chapters 3–7, 9; Appendix A) contain material that is published, in press, or under consideration with a peer-reviewed journal. The citation details are as follows:

1. Smith, AL. The ‘being serious’ framework: a qualitative study exploring how Australian ex-smokers explain their quitting success. Submitted to *Social Science and Medicine* February 2018.
2. Smith AL, Carter SM, Chapman S, Dunlop SM, Freeman B. Revealing the complexity of quitting smoking: a qualitative grounded theory study of the natural history of quitting in Australian ex-smokers. *Tobacco Control* Published online first: November 23, 2017. doi:10.1136/tobaccocontrol-2017-053919.
3. Smith AL, Carter SM, Chapman S, Dunlop SM, Freeman B. Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers’ perspective. *BMC Public Health* 2017;17:430.
4. Smith AL, Carter SM, Chapman S, Dunlop SM, Freeman B. Why do smokers try to quit without medication or counselling? A qualitative study with ex-smokers. *BMJ Open* 2015;5:e007301.
5. Smith AL, Carter SM, Dunlop SM, Freeman B, Chapman S. The views and experiences of smokers who quit smoking unassisted. A systematic review of the qualitative evidence. *PLoS One* 2015;10:e0127144.
6. Smith AL, Chapman S, Dunlop SM. What do we know about unassisted smoking cessation in Australia? A systematic review, 2005–2012. *Tobacco Control* 2015;24:18-27.

Additional publications (invited commentaries)

1. Smith AL, Chapman S. Quitting smoking unassisted: the 50-year research neglect of a major public health phenomenon. *JAMA* 2014;311:137-8.
2. Smith AL. Carter SM. Despite help on offer, many smokers prefer to quit on their own – here’s why. *The Conversation*, 6 November 2015.
<http://theconversation.com/despite-help-on-offer-many-smokers-prefer-to-quit-on-their-own-heres-why-41749>.

Presentations

During my candidature I gave oral presentations that presented material from this thesis. The details of these presentations are as follows:

1. Oceania Tobacco Control Conference, Hobart, Australia, 2017. Revealing the complexity of quitting smoking: a qualitative study of Australian ex-smokers’ experiences of quitting.
2. Behavioural Research in Cancer Conference, Melbourne, Australia, 2017. The assistance paradox: understanding the complexity of quitting.
3. Oceania Tobacco Control Conference, Perth, Australia, 2015. Quitting, fast and slow: what ex-smokers can tell us about quitting smoking.
4. School of Public Health Research Day, University of Sydney, Sydney, Australia, September 2015. Making sense of unassisted smoking cessation.
5. Centre for Values, Ethics and the Law in Medicine, University of Sydney, Sydney, Australia, May 2015. Why do smokers quit unassisted?
6. Cancer Institute NSW, Sydney, Australia, April 2015. Why do smokers quit unassisted?

7. World Cancer Conference, Melbourne, Australia, 2014. Why do smokers quit without using assistance?
8. Public Health Association of Australia Conference, Perth, Australia, 2014. The views and experiences of smokers who quit without assistance.
9. Oceania Tobacco Control Conference, Auckland, New Zealand, 2013. What do we know about unassisted smoking cessation in Australia?
10. School of Public Health Research Day, University of Sydney, Sydney, Australia, July 2013. Unassisted smoking cessation research in Australia, 2005–2012.

Preface

Although some believe tobacco has been ‘done’ and that the threat posed by Big Tobacco has been neutralised, this is far from true. Worldwide, smoking remains one of the most important and pressing issues faced by those in public health. In the 20th century 100 million people died as a result of smoking tobacco; in the 21st century this will balloon to an almost incomprehensible 1 billion if current smoking patterns continue.¹ In countries such as Australia with advanced tobacco control policies,² impressive all-time lows in smoking prevalence have been achieved, but this has been achieved primarily through reductions in uptake rather than improvements in rates of cessation.³ The opportunity therefore exists to improve how we think about cessation and the policies and programmes we implement to encourage and support cessation. In particular, it has been argued that there has been insufficient research examining the most common path to smoking cessation – unassisted quitting.⁴ Understanding *how* smokers succeed in quitting when they quit on their own, and indeed, *why* they end up quitting unassisted in the face of so many suggestions that they use assistance, has the potential to help inform future cessation campaigns and provide valuable insights that could help those in health promotion and healthcare encourage and support Australian smokers to quit.

Given the level of smoking cessation support that is available to smokers in Australia, it arguably provides an ideal environment for quitting. However, despite this support there remain in excess of 2 million smokers, many of who had no intention of becoming life-long smokers when they first took up smoking. Many were initially unaware of exactly how quickly they could become addicted to smoking or how challenging it can be to quit. We owe it to these smokers, and future smokers, to better understand the process of quitting.

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Working on this thesis has been one of the most enjoyable experiences of my life. This was wholly unexpected. Having endured what was surely the most miserable year of my life while enrolled as a doctoral candidate at the School of Molecular Biology at Edinburgh University more than 25 years ago, my expectations were modest. However, the circumstances surrounding these two experiences could not have been more different. What drove me to abandon my first candidature was the unrelenting boredom I felt when working in a lab, my disinterest in the hypothesis I was testing, and the almost total lack of peer support or sense of belonging that I experienced in those 12 months. My 5 years as a doctoral candidate at the School of Public Health, University of Sydney, have been quite different. For that I owe a massive debt of gratitude to my wonderful supervisors, to the HDR support staff at the School of Public Health, and to my inspirational colleagues and fellow doctoral candidates at Sydney Health Ethics where I have been based for the majority of my candidature.

I have the ever-enthusiastic, somewhat unconventional (in the nicest possible way) Simon Chapman to thank for my passion for tobacco control. His boundless enthusiasm for tobacco control and his belief that what we do as researchers should make a difference has been inspirational. I have Stacy Carter and my now boss Julie Mooney-Somers to thank for teaching me almost everything I know about qualitative research and for making me the critical thinker I now am. Your guidance has changed the way I look at the world and has allowed me to achieve more than I ever dreamt I could – thank you. And I have Sally Dunlop and Becky Freeman to thank for their immense knowledge that they were always willing to share and the support and encouragement they have given me throughout this long process.

Of my many wonderful colleagues at Sydney Health Ethics, there are two people who have made the last few years particularly happy ones. Kristen Pickles and Jane Williams have helped me to grow as a researcher, to become confident in my abilities, and to feel part of a community. Above all they were always there with just the right words when things just seemed too hard.

After my ‘failure’ to succeed in research 25 years ago, I now realise it was the field (molecular biology) and the research tradition (quantitative) that were the wrong fit for me and my interests. Having the courage to go back and study first for my Masters in Public Health and then a doctorate came from my dear friend Peter Hobbins: without his encouragement I may never have taken this first step. And I could not mention Peter without mentioning Rachel Carter, one of my dearest friends. Thank you: I think you both know how much you mean to me.

Submitting this thesis means my three headstrong, opinionated and at times impatient daughters, Frances, Molly and Isla, finally have the answer to the oft-asked question ‘When will your PhD be finished?’ I hope completing my doctoral studies will show you that patience and perseverance can pay off, that at times it is simply about keeping on, even when it looks like it is all too hard and progress is frustratingly slow. And although being your mother is my number one priority, and far more important than any thesis, I hope one day you too will experience the joy of working on something you love passionately.

And finally, I thank Robert, the most supportive, inspirational and devoted partner anyone could wish for. Over the past 5 years our lives have at times been chaotic if not downright out-of-control, but whatever I needed to do Robert was there to support me and to make it happen. Thank you from the bottom of my heart.

Abbreviations

ATSI	Aboriginal and Torres Strait Islander
CEOS	Context, executive and operational system
CI	Confidence interval
CPD	Cigarettes per day
DSM	Diagnostic and Statistical Manual of Mental Disorders
ENDS	Electronic nicotine delivery system
GP	General practitioner
HR	Hazard ratio
HREC	Human Research Ethics Committee
ITC	International Tobacco Control
NHMRC	National Health and Medical Research Council
NRT	Nicotine replacement therapy
OTC NRT	Over-the-counter nicotine replacement therapy
PRIME	Plans, responses, impulses, motives and evaluations
RCT	Randomised controlled trial
SES	Socioeconomic status
SOC	Stages of change

Abstract

This thesis builds on and contributes to work in the field of self-change from addictive behaviours by reporting on how and why Australian smokers quit smoking unassisted, that is, without professionally mediated behavioural assistance or pharmacotherapy. Although a number of international studies have examined self-change in the fields of alcohol use, drug use, gambling and overeating,¹ to date there has not been a strong focus on self-change in smoking.^{2,3}

My research was specifically designed to provide an in-depth understanding of the complex process of smoking cessation from the ex-smokers' perspective, with particular attention given to the relatively understudied area of unassisted quitting. As such, this thesis provides insights into: (1) the prevalence of unassisted quitting in Australia; (2) the reasons why Australian smokers choose to quit unassisted; (3) the process of quitting; and (4) the conditions that characterise a successful quit attempt. In this thesis I draw together these findings to present a typology of quitting (i.e. was the quitting measured, opportunistic, naïve or unexpected) based on four key characteristics commonly found in participants' accounts of quitting: the presence of a clearly identifiable trigger, evidence of preparation, the amount of effort invested in quitting, and the speed of onset of quitting.

This thesis also presents a detailed account of how ex-smokers can be classified in terms of the patterns of use (or non-use) of assistance across their quitting history, concluding that two experiences were common to all participants: almost no one quit at their first attempt and almost everyone started out quitting unassisted. Furthermore, distinct patterns existed in the timing and use of assistance, in particular the age at which assistance was used, how some participants were resolutely uninterested in assistance, and how assistance might have contributed to the process of successful

quitting even if not used on the final attempt. I identified three patterns in use of assistance: (1) only ever tried to quit unassisted; (2) started unassisted, tried assistance but reverted back to unassisted; and (3) started unassisted, tried assistance and quit with assistance.

Finally, I report a core concept, ‘being serious’ and explain how this concept provides an alternative to the commonly used concepts – motivation, willpower, determination and commitment. I propose that ‘being serious’ might make more sense to smokers. ‘Being serious’ draws on all of my earlier findings. I propose that ‘being serious’ typically requires the coming together of three critical elements: previous experience of quitting, an identity (or existential threat) and suitable timing and circumstances.

My research differs from previous studies in that it uses a grounded theory methodology to provide an in-depth understanding of quitting from the ex-smokers’ perspective. In doing so my research takes into account the whole of the ex-smoker’s quitting and smoking history: that is, I treat successful quitting as a process rather than a stand-alone event unconnected to earlier quitting experiences. My research draws strongly on the work on self-change of Klingemann,¹ Sobell,^{1,4,5} and Blomqvist,⁶⁻⁹ on theories of behaviour change proposed by DiClemente and Prochaska,¹⁰ Kearney,¹¹ West,^{12,13} Borland¹⁴ and Balmford,¹⁵⁻¹⁷ theories of relational autonomy proposed by Mackenzie,^{18,19} quantitative studies on quitting smoking by International Tobacco Control researchers,²⁰⁻³¹ Murray^{32,33} and Beard,^{34,35} and qualitative studies on quitting smoking.^{2,3,36-47}

I conclude by suggesting that dichotomising assisted and unassisted quitting is unhelpful and instead argue, based on my research findings, that the two processes have more commonalities than differences.

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SECTION 1: INTRODUCTION, AIMS,
METHODOLOGY AND METHODS

CHAPTER ONE

Introduction

Background

The history of tobacco smoking stretches back thousands of years,* however, our understanding of the link between smoking and health is far more recent. This link, although suspected, was not established definitively until the publication of results from Doll and Hill's seminal longitudinal study into British doctors' smoking habits and health in the 1950s.¹ Even then, smoking did not become a public health concern until more than 10 years later with the release of two highly influential reports on smoking and health from the Royal College of Physicians in the UK in 1962 and the Office of the Surgeon General in the US in 1964.^{2,3} These reports sent a clear signal to governments and the general public that the medical profession was taking the threat to health posed by tobacco smoking seriously, and so should they. From then on the social and cultural norms around smoking gradually started to shift and smokers began to quit in significant numbers, reversing what had seemed an almost inexorable love affair with cigarettes. Interestingly, for the millions of smokers who quit at this

* Tobacco use spread from the Americas in the 1500s by Spanish, Portuguese and English sailors, but it had been chewed and smoked by the native population for thousands of years. www.archive.tobacco.org/History/Tobacco_History.html

time and in the decades that followed there was almost no support or assistance available for quitting, with the vast majority of smokers having no choice but to quit on their own. Smoking cessation assistance, ubiquitous as it is today, is a fairly recent innovation.

Although smoking cessation assistance is now commonplace, assisted quitting has by no means replaced unassisted quitting (see Box 1 and Figure 1 for the definition of unassisted smoking cessation used in this thesis). Unassisted quitting remains puzzlingly popular among smokers both in Australia and worldwide. Furthermore, relatively little is known about why smokers continue to quit unassisted and the process of successful unassisted cessation, despite unassisted quitting arguably contributing more to falling smoking prevalence than assisted quitting.⁴ The global research preference for studying assisted cessation has also drawn criticism from those who believe the dominant disease model of addiction has unduly shaped what has been studied, the forms of knowledge created, and consequently the policies that have been enacted in relation to smoking cessation.⁵⁻⁸

In this thesis I will explore what is known about unassisted smoking cessation in Australia focusing on the experiences and perspectives of ex-smokers rather than the opinions of researchers, advocates and health professionals. The current norm is to view smoking cessation as a medical condition that requires treatment, ideally pharmacological and behavioural. Based on what I already knew about use of smoking cessation assistance, I suspected that a significant proportion of smokers hold a different view.

A brief history of smoking in Australia

Seventy years ago smoking was ubiquitous in Australia, just as it was in many other parts of the world. Also consistent with international trends, smoking had for many years been actively promoted by tobacco marketing executives as sophisticated,

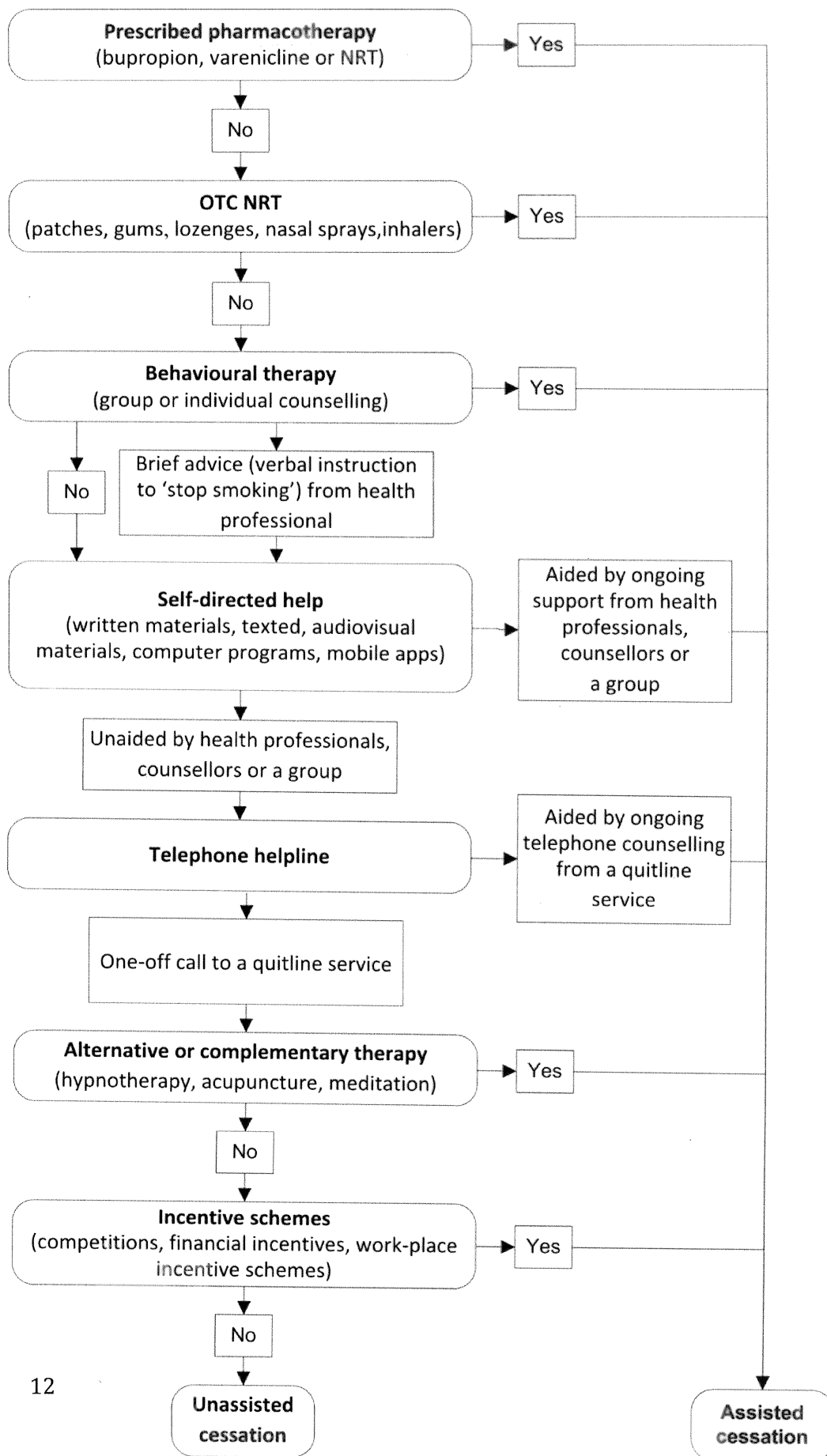
Box 1 Definition of unassisted and assisted cessation

In my analysis of existing smoking cessation literature I could find no standard definition of what constitutes unassisted (or assisted) smoking cessation. While it is universally accepted that use of nicotine replacement therapy (NRT) or stop-smoking medications constitutes assistance, there is considerable variation in the Australian literature as to whether or not brief advice from a health professional, use of self-help materials, ever calling the quitline service, or seeking information on the internet can be classified as assistance.⁹⁻¹¹ In addition, the term 'cold turkey' has been used to refer to quitting abruptly without professionally or pharmacologically mediated assistance¹²⁻¹⁴ but the term is also used to refer to quitting abruptly with professionally or pharmacologically mediated assistance.¹⁵ A standard definition of unassisted cessation was therefore required for use in this thesis.

In this thesis I was interested in the experiences of smokers who had quit on their own without 'formal assistance', be it professionally or pharmacologically mediated assistance. By formal assistance, I am referring to quitting methods that have been 'opted in' by the smoker and that provide assistance on more than a one-off basis. My definition of 'unassisted' cessation therefore included, for example, smokers who received brief advice or who called a quitline but did not receive ongoing support from a general practitioner (GP) or counsellor.

rebellious and desirable, and was accordingly embraced by waves of aspirational, optimistic, affluent post-war and post-Depression Australians.²³ Following the lead set in the 1960s by the UK and the US, Australian medical authorities and anti-cancer organisations set about challenging the power of tobacco companies to influence the behaviour, and therefore the health, of Australians. Consequently, the prevalence of smoking in Australia gradually fell from an all-time high of 72% for men in 1945 and 30% for women in 1974 to today's record lows of 14% and 11% (male and female

Figure 1. Definition of unassisted cessation used in this thesis



daily smokers aged 14+ years, respectively).^{24,25} However, a prevalence of 12.2% (daily smokers, aged 14+ years), although creditworthy and among the lowest in the world, still equates to more than 2 million smokers, most of whom will die from a smoking-related health condition unless they stop. Latest estimates suggest that in Australia smoking kills two in three persistent users.²⁶ In the 50 years from 1960 to 2010, smoking is estimated to have been responsible for the deaths of nearly a million Australians.²⁷ Even today it is still directly responsible for the deaths of nearly 19,000 Australians each year.²⁸ Preventing uptake of smoking and encouraging and supporting current smokers to quit remains a key public health priority. Recent data suggest that in Australia we have been very successful with the former, less so with the latter. Although prevalence in Australia has been falling steadily it has been suggested that much of the reduction is due to fewer adolescents and young adults taking up smoking rather than an increase in the number of smokers successfully quitting.²⁹ Quit proportion data from Australia's National Drug Strategy Household Survey, although complex to interpret, appear to support this suggestion (Box 2 Proportion of ex-smokers in Australia).

From a public health perspective, smoking is remarkable: not only is it a preventable cause of death, but also much of the damage caused by smoking is reversible. Quitting has immediate as well as long-term health benefits. Quitting before the age of 50 years halves the risk of smoking-related death; quitting before the age of 30 years avoids almost all the excess risk associated with smoking.³² Recent data suggest most Australian smokers are interested in quitting: almost all Australian smokers regret ever having taken up smoking,³³ most want to quit, and almost all have made at least one attempt to quit.^{34,35}

Box 2 Proportion of ex-smokers in Australia

The quit proportion, or the proportion of ex-smokers in the population, is one way of tracking quitting at the population level. The quit proportion is the proportion of 'ever' smokers who have now quit (an ever smoker is someone who has smoked more than 100 cigarettes in their lifetime). In Australia the proportion of ex-smokers in the population peaked in the early 2000s at 26.4% (2004), but has since dropped to 22.8% (2016).^{25,30} This decline in the proportion of ex-smokers since the early 2000s suggests that increases in the percentage of people not taking up smoking in the first place ('never' smokers) rather than increases in the number of people quitting ('ex-smokers') might have been most important in reducing the prevalence of current smoking. However, the falling proportion of ex-smokers could be due to a number of other factors, including increasing mortality among the generation born prior to 1930, many of whom were smokers as young adults but who subsequently quit.³¹

Nicotine and smoking

The substance that causes individuals to become, and remain, addicted to smoking is nicotine, a chemical that occurs naturally in the leaves of the tobacco plant. Nicotine, while addictive, is not in or of itself responsible for the health-related consequences of smoking (Box 3 Health effects of smoking).

Box 3 Health effects of smoking

The health-related consequences of smoking are due to exposure to the numerous noxious and carcinogenic substances present in tobacco smoke and tar.³⁶ Although lung cancer was the first recognised and remains the most widely known consequence of smoking, smoking is now known to harm almost every organ in the body.³⁷ Major causes of smoking-related morbidity and mortality include coronary heart disease, respiratory diseases such as chronic obstructive pulmonary disorder, stroke, and cancer especially lung cancer, but also oesophageal, pancreatic, bowel and bladder cancer.

The link between nicotine and tobacco dependency was first made in the 1920s.^{36,38} The ability pure nicotine had to relieve, at least temporarily, an individual's desire to smoke was reported in the 1940s.³⁹ Although these research findings made clear the link between nicotine and tobacco, tobacco smoking continued for many years to be conceptualised as a socially learnt behaviour, that is, a psychological habit one learnt rather than a physical drug addiction over which one had little control. Treatment options up until the 1980s were based on the prevailing psychological models of behaviour change. This gradually changed as interest in the physiological role of nicotine in tobacco addiction increased in the 1970s, culminating in the publication of the US Surgeon General's report in 1979 in which tobacco use was for the first time described as a substance abuse dependency.⁴⁰ Shortly afterwards tobacco use was included in the Diagnostic and Statistical Manual of Mental Disorders (DSM-II-R) as a substance abuse disorder, heralding a shift to conceptualising smoking (i.e. tobacco addiction) as a disease, a framing reinforced by the US Surgeon General's 1988 and 2000 reports which stated cigarettes were addictive, that nicotine was the drug in tobacco that caused addiction, and proposed that tobacco dependence was best viewed as a chronic disease with periods of remission and relapse.^{38,41}

Effects of nicotine on the body

Nicotine, even in low doses, has numerous physiological and psychoactive effects that can lead to dependence. Nicotine's effects are primarily mediated through release of the neurotransmitter dopamine in the brain's reward system,⁴² and release of nerve-stimulating chemicals such as acetylcholine and glutamate in the hippocampus and cerebral cortex.⁴³⁻⁴⁵ These chemicals are involved in the regulation of emotion, the processing of rewards, and in improving vigilance, attention and cognition.⁴⁶ It is these effects, and the desire to maintain them, that result in continued smoking.

Dependence is reinforced by a range of unpleasant withdrawal symptoms that a smoker can experience if they stop smoking abruptly (Box 4 Nicotine withdrawal syndrome).⁴⁶

Box 4 Nicotine withdrawal syndrome

In addictions to substances such as opiates and alcohol withdrawal results in a particular set of symptoms that occur consistently.⁴⁷ In contrast, quitting smoking produces a range of withdrawal symptoms that can differ markedly from smoker to smoker. Commonly reported withdrawal symptoms include irritability, anxiety, depression, aggression, restlessness and poor concentration. Smokers also report increased appetite, urges or cravings to smoke and difficulty sleeping. Physiological effects include decreased heart rate and decreased levels of adrenaline and cortisol.⁴⁸ Most of the symptoms resolve within 4 weeks of quitting, except for increased appetite and decreased heart rate, which may continue for more than 10 weeks.⁴⁹ Shiffman reported in 1979 that, on quitting, 23% of smokers reported no withdrawal symptoms at all.⁵⁰ It has been claimed that the press, media and pharmaceutical companies' direct-to-consumer advertising of nicotine replacement products have in many ways contributed to the perception that quitting is always accompanied by unpleasant and difficult to control withdrawal symptoms and that assistance is required to quit.⁵¹

Interventions to assist smokers to quit

Smoking cessation interventions can be either behavioural or pharmacological. Although many interventions make claims that they can help smokers to quit, only a few of these claims are evidence based. Behavioural forms of assistance with proven efficacy include group behaviour therapy programmes,²⁰ individual behavioural counselling,⁵² and telephone counselling.⁵³ Pharmacological interventions with proven efficacy include NRT, and the prescription stop-smoking medications varenicline and bupropion.⁵⁴ The success rates of these individual interventions can be improved if used in combination, particularly if behavioural and pharmacological

interventions are used together.⁵⁵ To date there is limited evidence as to the effectiveness of electronic nicotine delivery systems (ENDS), with current evidence indicating they are as effective as NRT patches.⁵⁶ Other popular interventions for which evidence is incomplete or does not currently support their use include acupuncture and hypnotherapy.^{57,58}

Smokers in Australia have access to all of the evidence-based forms of smoking cessation support (Box 5 Forms of smoking cessation assistance available in Australia). Yet it has been reported that many Australian smokers, like smokers worldwide, are not optimising their chances of successfully quitting as they are not using the evidence-based assistance available to them.

Box 5 Forms of smoking cessation assistance available in Australia

In Australia the past 20 years have seen considerable investment in evidence-based smoking cessation support. Smoking cessation pharmacotherapy has been made more accessible and affordable (e.g. over-the-counter nicotine replacement therapy (OTC NRT) in 1997; and subsidised prescribed bupropion, varenicline and NRT in 2001, 2008 and 2011, respectively). Improvements have also been made to behavioural support services available to smokers (extended quitline services and GP involvement in supporting cessation),³¹ all within a tobacco-control framework committed to denormalising smoking.⁵⁹

The debate about the comparative 'success' of unassisted versus assisted cessation

Rates of successful quitting are low even if the smoker uses the most efficacious forms of smoking cessation assistance available (Box 6 Success rates using different forms of smoking cessation assistance),⁵⁴ so it is far from clear as to which 'method' can be claimed to be more successful, and much depends on whether you take a

Box 6 Success rates using smoking cessation assistance

Success rates of different forms of smoking cessation assistance

In 2003 Hughes, Keely and Naud systematically reviewed the data on relapse and long-term prolonged abstinence among smokers who tried to quit without treatment.⁶⁴ Their analysis included the relapse curves from 2 studies of self-quitters and 5 no-treatment control groups. They reported that quitting unassisted resulted in quit rates of 3%–5% at 6–12 months for any one quit attempt. The authors noted that there was a paucity of studies reporting relapse curves for self-quitters.

In comparison there have been numerous studies examining the efficacy of pharmacological and behavioural support. Meta-analyses of randomised controlled trials (RCTs) report the odds ratio for NRT versus placebo to be 1.84 (95% confidence interval [CI] 1.71–1.99), for bupropion versus placebo 1.82 (95% CI 1.60–2.06), and for varenicline versus placebo 2.88 (95% CI 2.40–3.47).⁵⁴ Meta-analyses of RCTs report the relative risk for individual counselling versus placebo to be 1.39 (95% CI 1.24–1.57), group counseling versus placebo to be 1.98 (95% CI 1.6–2.46), and telephone counselling versus placebo 1.37 (95% CI 1.26–1.50).^{20,52,53} Somewhat confusingly for smokers, direct-to-consumer marketing of NRT products tends to report relative rather than absolute risk: for example, the Australian Nicorette website states that ‘using NRT products like NICORETTE[®] can double your chances of successfully quitting smoking versus willpower alone.’

The benefit smoking cessation medications provide to long-term quitting

It is widely accepted that quit rates decrease with time. However, it has been argued that use of relative risk as the measure of intervention effectiveness does not capture the diminishing impact stop-smoking medications have over time. Relative risk is not just confusing to smokers: it is also confusing to policymakers and clinicians.⁶⁵ A 2018 meta-analysis reported that the use of relative risk to report the effectiveness of smoking cessation medication interventions overplayed the impact these medications have on long-term quit rates.⁶⁵ The authors synthesised data from 61 studies that had been included in three Cochrane Collaboration systematic reviews of first-line smoking cessation medications (varenicline, bupropion or NRT gum, inhaler, nasal spray, lozenge or patch). Their empirical findings showed that there was a slight decline in relative risk between intervention and

(Box 6 continued)

control groups over time (3 months: 1.95; 6 months: 1.87; 12 months: 1.75). In contrast, there was a substantial, and significant, decline in risk difference ('net benefit') (3 months: 17.3%; 6 months: 11.8%; 12 months: 8.2%). Extrapolating their findings beyond 12 months they concluded: '6% probably reflects the upper limit of long-term medication [net] benefit to smokers under ideal RCT conditions. Under real-world conditions, the [net] benefit of these medications is likely to be lower than in the context of trials, owing to poor adherence to treatment protocol and fewer patient/provider interactions in real-world settings than in RCTs'.⁶⁵

clinical or population perspective. This uncertainty has spawned a heated debate among some researchers about the relative 'worth' of assisted versus unassisted cessation.^{60,61} Population-focused analysts have argued that those with a clinical focus are preoccupied with efficacy at the level of the individual rather than impact at the population level.⁶²

Furthermore, and perhaps crucially for a hard-to-change behaviour such as smoking, population-focused analysts have argued that although unassisted cessation may not be as efficacious as assisted cessation, it appears to have greater consumer acceptance. Those who defend unassisted cessation point out that despite its low rates of effectiveness (3–5%), by virtue of the sheer number of smokers who attempt to quit every year using this method, its impact and contribution to falling prevalence is important, arguably even more so than the contribution of assisted quitting.⁶² A recent International Tobacco Control (ITC) study into predictors of relapse over time reported that although use of stop-smoking medications helped to prevent relapse during the first month of a quit attempt (hazard ratio, HR=0.71–0.84), use of stop-smoking medication was predictive of relapse in the 1–6 month period after quitting (HR=1.29–1.54).⁶³

Self-change as a phenomenon

A brief history of self-change

Although unassisted cessation has received little research attention,⁶⁶ self-change is a well recognised phenomenon in other fields of addiction. The history of self-change (Box 7 Self-change terminology) can be traced back to 1962 and Charles Winick's analysis of 20 years' data from the US Federal Bureau of Narcotics.⁶⁷ Based on patterns he observed in the duration of an individual's addiction and the age at which they stopped using narcotics, he proposed that many of the 17,000 addicts had 'matured out' of their addiction (or self-changed) without the need for treatment. This led Winick to speculate about a 'life cycle' of heroin addiction, and to suggest that use coincides with a certain period in an individual's life and that most users naturally stop using heroin.⁶⁸ Although unsurprising now, at the time Winick's suggestions were controversial as they contradicted dominant beliefs about addiction. Particularly controversial was Peele's suggestion, based in part on Winick's work, that many so-called addicts could achieve long-term abstinence with time and without receiving any formal treatment.⁶⁹

Box 7 Self-change terminology

Self-change has in the past been referred to as spontaneous recovery, spontaneous resolution, spontaneous remission, auto-remission, natural resolution, or natural recovery. These terms have been criticised as being euphemisms for our ignorance of the forces at work during the change process.⁷⁷ Terms such as 'spontaneous' and 'natural' imply that the change process has no cause or is perhaps even unexplainable. Perhaps they simply reflect disbelief that change is possible in the absence of a professionally (typically medically) applied intervention. The term 'recovery' has also been criticised as it implies the presence of a disease and the need for medical intervention, stripping people of the credit they deserve for their own resilience and capacity to change.⁶⁹

Winick's findings were reinforced by the work of Robins a decade later. Robins examined the use of narcotics in men returning from Vietnam in 1972.⁷⁰ She interviewed 898 men who had been to Vietnam. Of the 898 men she interviewed, 45% (n=404) reported that they had used narcotics in Vietnam and 20% (n=180) had been addicted. However, on returning to the US, of the 404 who had been users, only 10% (n=40) continued to use opiates and only 1% (n=4) were addicted.⁷⁰ There was also no difference in the rates of continued use of opiates between veterans who had received treatment and those who had not. In 1979, Waldorf and Biernacki reviewed Robins' studies and other studies on self-change from heroin addiction and concluded that a significant number of heroin addicts naturally recover from their addiction without treatment.⁷¹ The authors concluded that 'maturing out' did not describe all of the variation in experiences, and concluded that some addicts took up a social, communal or religious cause, some gave up using the drug but stayed involved in the lifestyle, others used opiates in selected situations, and others moved on to using other substances, typically alcohol. As other self-change researchers subsequently commented, Waldorf and Biernacki openly deplored the 'virtual absence of studies providing information concerning the psychological, social, and environmental mechanisms [of self-change] and pointed to the need to explore the characteristics and resources of people who recover naturally'.^{71,72} Waldorf and Biernacki went on to hypothesise about the dynamics of natural recovery and to suggest the first theory of self-change, suggesting the process involved the addict replacing their addict identity with a more ordinary identity.⁷³ The change usually coincided with the individual reaching what was referred to as 'rock bottom' or experiencing events that caused the individual to realise they were addicted. Biernacki subsequently suggested the degree to which the addict had been immersed in the culture of heroin use impacted on how

successfully they could establish a new identity.^{74,75} Establishing a new identity was reported to be more difficult for those individuals who were more immersed in the drug culture, necessitating greater social support in order to quit and stay quit. This concurred with what Winick had reported about the importance of a change in environment and was further supported by Waldorf in 1983.⁷⁶

As I noted earlier, these early findings on self-change were unexpected and controversial in the field of addiction research. One possible reason for this is that most research into drug use and drug addiction had until then taken place in the treated rather than the general population. As others have pointed out, individuals who seek treatment are likely to differ from those who do not: ‘We cannot understand the natural history of alcoholism by solely looking at clinic samples... addiction looks very different if you study it in a general population than if you study it in treated cases’.⁷⁸ It is fair to say that research and medical attention, in particular in the fields of drug and alcohol addiction which are the source of much of the data on self-recovery, has essentially focused on the more extreme cases, that is individuals who are more addicted, making it hard to appreciate that there are multiple pathways to recovery.^{72,79,80}

Self-change and smoking

In Stewart’s 1998 review of the literature relating to self-change and smoking, Stewart concluded the ‘process of self-quitting has not received significant attention in the professional literature of tobacco addiction. Most of this research has focused on different treatment efforts and relapse prevention. Consequently, little is known about the sizeable population of smokers who quit without the aid of any outside interventions.’⁸¹ According to a review by Chapman and Mackenzie in 2010, little had changed in the intervening years.⁶⁶

What is known about smokers who quit unassisted?

There is little consistency in the findings of studies that have attempted to differentiate smokers who self-change from those who use treatment, apart from identifying self-efficacy as being important to successful cessation in self-changers.^{82,83} Several studies have drawn attention to the similarities between self-change and treatment groups, reporting characteristics such as age, number of years as a smoker, or cigarettes per day as similar between groups, along with the severity of withdrawal symptoms.⁴⁹

One of the most substantial bodies of work on unassisted quitting is that created by DiClemente and Prochaska. Between 1980 and 2000 DiClemente and Prochaska carried out numerous studies on smokers who quit without treatment, and on the basis of these findings proposed their highly influential stage-based theory of behaviour change. This model proposes individuals move through five stages (precontemplation, contemplation, preparation, action, maintenance) usually, but not always, in a sequential manner.⁸² Although the stages of change model has been critiqued by many,⁸⁴⁻⁸⁸ Prochaska and DiClemente's insistence that smoking cessation was a process rather than an event was an important contribution to the field and remains relevant today.⁸⁹

Limitations of research methodologies used to investigate self-change

Much of the self-change work has used quantitative population-based surveys. General population surveys have the advantage of providing large samples, and have been useful in establishing the prevalence of self-change. However, surveys are typically limited to collecting and correlating basic sociodemographic data with smoking and quitting behaviour and do little to explain the process of self-change,

that is, the how and why of quitting smoking. To do so requires a different approach. In a 2010 editorial, Miller and Smith⁹⁰ reinforced what Klingemann, Sobell and Sobell had argued in an accompanying review,⁹¹ stating that research into self-change has been dominated by work highlighting the extent of self-change and that ‘we may be relying too much on controlled, quantitative investigations to the exclusion of qualitative and case studies ... we do not really know why people self-change, we need to partner with those who have experienced it to help us develop a grounded and testable theoretical framework.’ This recommendation has been echoed more recently by key figures in smoking cessation research who concluded: ‘Cessation is a more chronic, complex, dynamic process than many theories or treatments assume ... One factor impeding the development of new interventions is a paucity of understanding of the natural history of quit attempts.’⁹²

This thesis takes up this challenge. It uses a grounded theory methodology – a methodology ideally placed to investigate meaning and process – to explore the natural history of smoking cessation from the perspective of the ex-smoker. This thesis focuses on what is happening in the real world rather than what happens within carefully managed RCTs. It asks ex-smokers directly to talk about their quitting and smoking experiences in their entirety rather than focusing only on an isolated quit attempt. In so doing I provide a far more nuanced account of why smokers quit unassisted, one that goes beyond listing structural barriers to use of smoking cessation assistance, and to provide a detailed account of the complex and dynamic process that lies behind a successful quit attempt.

Aims and research questions

The overarching aim of this thesis was to generate a grounded theory that explained how and why smokers in Australia quit unassisted that was based on the experiences and perspectives of ex-smokers. In particular my research questions were:

1. Why do smokers come to quit unassisted in the face of the many suggestions that they use assistance?
2. What is the process of quitting unassisted?

How this thesis is organised

This is a thesis by publication. It consists of six peer-reviewed papers (five of which have been published and a sixth that has been submitted for consideration for publication). Two of these papers are systematic reviews of literature relevant to this research that I undertook early in the research process. The first systematic review was driven by a need to clarify the prevalence of unassisted quitting in Australia and to understand what, if anything, was known about Australian smokers who quit this way. This review was published in *Tobacco Control* (2015) 24, 18–27. The second systematic review was driven by a need to understand what the existing Australian and international qualitative literature had to say about smokers' experiences of quitting unassisted. Given that unassisted quitting has been the dominant form of quitting until very recently, I had anticipated there might be a sizeable body of work on which to draw. My interest in what the qualitative literature had to say about unassisted quitting was also piqued by the identification early in data collection and analysis of the *in vivo* term 'being serious' and the disconnect between what this appeared to mean to participants and what the current, dominantly quantitative, literature had to say about quitting, with its apparent focus on motivation and reasons for quitting. This review was published in *PLoS One* (2015) 10, e0127144.

The first of my empirical papers investigated what unassisted quitting meant to participants and explored the possibility that quitting unassisted was not simply the absence of an intervention but a phenomenon in its own right, and one that had intrinsic value to certain people. This paper was published in *BMJ Open* (2015) 5, e007301. The second empirical paper provided an account of the range of quitting experiences reported by participants, and presented a typology that captured the important similarities and differences in these experiences. This paper was published in *BMC Public Health* (2017) 17: 430–440 The third empirical paper reported on the process of quitting, and took into consideration the entire smoking and quitting history of study participants. This paper was published in *Tobacco Control* (2017) [Published online first: November 23, 2017. doi:10.1136/tobaccocontrol-2017-053919].

Being a grounded theory study, the overarching aim of this thesis was to produce a model or explanation that drew all of the analysis together. This explanation is detailed in the final paper, in which I explain the core concept ‘being serious’. This paper is presented in Chapter 9, in place of the traditional discussion chapter. The paper has been submitted to *Social Science and Medicine* and is currently under consideration.

Bookending the six publications are this Introduction, a comprehensive overview of the methodology and methods (beyond what appears in the methods sections of each of the individual publications), and the Conclusion.

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CHAPTER TWO

Aims, methodology and methods

Study background

In the preceding chapters I presented an overview of smoking cessation assistance in Australia and introduced the phenomenon of self-change. In my systematic review (Chapter 3) I will show that 54%–69% of Australian smokers attempt to quit unassisted and 41%–58% of smokers succeed in quitting unassisted. This indicates an important research gap: namely, that a significant proportion of Australian smokers quit without using assistance, apparently ignoring the advice offered by health practitioners, researchers and health promotion advocates. Critically, as already noted, it appears we know very little about this phenomenon or the smokers who quit this way. In this methodology and methods chapter I explain the rationale behind the study design and the aims of the study.

The direction of my research has been influenced by several factors. First, as mentioned in the Preface, I was employed as a Research Assistant to work on a National Health and Medical Council (NHMRC) of Australia funded project

investigating the natural history of unassisted smoking cessation in Australia. My interest in tobacco control and qualitative research predates this, having been sparked by my Master in Public Health and my subsequent first-hand experience of qualitative research in a healthcare strategy consultancy. When I joined the research team the study design had been decided and the funding secured. The methodology (grounded theory), of which I knew nothing, had already been chosen. I am happy to admit I was at first unsure whether grounded theory could answer the research questions, or perhaps more truthfully, uncertain I was going to become sufficiently adept at the practice of grounded theory to produce anything close to a theory, model or explanation of what was going on when smokers quit unassisted.

Second, I was influenced by my research team. The research team comprised investigators with methodological expertise, specialised knowledge of smoking cessation in Australia and internationally; team members were researchers but also directly involved in influencing policy and practice, and working with the organisations that made these decisions. And finally, I also wanted my research to be practical. So although grounded theory aims to develop an explanation, model or theory to explain a process, I was interested in producing knowledge that could potentially influence policy and practice, for example, by informing a social marketing campaign that could target smokers based on their previous behaviour, quitting experiences or life-stage rather than the more traditional broad-brush demographics such as age, gender or cultural background.

Rationale for use of qualitative research

Qualitative approaches offer an opportunity to explain unexpected or anomalous findings from quantitative research and to clarify relationships identified in quantitative studies.¹ Qualitative studies collect large amounts of data from a small

number of informants or study sites: they trade off the number of participants for a wealth of talk or observation from each informant or site. Qualitative studies are not designed to estimate proportions in a wider population, quantify relationships between pre-determined variables, or provide a single representative or average view or opinion. Instead they seek to document and interpret a range of views, needs, values, practices and beliefs.² They are indispensable to the goal of gaining rich insights into complex behaviours. A qualitative approach is well suited to gaining a better understanding of a complex process such as quitting smoking. Many questions remain about the process of quitting, and the answers are likely to be complex, involving consideration of contextual influences, important social cues and the types of societal attitudes that can foster change in an individual's smoking and quitting behaviours. One of the strengths of a qualitative approach in the context of this study is that it would allow a better understanding of the views and experiences of smokers who had succeeded in quitting, something that had not previously been documented in any great detail in the existing literature. It seemed likely that there was much that could be learnt from the point of view of the ex-smoker.

Methodology and methods for literature reviews: Chapters 3 and 4

This thesis includes two literature reviews. In Chapter 3 I systematically review recent smoking cessation research in Australia to determine what is known about smokers who quit unassisted. In Chapter 4 I review the qualitative literature on the views and experiences of smokers who quit unassisted. I will now explain the methodology used for each of these reviews in turn.

Chapter 3: Systematic review of unassisted cessation in Australia

In Chapter 3 I present a systematic review of research on unassisted cessation in Australia. My objective in carrying out this review was to establish a clear rationale

for my thesis, that is, to shine a light on a research gap. To do so I needed to establish how extensive unassisted cessation was in Australia, and to highlight how little is currently known about smokers who quit or attempt to quit this way. My decision to restrict the review to studies on smoking cessation in Australia (rather than internationally) was based on two factors. First, this thesis set out to explore the experiences of Australian ex-smokers who had quit unassisted; and second, this research project was supported by a grant from the NHMRC of Australia. I also believed that I had a responsibility to generate findings that might be of use to Australian organisations responsible for the development and implementation of policies that encourage and support smoking cessation among Australian smokers. Although several other countries have similar tobacco control policies, none is identical to Australia in terms of how it promotes and supports smokers to quit: for example, since 2000 the UK has invested heavily in dedicated stop-smoking clinics to which GPs refer all patients interested in quitting; in the US pharmaceutical companies can advertise stop-smoking medications directly to consumers. In order to ensure the findings were as relevant as possible to the Australian context I decided that the systematic review should focus on studies reporting on smoking cessation in Australia. In this review I wished to systematically test my hypothesis that very little is actually known about unassisted cessation and that this is because unassisted cessation is viewed – by the majority of cessation researchers – as the absence of an intervention rather than a phenomenon in its own right. For this review I systematically searched four electronic databases and the grey literature for publications reporting quantitative or qualitative data on smokers who quit unassisted in Australia. I identified and screened 2228 studies, of which 248 reported on cessation. Of these 19 reported data, directly or indirectly, on unassisted cessation. I analysed the data from these studies and reported on (1) the proportion of smokers

who quit unassisted; (2) characteristics of smokers who quit unassisted; and (3) beliefs and attitudes about quitting unassisted. A more detailed methods section is provided in Chapter 3.

Chapter 4: Qualitative synthesis of the views and experiences of smokers who quit unassisted

In Chapter 4 I present a synthesis of articles reporting on qualitative studies of the views and experiences of smokers who quit unassisted. Smokers have been quitting unassisted for hundreds of years, and in large numbers since the dangers of smoking were first highlighted in the 1960s.^{3,4} Although I knew the body of qualitative research was small in comparison to the quantitative research, I wanted to ensure that my research built on what had gone before and did not ignore insights others have already provided. I therefore set out to establish exactly how much and what kind of qualitative research had been carried out on unassisted cessation. My specific aim was to identify research that reported on the views and experiences of smokers who quit unassisted and then to integrate the individual qualitative research studies into a qualitative synthesis in the hope that new insights and understandings could be generated and a cumulative body of empirical work produced. The methods I used in the qualitative synthesis were based on Thomas and Harden's method of thematic synthesis.⁵ There are numerous methodologies that can be used to integrating individual qualitative research studies into a qualitative synthesis (for example, meta-ethnography, meta-study, critical interpretive synthesis, meta-synthesis). After discussion with several colleagues who had completed qualitative syntheses I decided to use Thomas and Harden's method of thematic synthesis. This was for a number of reasons: (1) their methodology focuses on producing results that are useful to health policy and practice; (2) thematic analysis is 'not another qualitative method but a process that can be used with most, if not all, qualitative methods'⁵ and I anticipated

that the studies included in this review would use a range of different qualitative methodologies; and (3) Thomas and Harden's methodology was integrative rather than aggregative and therefore more likely to generate 'new' knowledge rather than simply summarizing knowledge. For this synthesis I systematically searched five electronic databases for publications that reported on qualitative studies. I identified 3845 reports of which 11 reported on the views and experiences of smokers who quit unassisted. I then analysed the data focusing on what the qualitative literature could report from the smokers' perspective about quitting unassisted that had the potential to offer new or alternative insights into the process or experience of unassisted cessation that had not already been reported in the quantitative smoking cessation literature. A more detailed methods section is provided in Chapter 4.

Coding of data for qualitative synthesis

My procedure for coding the data for the synthesis of the qualitative articles was essentially the same as the one I used for coding the data in interview transcripts (see Data analysis section later in this Chapter for a full explanation). Essentially, data analysis involved three overlapping stages: (1) line-by-line coding of the results from the 11 primary studies followed by (2) grouping of the line-by-line codes into descriptive themes that related to (3) broader, overarching concepts. During the initial line-by-line coding I read and closely examined fragments of data (words, lines, segments and incidents) for their analytical importance. Line-by-line codes were created to reflect what was happening in these 'meaning units', and to show actions; for example, what the participants in the primary studies were reportedly thinking, feeling or doing.⁶ Next, the line-by-line codes that were conceptually similar were grouped into descriptive themes and then these descriptive themes were grouped into overarching concepts. Once all of the descriptive themes had been sorted and grouped

into concepts, the analysis became more focused. A more detailed account of coding is provided in Chapter 4.

Methodological and theoretical framework for my primary empirical study

My empirical work has been guided by one of the oldest and most-widely used qualitative research traditions: grounded theory. Grounded theory lends itself particularly well to understanding difficult-to-change health behaviour processes.⁶ Since the development of grounded theory in 1967 by Glaser and Strauss,⁷ grounded theory has evolved and many variations now exist. I drew on the work of Kathy Charmaz, a contemporary leader in the field of grounded theory whose methodology is ideally suited to studying process and meaning.⁶ In 2015 I attended a 6-day writing and analysis workshop run by Kathy Charmaz during her visit to Australia. This experience improved my understanding of constructivist grounded theory and my analytical and writing skills. Some of the key grounded theory principles I drew upon in the design and execution of my research include:^{6,8}

- generating rather than testing theory
- collecting data in an open way, and being receptive to unexpected insights into the process being studied
- collecting detailed data from a small number of people, analysing the data, and using that analysis to guide the next stage of my data collection
- adapting the sampling strategy to the needs of the analysis, that is, participants were selected and questions refined to allow me to continue to develop concepts in my emerging theory
- stopping data collection at theoretical saturation: rather than making prior decisions about sample size, I continued recruiting, collecting data and analysing until I had a good understanding of the central categories in my developing theory

- following a clearly defined set of procedures for data analysis, known as the constant comparative method; this involved developing detailed codes, abstracting them into categories, and examining relationships between categories. During this process, I continually compared case with case and data with data; my developing thoughts and explanations were recorded in hundreds of detailed memos
- understanding that the theory I generated was not final; I was aware that it would (and will) continue to evolve as new information comes to light.

Pre-existing theories can provide a framework for thinking about a problem and for seeing beyond the data.⁶ In the course of my research and my reading I was exposed to many different theories from many different fields, such as theories of addiction, self-recovery, behaviour change, decision-making, motivation, identity and autonomy. Many of them helped me to refine and direct my thinking and my analysis. In particular, I drew on theories relating to how people behave, think and make decisions, for example motivational theories,⁹ behaviourist theories,^{10,11} rationality-based cognitive theories such as stages of change,¹² catastrophe theory,¹³ comprehensive theories of addiction such as the PRIME (plans, responses, impulses, motives and evaluations) theory of motivation,¹⁴ theories of hard-to-maintain behaviour change such as the CEOS (context, executive and operational system) dual process theory,¹⁵ identity theories^{14,16,17} and theories of autonomy.¹⁸ In each chapter I mention the specific theories on which I drew or that influenced data analysis.

Methods

Research ethics

The University of Sydney Human Research Ethics Committee (HREC) approved all study procedures and materials (reference number 15019; 19 July 2012). My request to modify the recruitment strategy was granted on 19 November 2012. My request to

modify the screening questions was granted on 4 February 2013. I sent all potential participants (i.e. participants who contacted me, who met the screening criteria and who expressed an interest in being enrolled in the study) a participant information sheet (Appendix B) and a consent form (Appendix C) prior to enrolling them in the study. I asked all participants to provide written consent for their participation prior to enrolment in the study.

Participants

My study population was Australian adults (>18 years of age) who had recently stopped smoking (more than 6 months to less than 24 months). I wanted to study ex-smokers who were unlikely to relapse. However, I also needed to balance risk of relapse to smoking, which reduces with time quit,^{19,20} against potential for recall bias.²¹ I therefore recruited ex-smokers who had quit for more than 6 months but less than 24 months. Before I could start recruiting participants, I needed to develop a standard definition of unassisted cessation that could be used to screen potential study participants and articles for inclusion in my systematic review (Chapter 3). I could not find any comprehensive definition of unassisted cessation in the literature. I therefore developed my own definition of unassisted cessation (see Box 1, Introduction), basing my rationale on the stance taken by the Cochrane Collaboration, whose reviews of smoking cessation interventions differentiate between quit attempts that are formally supported by the ongoing help of a health professional or counsellor and those that are not.²²⁻³⁰ My definition of ‘unassisted’ cessation therefore included, for example, smokers who received brief advice or who called a quitline but who did not receive ongoing support from a GP or counsellor. In total I interviewed 37 Australian adult (18+ years of age) former smokers who had quit within the past 6 months to 2 years (Table 1).

Table 1. Demographic, smoking and quitting characteristics of participants

Characteristic	Participants (n=37)
Gender	
Male	15
Female	22
Age (years)	
20–29	4
30–39	6
40–49	9
50–59	11
60–69	7
Geographical location*	
Major cities	25
Inner regional Australia	4
Outer regional Australia	7
Remote Australia	1
Total household income (AU\$) [†]	
≤30K	7
>30K–60K	5
>60K–90K	6
>90K–120K	7
>120K	9
Cigarettes per day (CPD)	
<10 CPD	11
>10 CPD	26
Use of assistance to quit	
Used assistance	11
Unassisted	26
Previous quit attempts (prior to final attempt)	
None	3
<3	16
3–10	11
>10	7
Previous experience of assistance	
Had never tried to quit before	3
Had never used assistance to quit	11
Had previously used assistance to quit	23

* Classified according to the Australian Standard Geographical Classification Remoteness Area system.

[†] 3 participants did not answer the question on income.

Recruitment

I recruited participants from the general community using traditional media (media release, print and online newspaper articles, talk-back radio) as well as social media (Facebook, Twitter). Individuals interested in participating were screened (Appendix D) to ensure they met the selection criteria (age, smoking status, time since quit, quit unassisted). Each participant was also asked about their smoking and quitting histories (e.g. cigarettes per day, years of smoking, number and type of prior quit attempts,

prior use of assistance to quit, ease of quitting) and to provide basic demographic information (e.g. age, gender, education, income and geographical location).

Recruitment started in February 2013 (Facebook and Twitter). I recruited again in April 2013 (talkback radio, and a media release from the University of Sydney that generated articles in several newspapers around Australia), in January 2015 (Twitter), and finally in February 2015 (*mX*, a free newspaper distributed at train stations at various locations in New South Wales). In total almost 200 individuals contacted me. I fully screened those who met the first basic eligibility criteria, that is they had quit smoking in the past 6 months to 2 years. I initially focused on screening individuals whose final quit attempt was unassisted as this understudied area was my primary area of interest; however, towards the end of recruitment, I expanded my screening criteria to include a smaller number of people whose final quit attempt had been assisted. My rationale was that including ex-smokers who had used assistance to quit would allow me to make analytic comparisons across cases and conditions. Recruitment resulted in 62 potential participants who met the eligibility criteria, of whom 53 signed and returned consent forms to me. It was from this pool of 53 potential participants that I chose 37 participants to interview.

In keeping with grounded theory procedures, I did not recruit a pre-determined number of participants; rather I continued to recruit until I sensed data saturation had been reached and I was confident I fully understood all aspects of the theoretical model of unassisted smoking cessation that I had developed. Participants were selected to ensure I studied a wide range of variation in the process of quitting, including data about all-important aspects of the theoretical model I was developing. Thus the criteria for recruitment and the questions that I used for screening changed as the model developed to ensure that I obtained the range of variation required, that I

was able to explain important concepts with good evidence from the data, and that I had achieved theoretical saturation.

Sampling strategy

My sampling strategy changed as the study progressed, in keeping with grounded theory methodology (see Table 2 for a full explanation of how each stage of analysis drove future sampling decisions).⁶ To establish my initial sample, I used a purposive sampling strategy focusing on recruiting ex-smokers who had quit without pharmacological or professional assistance (n=6). During this phase I aimed to sample widely, for maximum variation in terms of the type of smoker (e.g. heaviness of smoking), the type of quitter (e.g. number of prior quit attempts), and demographics (e.g. age, gender, social-economic status as judged on income and level of education). In phase 2, I switched to theoretically sampling for ex-smokers who had previous experience of using assistance (n=9). In phase 3 I focused on recruiting ex-smokers who had found quitting particularly hard or easy (n=6). In phase 4 of recruitment I extended my sampling strategy to include ex-smokers who had used assistance to quit (n=11). The final phase of sampling focused on sampling to understand the core concept ‘being serious’ (n=5, recruiting ex-smokers who thought ‘being serious’ was important to their quit attempt). Theoretical saturation was reached for the data relating to non-use of assistance (Chapter 5), for the typology of quitting experiences (Chapter 6), for the natural history of quitting (Chapter 7), and for the core concept ‘being serious’ (Chapter 9).

Table 2. Data collection: rationale for recruitment and sampling strategy

Phase	Selection criteria for this round of recruitment	Number of interviews	Summary of analysis at the end of this phase of sampling	Focus for subsequent data collection (suggested by analysis just completed)
1	Ex-smokers who quit unassisted in past 6–24 months [=PURPOSIVE SAMPLING, with a focus	6	A quitting story (motivation for quitting, strategies used to quit) but not one that was specifically about quitting <i>unassisted</i>	To compare quitting stories from ex-smokers who quit unassisted but had previous experience using assistance. Aim to establish how their

Phase	Selection criteria for this round of recruitment	Number of interviews	Summary of analysis at the end of this phase of sampling	Focus for subsequent data collection (suggested by analysis just completed)
	on maximum variation]			final unassisted quit attempt differed from earlier assisted quit attempts, and what brought them to the point of quitting unassisted.
2	Ex-smokers who quit unassisted in past 6–24 months who had previous experience of using assistance [=THEORETICAL SAMPLING, with a focus on maximum variation]	9	Final quit attempt was informed by other assisted and unassisted quit attempts; for many, when they finally reached the point of ‘being serious’ about quitting it had to be unassisted	What does the core concept ‘being serious’ mean to ex-smokers who quit unassisted? Does this differ from what ‘being serious’ means to ex-smokers who used assistance?
3	Ex-smokers who quit unassisted in past 6–24 months who had found quitting easier or harder than anticipated (in order to compare different quitting experiences and the factors that may have impacted on how difficult quitting was perceived to be) [=THEORETICAL SAMPLING, with a focus on confirming or disconfirming cases]	6	There appeared to be two quitting trajectories (fast and slow): (1) smokers who had a sudden motivating event (e.g. becoming a parent; diagnosis of a smoking-related illness; financial pressures) (2) smokers for whom their final quit attempt was the culmination of many small events. The final motivating factor could be surprisingly insignificant (the straw that broke the camel’s back).	Confirm tentative stages in the quitting trajectories – do these trajectories appear reasonable? Do the fast and slow trajectories fully explain the range of quitting experiences reported by participants? How does my data analysis/concepts important to quitting relate to Kearney and O’Sullivan’s model of behaviour change? [In this model, a value conflict in response to distressing accumulated evidence prompts a small step toward behaviour change. If successful, an identity shift begins. Increased self-awareness and self-confidence fuel continued change. ¹⁶]
4	Ex-smokers who quit in past 6–24 months who quit with assistance [=THEORETICAL SAMPLING, with a focus on maximum variation and then on confirming and disconfirming cases]	11	Few had used assistance as directed. There still seemed to be an element of the quit attempt being ‘self-directed’ rather than assisted, even in ex-smokers who had used assistance to quit.	Continue to explore the core concept ‘being serious’. Focus on recruiting ex-smokers who quit with assistance who speak highly of assistance and who used it as directed.
5	Ex-smokers who quit in past 6–24 months who thought ‘being serious’ was important to their quit attempt [=THEORETICAL SAMPLING]	5	‘Being serious’ is confirmed as the core concept.	Data collection now complete; for future studies I would recommend further investigating how many assisted quitters use assistance as directed and hearing how assistance helped them to quit. I would also recommend continuing to develop the core concept ‘being serious’ and investigating its role in other difficult-to-change health behaviours, e.g. diet or exercise.
Total participants		37		

Limitations of the sample

In phase 4 of recruitment (Table 2) I was targeting individuals who had used assistance on their final quit attempt; however, despite specifically tailoring my recruitment with the aim of attracting the attention of ex-smokers who had used assistance, I had limited interest from such individuals. Furthermore, after I had interviewed several of the participants who had been classified as having used assistance on their final quit attempt it became clear that even though they had used assistance many had not used it as directed, throwing into question whether their attempt would meet the ideal of assisted quitting as it is defined in RCTs of assistance products. This became a central finding of my study, leading me to write a paper (*Revealing the complexity of quitting smoking: a qualitative grounded theory study of the natural history of quitting in Australian ex-smokers*, Chapter 9) about the often complex interplay between assisted and unassisted quitting within a participant's quitting history and the limitations of viewing the method of quitting as a dichotomous variable.

Although I succeeded in recruiting participants from all age ranges, almost all of the participants who were under the age of 40 years had little experience of assistance and had on the whole quit unassisted. It was not clear whether I had failed to recruit young, ex-smokers who had successfully quit with assistance or whether young Australian smokers have little experience or interest in assistance. Given that this is a qualitative study, generalizations about prevalence cannot be made to the population as a whole. It would of course be interesting to explore this observation further and to establish in a population-based study whether young smokers do use assistance.

Data collection

After screening, I sent anyone who met the selection criteria a participant information sheet and consent form. I also told participants I would be conducting approximately

one interview per week and it might be many weeks or even months before I got back in contact with them. I explained I would be choosing people to interview based on their demographic data and on the smoking and quitting information provided during the screening step. This might mean that even though they had met the selection criteria and provided consent I may not necessarily select them for interview.

I piloted and revised the screening questionnaire and interview questions to check for question clarity from the participant's perspective and ease of delivery from my perspective. The interviews were audio-recorded then sent to a secure and confidential transcription service, with transcripts being returned within 5 working days. I checked each of the transcripts against the audio-recording of the interview for accuracy. The interviews lasted between 37 minutes and 2 hours 15 minutes.

I conducted 37 interviews between December 2012 and December 2015. If the participant was located within 100km of Sydney I offered to travel to meet them. Where possible, I encouraged participants to be interviewed face-to-face, although I let the final decision rest with them. Many of the participants were interstate, so I had no choice but to interview by telephone or Skype. Although I had a preference for interviewing face-to-face, I found my face-to-face and telephone interviews were of similar quality and length, in line with what other researchers have reported.³¹ I used a semi-structured interview format (see Appendix E for interview guide), but the specific questions asked and the probes used reflected the individual quitting experiences of the participant and the particular stage I was at in the data collection and analysis process. As recruitment and interviewing progressed I adapted the interview questions to elicit information that I had identified from previous interviews as being interesting or important to the ongoing data analysis (see Appendix E). In particular, I probed the conditions under which quitting occurred (social, environmental and psychological), how quitting occurred, and the consequences of

participants' actions on the quit attempt. I also paid close attention to participants' experiences with and attitudes toward assisted cessation and why they came to quit without using assistance for their final and any previous attempts.

In each interview I asked the participant to begin by telling me about when they first started to smoke and to then take me through each of their quit attempts. As they talked I drew up a timeline of the participant's smoking and quitting history (see Appendix F for example). On the timeline I marked key events in the participant's life, quit attempts, any forms of smoking cessation assistance that were used, periods of smoking and how much was smoked, reasons behind particular quit attempts, and any other information that appeared relevant to the participant's account.

Toward the end of the interview, I asked participants to complete an existing scale of self-change strategies (see Appendix G).³² I explained to participants that they should talk out-loud while filling in the questionnaire so that I could gain a better understanding of the meaning of the items to the participant. I then followed up with the participant to elicit some talk about how the items they rated as important related to one another.

Although I had prior experience of qualitative interviewing before starting this thesis I took advantage of any opportunities that came my way to improve my interviewing skills. I enrolled in several postgraduate qualitative research methods courses, and sought feedback and advice from my supervisors and fellow PhD students about good interview technique. For example, I discussed with my supervisor what sort of questions I should ask in order to encourage participants to provide useful data relating to the core concept 'being serious'. This resulted in me asking participants to provide concrete examples of what 'being serious' meant to them, to talk me through how a serious quit attempt differed from earlier less serious quit

attempts, and to describe people they knew who had in their opinion been serious about quitting or not, and what this looked like.

Data analysis

My data analysis started with the first interview. Concurrent data collection and analysis is a fundamental feature of a grounded theory methodology. This process of continuous data collection and analysis allowed me to be strategic about my future data collection. In particular, it allowed me to assess how the data I had already collected were helping me to answer my research questions. Continuous data analysis also allowed me to fine-tune my recruitment strategy to ensure I was always sampling those individuals best placed to answer the particular questions I had at that time, based on the information and insights gained in earlier interviews. I will now describe the various analytic techniques I used in my analysis of the interview data.

Coding of interview transcripts

I coded the interview transcripts using Charmaz's line-by-line (open) coding method.⁶ The line-by-line coding aimed to identify what was important to that particular participant when they quit. It also forced me to slow down and to look at the data critically, and to ask questions of it. I used Charmaz's technique of coding with gerunds (see Appendix H for example).⁶ By using gerunds the coder is encouraged to look at what was happening in the participant's account (i.e. what the participant was thinking or doing), which helps coding to be active and to focus on process and meaning. After I had coded five transcripts I compared the line-by-line codes from within individual interviews and across the five interviews. After this I consolidated and refined the codes based on patterns observed across interviews relating to key circumstances surrounding quitting (focused coding). The resulting coding tree was used to code all subsequent transcripts. The coding tree was a living document and I regularly added to it and revised it as necessary based on the information and insights

from each interview. I used the computer-assisted qualitative data analysis software NVivo 10 (QSR International) to assist in the coding steps and to create a hierarchy of focused codes (see Appendix I for example of initial codes relevant to the analysis reported in Chapter 5). There were certain features of NVivo that for me made handling qualitative data easier: for example ‘node properties’ (where I could make a note of what should/should not be coded to that node), the ease of retrieval of all data coded to a particular node, and the ability to link memos to participants and transcripts. For each of the papers I wrote, I focused on one particular aspect of quitting, and used the part of the coding hierarchy and codes relevant to that analysis/paper. Coding was only the first step in the analytical process. As mentioned above, I regularly wrote memos to document the analytical thinking driving the coding process and to help me explore the relationships between categories. Memoing and diagramming were the key processes that drove the analysis.³³ A worked example of how the category ‘Prioritising lay knowledge’ was developed from the raw data is provided in Table 3. (Note: Table 3 is an extended version of a table that appears in the paper that reported on this analysis, ‘Why do smokers try to quit without medication or counselling? A qualitative study with ex-smokers’ *Tobacco Control*, see Chapter 5.)

Table 3. An example of the coding process used in data analysis

Raw data	Initial coding*	Focused coding	Analytic category
<i>I thought I just don't want to go there [use NRT] and I thought I'd do it cold turkey. I'd done it before and I'd just have to do it but I really had to be in that right frame of mind. If you're not in that right frame of mind to me you only kid yourself.</i>	Drawing on or building on previous experience quitting unassisted	Valuing personal experiences	Prioritising lay knowledge
<i>Well [assistance] hadn't worked in the past and I didn't think – I'd come to the realisation that it was just in the mind, it was just a matter of willpower, it was just a matter of saying no and sticking to it.</i>	Dismissing or foregoing assistance owing to past personal experience		
<i>My husband, he smoked up to 50 or 60 a day. He was a really, really heavy smoker. He'd be out the front having a smoke and I'd say to him tea's ready and he'd say I'll just have a smoke and I'll be in. That's how bad he was. He was really, really bad. I saw him do it cold turkey ... I thought, well if he can do it, I can.</i>	Seeing or hearing about others succeeding cold turkey	Being influenced by shared / collective knowledge	
<i>I talked to the doctor [about quitting] and he suggested the tablets and that, but my son had tried them. They made him really crook. My niece had tried them too and they'd both got really crook with them. So, I thought no [I'll quit on my own] ... [I'd heard that the medications] don't really work. You go off the smoking, but they're not good. They give you bad nightmares and they – they reckon that the main thing is you're not really with it. Nothing matters. You don't care about things. Even to do your daily things, it's like did I do that today or not? That's what I've heard from both of them.</i>	Seeing or hearing about others failing when using assistance		

*Codes used in the analysis reported in 'Why do smokers try to quit without medication or counselling? A qualitative study with ex-smokers' (Chapter 5). Coding starts with raw data from interview transcript (on left) and becomes more abstract as analysis progresses, with the analytic category (on right) being the most abstract. * See Appendix I for full list of initial codes used in the analysis reported in the paper.*

Participant memos

Immediately after every interview I spent approximately 1 hour writing a participant memo based on my initial impressions of the interview (see Appendix J for an example). In this memo I documented my immediate response to the data, noting how the data compared with data from earlier interviews, recording questions raised by the data, and planning what I would need to focus on addressing in subsequent interviews. I also noted anything procedural that may have impacted on my performance as an interviewer or the participant's role as interviewee. The participant memo contained a

brief biographical summary of the participant and key smoking and quitting data. In the months and years to come, the participant memos served as my 'go-to' document when I needed to remind myself about a particular participant.

After about five interviews I started to ask myself three questions of the interview and the data generated (based on Lynn Richards' advice³⁴): (1) What is interesting to me?; (2) Why is this interesting to me?; and (3) Why is this of interest to the project? These questions helped to keep my attention focused on my research questions. They guided my subsequent coding and analysis and kept me on track when I felt I was becoming overwhelmed not just by the sheer volume of data, but by the amount of interesting, but not always relevant, data. And critically, these questions helped me to move from describing what had happened or what was said by a participant to thinking and writing analytically.

Journals: PhD journal and Memo journal

Throughout this thesis I have kept two key journals. The first is my PhD journal (see Appendix K for a sample page from this journal). This is where I have kept a running log of anything of relevance to my thesis. This might be a summary of a critical appraisal of a key paper, a summary of comments from a team or supervisory meeting, interesting observations from other research fields (education, nursing, psychology, addiction, business), snippets from articles that might be relevant to my data, notes from presentations I have given and so on. The second is my Memo journal (see Appendix L for a sample page from this journal). I regularly wrote conceptual and explanatory (covering aspects of my methodology) memos. The conceptual memos were where I recorded my analytical thoughts. I used memoing extensively during coding, generating hundreds of memos. It was when coding that I made connections within and across interviews, and to the existing literature and theories that might be of relevance to the data and to my analysis. The memo would

include quotes from interviews to illustrate the point I was wanting to make, citations to literature that supported or contradicted what I was finding in my data, and links to other memos that I thought might be related.

As my analysis progressed and I started to write specific papers reporting on my findings, I started individual journals for each paper. I would start these journals off by copying memos and entries from my PhD journal and my Memo journal that I thought were relevant to the paper I was writing. These entries would then be added to and refined as the cyclical process of writing and analysis continued. It was during this stage in the analysis that I would start to draw very simplistic models and diagrams to help me to understand how the various concepts in the quitting process that I was working with were related (see Appendix M for examples of diagrams used to develop the analysis reported in ‘Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers' perspective’ *BMC Public Health*, Chapter 6). These memos and diagrams formed the basis of the more sophisticated text, tables and figures that comprised the final paper.

Research log

I used my Research log to document key decisions made in relation to my research, such as ethics applications and requests for modifications, the rationale behind my recruitment decisions and strategies, key outcomes from team meetings, ideas for papers (see Appendix N for example page). I regularly discussed the codes, coding hierarchy, memos and evolving ideas and theories with the other researchers in the project team and with my supervisors. This was all documented in my research log, along with a brief explanation for the reasons behind the decisions made.

Impact my research had on my research practice

My engagement with ex-smokers over the past 5 years has changed how I view the types of knowledge that inform public health policy and practice. I now appreciate the flexibility that qualitative research offers: in particular the power that lies behind being able to strategically adjust sampling decisions and data collection to focus on exploring critical issues as they arise during data analysis. I have also learnt how important it is for those of us working in public health to gain the perspective of the person whose behaviour we are trying to influence.

In the subsequent chapters I will present the results chapters of the thesis starting with the results of the two systematic reviews followed by the results of the primary empirical study.

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SECTION 2: REVIEWS

CHAPTER THREE

What do we know about unassisted smoking cessation in Australia? A systematic review, 2005–2012

Chapter 3 overview

Chapter 3 is a systematic review of the literature reporting on unassisted cessation in Australia, published between 2005 and 2012. It consists of a published manuscript entitled: ‘What do we know about unassisted smoking cessation in Australia? A systematic review, 2005–2012’.

Publication details

Smith AL, Chapman S, Dunlop SM. What do we know about unassisted smoking cessation in Australia? A systematic review, 2005–2012. *Tobacco Control* 2015;24:18-27.

Authors' contributions

SC conceived the idea for the review. ALS and SC planned the review. ALS and SC conducted the literature searches and identified studies to include in the review. ALS categorised the studies and extracted the data. SC and SMD checked extracted data and contributed to the interpretation of the results. ALS wrote the first draft. SC and SMD contributed to the content and edited the drafts of the manuscript. All authors gave final approval for the version to be published.

Abstract

Context

A significant proportion of smokers who quit do so on their own without formal help (i.e. without professionally or pharmacologically mediated assistance), yet research into how smokers quit focuses primarily on assisted methods of cessation.

Objective

The aim of the current work was to systematically review recent smoking cessation research in Australia, a nation advanced in tobacco control, to determine what is known about smokers who quit unassisted in order to (1) inform a research agenda to develop greater understanding of the many smokers who quit unassisted and (2) elucidate possible lessons for policy and mass communication about cessation.

Methods

In January 2013, four e-databases and the grey literature were searched for articles published between 2005 and 2012 on smoking cessation in Australia. Articles focusing solely on interventions designed to stimulate cessation were excluded, as were articles focusing solely on assisted cessation, leaving articles reporting on smokers who quit unassisted. Data from articles reporting on unassisted cessation were extracted and grouped into related categories.

Results

A total of 248 articles reported on smoking cessation, of which 63 focused solely on interventions designed to stimulate cessation, leaving 185 reporting on the method of cessation ('how' a smoker quits). Of these, 166 focused solely on assisted cessation, leaving 19 reporting, either directly or indirectly, on smokers who quit unassisted.

Data from these studies indicated 54%–69% of ex-smokers quit unassisted and 41%–58% of current smokers had attempted to quit unassisted.

Conclusions

The majority of Australian smokers quit or attempt to quit unassisted, yet little research has been dedicated to understanding this process. Almost all research that reported unassisted cessation referenced it as a comparator to the focal point of assisted cessation. Public health may benefit from insights gained from greater research into the cessation method used by most smokers. Suggestions and a rationale for such research are provided.

Manuscript

The published version of the manuscript follows.[†]

[†] 'It is not my intention in this chapter to suggest that the Cochrane Collaboration Reviews provide guidance as to how one should define assisted versus unassisted cessation. In each of the Cochrane Collaboration's smoking cessation intervention reviews the efficacy of a smoking cessation intervention is compared with no intervention (i.e. in the control group participants quit without use of the intervention that is being assessed). Nowhere do they articulate what 'unassisted' means.'

What do we know about unassisted smoking cessation in Australia? A systematic review, 2005–2012

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ABSTRACT

Context A significant proportion of smokers who quit do so on their own without formal help (ie, without professionally or pharmacologically mediated assistance), yet research into how smokers quit focuses primarily on assisted methods of cessation.

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Conclusions The majority of Australian smokers quit or attempt to quit unassisted, yet little research has been dedicated to understanding this process. Almost all research that reported unassisted cessation referenced it as a comparator to the focal point of assisted cessation. Public health may benefit from insights gained from greater research into the cessation method used by most smokers. Suggestions and a rationale for such research are provided.

INTRODUCTION

Australia is a nation advanced in global tobacco control. Supportive government policies over several decades and a robust research track record have provided global intelligence to the wider tobacco control community about the introduction and impact of a wide range of vanguard policies and interventions.¹ Adult and youth smoking prevalence figures are at record lows in Australia: in 2011–2012, the prevalence of daily smoking was 15.7% among those aged 15 years or older and 4.4% among those aged 15–17 years.² This compares with 24.3% in 1991 for those aged 14 years or older.³

Australia is committed to reducing prevalence still further, and in 2008 set the ambitious goal of 10% prevalence of daily smoking among people aged 14 years or older by 2020.⁴ However, based on existing trends in uptake and cessation in Australia, Gartner and colleagues calculated that even if smoking uptake continues to decline at the current rate, prevalence will not drop to 10% until 2028. They concluded the only way to reach this goal would be to double the current cessation rate.⁵

Paradoxically, despite significant declines in smoking uptake and prevalence, population cessation rates have stalled in Australia^{3 5} and comparable nations.^{6–8} In Australia this stalling of cessation has coincided with unprecedented investment in evidence-based cessation support, including more accessible and affordable pharmacotherapy (eg, over-the-counter nicotine replacement therapy (OTC NRT) in 1997, and subsidised prescribed bupropion, varenicline and NRT in 2001, 2008 and 2011, respectively) and improved support services (extended quitline services and general practitioner (GP) involvement in supporting cessation),¹ all within a tobacco-control framework committed to denormalising smoking.⁹

The efficacy of professionally and pharmacologically mediated cessation assistance and the ability of assistance to improve cessation rates have been extensively documented.^{10–12} Yet no satisfactory explanation exists for the stalled population cessation rates in the face of access to such efficacious support. The 'hardening hypothesis'—that the group of smokers remaining as smoking prevalence declines is more addicted and less willing to quit—has not been supported in the available evidence from national datasets.¹³ To date discussion has centred around the efficacy versus effectiveness debate^{6 14} and the role that bias (recall, selection and Hawthorne effects) and confounding have in explaining why results obtained in randomised controlled trials may not generalise to 'real-world' cessation.^{15–17} Others emphasise it as a problem of reach or dissemination, with the solution being facilitating even greater access to assistance, or of a need to promote greater smoker knowledge about the benefits of professionally or pharmacologically mediated cessation.^{18 19} Nonetheless, smokers in Australia report high levels of awareness of quitlines and smoking cessation aids,²⁰ and NRT, bupropion and varenicline are all subsidised by the government, casting into doubt the potential for increased promotion to increase rates of use. Further, concern has been raised by some that the widespread marketing of pharmacological cessation aids might undermine smokers' self-efficacy⁷ and provide smokers with a 'get-out-of-jail-free card' as opposed to focusing on the need to persevere in the quit attempt.⁶

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Increasing the rates of cessation is widely considered to be challenging and invites consideration of increased²¹ and more finely tuned efforts but, given the suboptimal impact of existing strategies on cessation, of also exploring hitherto under-researched possibilities.²² One of these is to better understand the motivations and cessation experiences of the many smokers who have successfully quit on their own without professionally or pharmacologically mediated assistance in anticipation of information that may be instructive to promoting increased cessation in general.

Despite the persistence of this universal phenomenon, we know little about the many who quit this way, their tobacco use histories, their previous quit attempts, why they eschewed assistance, whether their quitting motivations are any different from those using assistance, whether they have different exposure to environments conducive to cessation and relapse prevention, and whether they use any characteristic narratives or heuristics to describe or make sense of their decision to quit on their own without professionally or pharmacologically mediated assistance. Importantly, smoking cessation is frequently framed in public discourse as being very difficult, with a high probability of relapse and a process that should sensibly involve medication and professional supervision.^{23–27} The dominance of this discourse may contribute to expectancy or nocebo effects among smokers about the likely difficulty of quitting which may condition their experience of trying to quit. The large numbers of ex-smokers who quit on their own without professionally or pharmacologically mediated assistance provide a potentially important study population whose experiences might be instructive in changing some aspects of the ways in which public health campaigns and health professionals talk about cessation to smokers. Such information may be useful to those concerned to promote higher usage of evidence-based medications, by providing insights into barriers to use. Equally, it may provide important insights into how successful ex-smokers who quit on their own without professionally or pharmacologically mediated assistance approached their decision to quit and self-management strategies used during and after cessation.

Throughout this review, we refer to those smokers who quit on their own without professionally or pharmacologically mediated assistance as having quit ‘unassisted’. Since the early 1970s, Australia has seen high-profile tobacco control policy debates, public awareness campaigns and policy implementation across all areas of comprehensive tobacco control. All of these factors have acted synergistically to foment a social climate designed to motivate smoking cessation. These factors stimulate quit attempts²¹ and, in the broadest sense of the word, might be said to ‘assist’ cessation in that they provide a supportive environment. Together they are relevant to understanding *why* smokers quit, that is, what motivates a smoker to quit. In contrast, the focus of this current study is on the method used to quit, that is, the *how* of successful cessation, of what is known about Australian smokers who successfully quit unassisted, and the research gaps that may be instructive areas of inquiry to cessation in general.

METHODS

Data sources and study selection

In January 2013, two review authors searched MEDLINE, PreMEDLINE and PsycINFO via OVIDSP, and CINAHL via EBSCO for articles published between January 2005 and December 2012 on smoking cessation in Australia. Data from articles published prior to 2005 were unlikely to be relevant to future campaign planning or policy decisions given the speed

with which the social climate surrounding smoking has changed in Australia. The reporting of this review is in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement.²⁸

Articles were identified through use of free text and indexed terms, including ‘tobacco use cessation’, ‘smoking cessation’, ‘quit’, ‘smoking’ and ‘Australia’.²⁹ Additional sources of smoking cessation data (from the grey research literature) were identified by searching relevant government and non-government websites including those of the Australian Bureau of Statistics, Australian Institute of Health and Welfare, Cancer Council Victoria, and Cancer Institute New South Wales (NSW) (see online supplementary file 1). If required, contact was made with authors of the original studies to acquire additional information relating to the study methods and/or results.

One author identified, selected and assessed the studies for eligibility, and a second author independently checked a subsample. To be included, studies had to contain original quantitative or qualitative research data on smoking cessation within the Australian population (and/or relevant subpopulations).²⁹ Once identified, articles were screened for data on unassisted cessation. Articles were eliminated if they focused solely on interventions designed to stimulate cessation (ie, did not report on methods of quitting at all) or if they focused solely on assisted cessation (figure 1 and see online supplementary file 2, ‘Selection criteria’).

Defining unassisted cessation

We were interested in identifying studies that reported on smokers who quit on their own without formal assistance, be it professionally or pharmacologically mediated assistance. By formal assistance, we are referring to quitting methods that have been ‘opted in’ by the smoker and that provide assistance on more than a one-off basis. All of the included studies agreed that use of NRT or stop-smoking medications constituted assistance; however, studies differed in whether or not they classified brief advice from a health professional, use of self-help materials, ever calling the a quitline service, or seeking information on the internet as assistance.^{30–32} In addition, several studies used ‘cold turkey’ to refer to quitting abruptly without professionally or pharmacologically mediated assistance^{33–36} but the term was also used to refer to quitting abruptly with professionally or pharmacologically mediated assistance.³⁶ A standard definition of unassisted cessation was required with which we could assess every study for eligibility (figure 2). The rationale for the definitions adopted for assisted and unassisted cessation was that it reflected the stance taken by the Cochrane Collaboration, whose reviews of smoking cessation interventions differentiate between quit attempts that are formally supported by the ongoing help of a health professional or counsellor and those that are not.^{11 12 37–42} Our definition of ‘unassisted’ cessation therefore included, for example, smokers who received brief advice or who called a quitline but who did not receive ongoing support from a GP or counsellor.

Data extraction and synthesis

After screening for eligibility, data on unassisted cessation were extracted using a template pilot tested on a sample of 60 studies drawn from a literature search run during the scoping stages of the systematic review process. Data were extracted by one author and independently checked by the other two authors. Any disagreement relating to data extraction was resolved through discussion among all three review authors. If agreement could not be reached, or if further information was required, the authors of the original study were contacted for clarification.

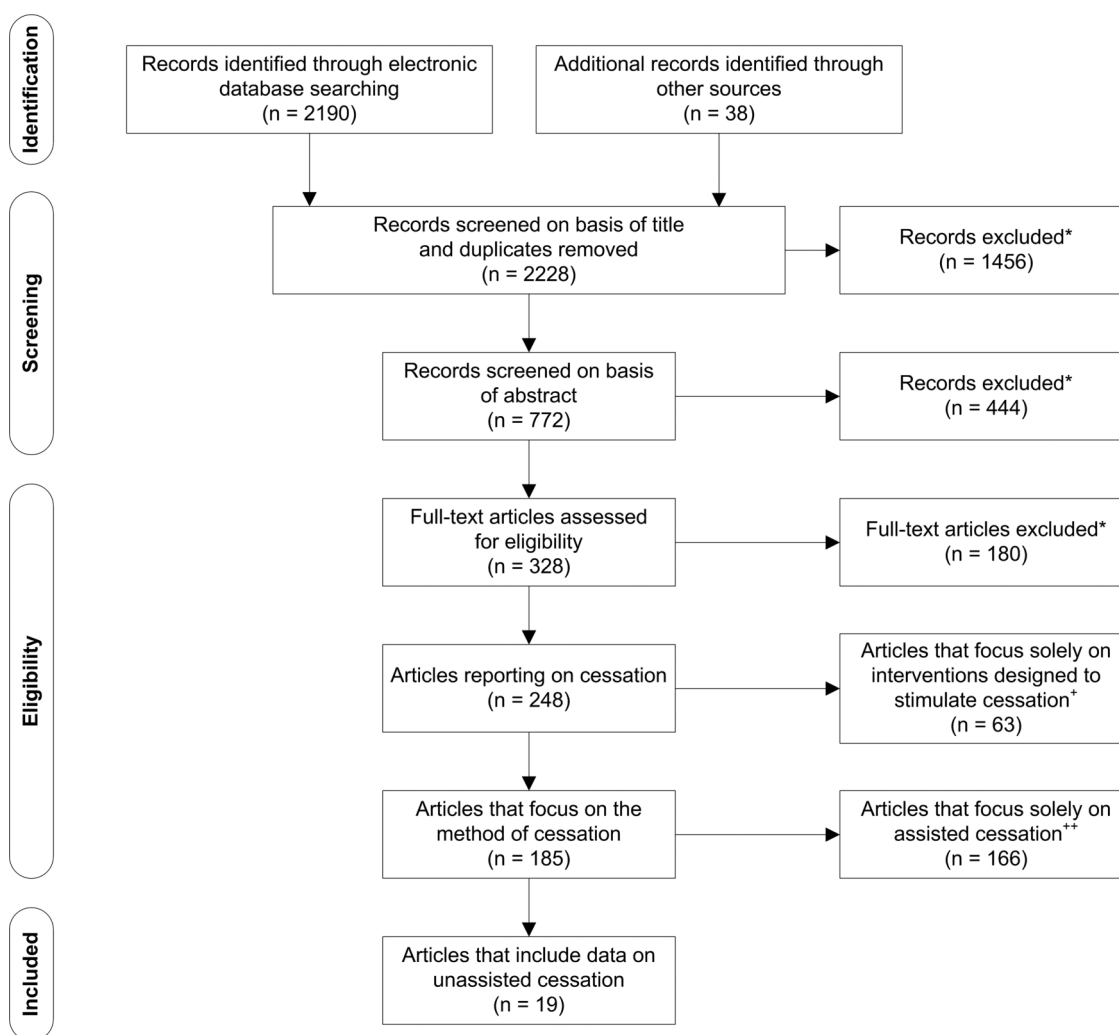


Figure 1 Identification, screening, eligibility and selection of articles retrieved from the literature search, January 2013. *Reasons for exclusion included reviews, study protocols, commentaries; studies of smoking status and health (eg, as a risk factor or predictor of disease); effects on behavioural or cognitive or affective variables, social disadvantage or social and economic status; methodological research; health economics or cost-effectiveness studies; interventions to prevent uptake; trends, correlates or predictors of uptake; development of clinical guidelines or adherence to guidelines; impact on environmental tobacco smoke; genetics; harm reduction; tobacco consumption trends and monitoring; bibliometrics; nicotine replacement therapy adverse effects.²⁹ +Interventions designed to stimulate cessation included mass-media campaigns, health warnings, smokefree policies, price increases (tax) and retail regulation. ++Assisted cessation included pharmacotherapy (nicotine replacement therapy, bupropion and varenicline), behavioural counselling, and complementary and alternative therapies (eg, hypnosis and acupuncture).

Seven authors were contacted for further information or for data clarification. Five responded: two provided clarification of the study period,^{43 44} one provided clarification of the location of the study,³⁵ one provided clarification of data reported in a figure³⁰ and one provided additional data not reported in the original reports.^{20 45} Data extraction was followed by collation and sorting by theme. In addition, funding source was noted.

RESULTS

Cessation research in Australia

In total, 2228 studies were identified: 2190 from the electronic databases and 38 from the grey literature, of which 248 met the inclusion criteria. Of the 248 articles reporting on cessation, 63 focused solely on interventions designed to stimulate cessation; this left 185 articles that focused on the method used to quit. Of these, 166 focused solely on assisted cessation, leaving 19 articles that reported data, either directly or indirectly, on unassisted cessation (figure 1). The data on unassisted cessation fell into three categories: the proportion of smokers who quit

unassisted; characteristics of smokers who quit unassisted; and beliefs and attitudes about quitting unassisted (table 1).

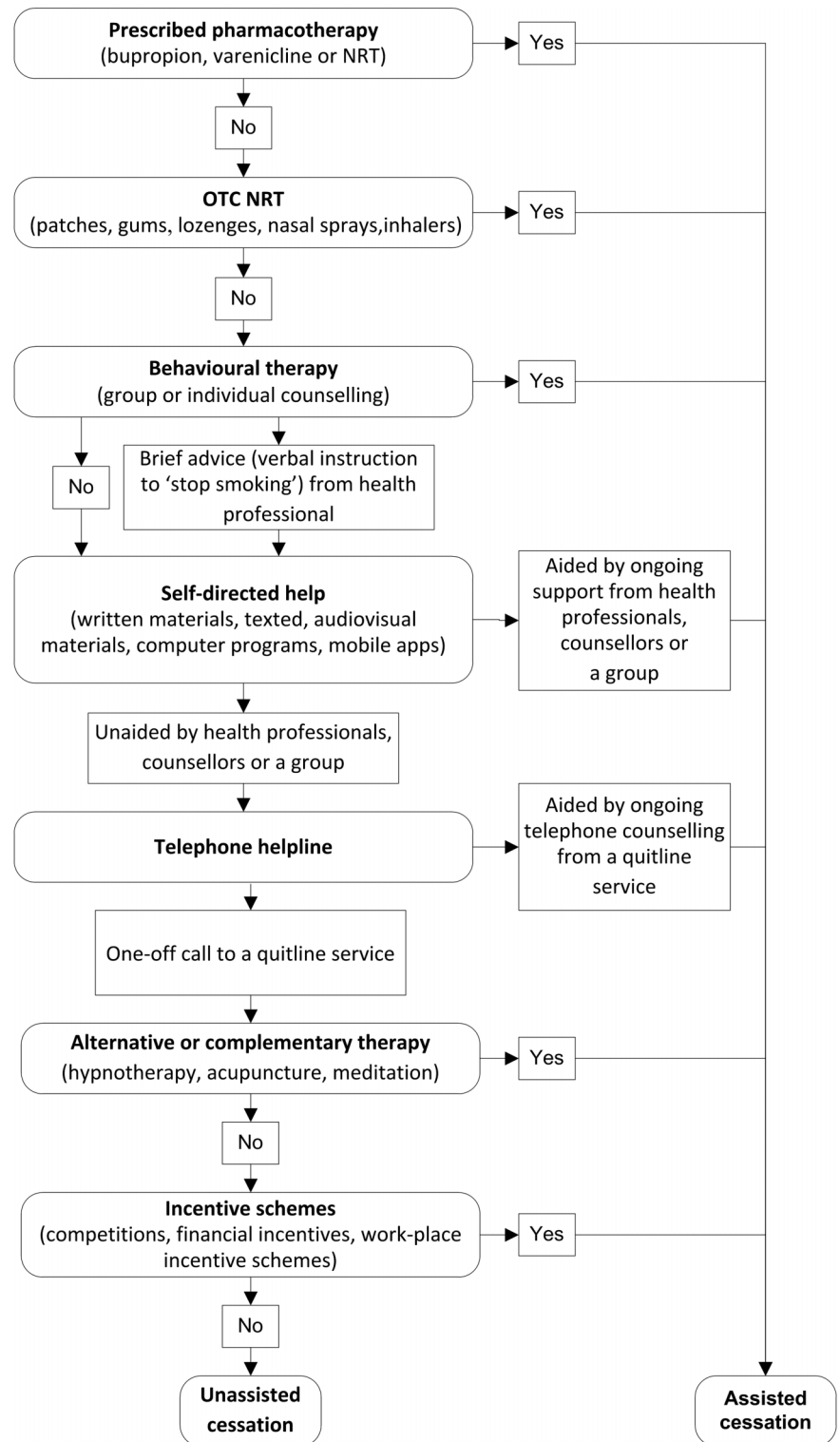
Funding

Of the 248 articles reporting on cessation, 189 were funded by government or not-for-profit organisations, 4 by pharmaceutical companies, 4 by both a government or not-for-profit organisation and a commercial organisation (3 received free or subsidised NRT from a pharmaceutical company), and 55 did not specify funding source. Of the 19 reporting on unassisted cessation, 17 were funded by government or not-for-profit organisations; 2 did not specify funding source.

Proportion of smokers and ex-smokers who quit unassisted

In all, 14 studies (11 quantitative and 3 qualitative) reported on the number or proportion of smokers who quit unassisted. The 11 quantitative studies reported that between 54% and 78% of ex-smokers quit unassisted, and between 41% and 82% of current smokers had attempted to quit unassisted

Figure 2 Categorisation of assisted and unassisted cessation. Definitions reflect the stance taken in the Cochrane Collaboration in their reviews of smoking cessation interventions.^{11 12 37–42} NRT, nicotine replacement therapy; OTC NRT, over-the-counter NRT.



(table 2).^{17 30–32 34 43–48} Of the studies with representative rather than convenience samples, between 54% and 69% of ex-smokers quit unassisted and between 41% and 58% of current smokers had attempted to quit unassisted.

The three qualitative studies reported data from focus groups or in-depth interviews. A series of 21 focus groups with smokers and 5 focus groups with ex-smokers across 4 states in Australia in 2010 reported 'Most smokers who quit for any length of time did so cold turkey with only some acknowledging the use of support aids'.³³ A Tasmanian study comprising in-depth interviews with ex-smokers (n=14) and current

smokers (n=21) in 2006–2008 reported, 'Many just decided to quit and did so without advice, NRT or medication'.³⁵ Additionally, a series of in-depth interviews with Aboriginal and Torres Strait Islander ex-smokers (n=20) in Queensland reported, 'Most participants quit smoking without using smoking cessation aids such as NRT, or varenicline, and in fact even among those who did use quit counselling services, NRT or varenicline, not one participant completed the full recommended 12-week programme'.⁴⁹

Two of the quantitative studies compared rates of successful cessation for smokers who used assisted and unassisted methods

Table 1 Summary of the 19 studies reporting data on unassisted cessation

Category and definition	Studies
1. Ex-smokers or smokers who quit or attempted to quit unassisted (expressed as a number or proportion in the quantitative studies and as a statement reflecting the views of the participants in the qualitative studies)	14 studies ^{17 30–35 43–49}
2. Characteristics of smokers who quit or attempted to quit unassisted	6 studies ^{16 17 32 33 36 50}
3. Beliefs and attitudes about quitting unassisted	5 studies ^{32 35 49 51 52}

of quitting.^{17 34} The Australia-wide 2003–2004 Bettering the Evaluation and Care of Health (BEACH) study of patients attending general practices reported a success rate (the number of former smokers divided by the total number attempting to quit for each cessation method) for smokers who quit cold turkey (defined as ‘immediate cessation with no method of assistance’) of 40% compared with 21% for bupropion and 20% for NRT for quit attempts since February 2001 (n=1030).³⁴ A possible limitation of this study is that smokers using pharmacotherapy may have been more addicted than smokers who quit cold turkey.

An International Tobacco Control (ITC) 4-Country study (which included an Australian arm) compared rates of successful cessation for individuals using or not using stop-smoking medications (varenicline, bupropion, NRT gum/oral NRT, or NRT patches).¹⁷ Although the study did not differentiate between those quitting unassisted and those quitting with behavioural support, the results provide an indication of the success rate for unassisted cessation, given that the proportion of smokers who use behavioural assistance in Australia is relatively small.³¹ The study reported that, of those who smoked 10+ cigarettes per day and quit without medication, 21% were abstinent at 1 month and 14% at 6 months, compared with smokers who quit with medication, of whom 24% were abstinent at 1 month and 16% at 6 months (n=5157 for 1-month abstinence data and n=4792 for 6-month abstinence data). After controlling for differential recall bias, of those who quit without medication, 12% were abstinent at 1 month and 5% were abstinent at 6 months, compared with smokers who quit with medication, of whom 23% were abstinent at 1 month and 14% were abstinent at 6 months (n=511 for 1-month abstinence data and n=504 for 6-month abstinence data).

Trends in proportion of smokers and ex-smokers who quit unassisted

The Cancer Institute NSW Smoking and Health Surveys and a 2011 ITC study indicate that the proportion of smokers and ex-smokers quitting or attempting to quit unassisted is falling.^{20 31 45} In NSW, the proportion of smokers and ex-smokers who quit or attempted to quit cold turkey (defined as no aids, including NRT, how to quit or self-help materials, consulting a GP, advice from health professional, pharmacist or dentist, prescribed medication, using a quitline service, natural or alternative therapy, online quit smoking info, online quit smoking programme) on their most recent quit attempt fell from 68% to 55% between 2005 and 2012.^{20 45} The ITC study reported that in Australia the proportion of smokers and ex-smokers who quit or attempt to quit without ‘help’ (help being use of NRT products, varenicline or bupropion, advice or information about quitting smoking from a quitline service, the internet, or a local stop-smoking service or specialists) fell from 63% in 2002 to 2003 to 41% in 2008–2009.³¹

Characteristics of smokers who quit unassisted

Six studies provided data on various characteristics of those quitting without assistance.^{16 17 32 33 36 50} The Cancer Institute NSW Tobacco Tracking Surveys 2007–2009 reported that younger smokers were more likely to use unaided methods such as cold turkey, and older or less-educated smokers were more likely to use aided methods (defined as prescribed medication, NRT products, advice from health professional or quitline service, natural therapies, self-help materials).³² A 2010 qualitative study by the Department of Health and Ageing involving 26 focus groups across 4 states reported younger smokers were more likely to have only tried to quit ‘cold turkey’ (defined as ‘without use of quitting aids’).³³

Two ITC studies, although not reporting specifically on unassisted cessation (unassisted cessation being the comparator group rather than the focus of the study), provided data on the profile of smokers who quit without assistance. These ITC studies reported that Australian smokers who did not use any medication (varenicline, bupropion, NRT gum, oral NRT or NRT patches) tended to be male, to be younger, to be racial/ethnic minorities, to have lower incomes, to be less heavily addicted to nicotine and to have higher self-efficacy compared with those who attempted to quit with medication, and, predictably, to disagree with the statement ‘Stop-smoking medications make it easier to quit’.^{16 17}

Two further ITC studies which reported on abrupt versus gradual quitting also provided an indication as to which smokers were more likely to have quit unassisted. The first reported that smokers who did not use assistance (defined as stop-smoking medications or a quitline service) were more likely to quit abruptly than smokers who did use assistance;⁵⁰ the second showed that in smokers who quit unassisted (defined as quitting without NRT products or prescribed medications), abrupt quitting lead to better outcomes in terms of quit rate and relapse prevention than gradual quitting.³⁶

Attitudes and beliefs about quitting unassisted

Five studies reported on attitudes and beliefs about unassisted cessation.^{32 35 49 51 52} A study using the Cancer Institute NSW Tobacco Tracking Survey data explored the perceived effectiveness of various quitting aids (defined as prescribed medication, NRT products, advice from health professional or quitline service, natural therapies, self-help materials) from the perspective of the recent ex-smoker.³² Between 2007 and 2009, ex-smokers who had quit in the past 12 months (n=1097) were asked to rate how helpful they had found various cessation methods (used on any quit attempt, not just their last successful quit attempt). In addition to being the most widely used method of cessation (69% of recent quitters had used unassisted cessation in the previous 12 months), ‘cold turkey’ (defined as no quitting aids, including prescribed medication, NRT products, advice from health professional or quitline service, online quit info or quit programme, natural therapies, self-help

Table 2 Proportion of smokers and ex-smokers who quit or attempted to quit unassisted, as reported in Australian studies published January 2005 to December 2012

Reference	Study details			Study sample	Proportion of smokers or ex-smokers who quit or attempted to quit unassisted	Notes on definitions used in study
	Design	Population	Study period			
Representative samples						
Borland, 2012 (ITC study) ^{30*}	LT	General population, Australia	2007–2008	n=1775 (current smokers who attempted to quit in past year)	55% did not use SSM or NRT when they attempted to quit	Type of SSM or NRT not specified
Cancer Institute NSW, 2012 (SHS 2011) ⁴⁵	CS	General population, NSW	Mar 2011	n=462 (current smoker who attempted to quit in the past 5 years) n=82 (ex-smoker who had quit in the past 5 years)	41% had not used varenicline, bupropion, NRT, quitline service or an online quit programme on their last quit attempt 65% had not used varenicline, bupropion, NRT, quitline service or an online quit programme on their final, successful quit attempt	
Cooper, 2011 (ITC study) ^{31*}	LT	General population, Australia	2002–2009	n=3094 observations from 1925 ex-smokers and current smokers from 7 waves of the study who had made a quit attempt in the past year	55% had not used 'help' when they quit or attempted to quit	Help was NRT patches, varenicline, bupropion, advice or information about quitting smoking from a quitline service, the internet, or a local stop-smoking service (such as clinics or specialists)
Hung, 2011 (CITTS 2007–2009) ³²	CS	General population, NSW	Apr 2007–Dec 2009	n=1097 (ex-smokers who had quit in the past 12 months)	69% had used 'cold turkey' in the previous 12 months (but not necessarily on their final, successful quit attempt)	The alternative responses to cold turkey included prescribed medication, NRT products, advice from health professional (eg, GP, pharmacist or dentist) or quitline service, online quit info or quit programme, natural therapies, self-help materials
Kasza, 2012 (ITC study) ^{17*}	LT	General population, Australia, UK, USA, Canada‡	2006–2009	n=4080 (current smokers, who smoked 10+ CPD, who had attempted to quit in the past year) n=712 (ex-smokers, who smoked 10+ CPD, who had quit in the past year)	58% had attempted to quit without using varenicline, bupropion, NRT gum/oral NRT, or NRT patches 54% had quit without using varenicline, bupropion, NRT gum/oral NRT, or NRT patches	
Convenience samples						
AIHW, 2009 (SAND/BEACH programme 2009) ⁴⁶	CS	Patients attending general practices, Australia	Feb–Mar 2009	n=317 (ex-smokers and current smokers who had quit or attempted to quit in past 2 years)	62% had used 'cold turkey' as a quitting method when quitting or trying to quit in the past 2 years	'Cold turkey' was defined as 'immediate cessation with no method of assistance'
Bowman, 2012 ⁴⁷	CS	Clients of methadone clinics, NSW	Not stated	n=46 (current smokers who had attempted to quit)	87% had 'not used any assistance on last quit attempt'	No further detail given as to what 'assistance' meant
Bryant, 2011 ⁴⁸	CS	Clients of SCSOs, NSW	Feb 2010–Oct 2010	n=181 (current smokers who had attempted to quit)	74% had used 'cold turkey' as a quitting strategy in the past	Not specified whether 'cold turkey' was defined to participants (ie, whether it meant 'quitting on own' and/or 'quitting abruptly')
Clark, 2008 ⁴⁴	CS	Student nurses, Victoria	2001	n=79 (current smokers who had attempted to quit) n=82 (ex-smokers)	82% had attempted to quit by 'stopping abruptly' on any previous quit attempt 78% had quit by 'stopping abruptly' on their final successful, quit attempt	The alternative responses to 'stopping abruptly' were 'using NRT patches or NRT gum' or 'cutting down'
Doran, 2006 (BEACH programme 2003) ³⁴	CS	Patients attending general practices, Australia	Feb–Mar 2002; Mar 2003	n=672 (current smokers who had attempted to quit since Feb 2001) n=358 (ex-smokers who had quit since Feb 2001)	60% had used 'cold turkey' on their last quit attempt 75% had used 'cold turkey' on their final, successful quit attempt	'Cold turkey' was 'immediate cessation with no method of assistance'

Continued

Table 2 Continued

Study details			
Reference	Design Population	Study period	Study sample
Walsh, 2006 ⁴³	CS General population, NSW	May–Jun 2000	n=153 (current smokers who had attempted to quit in past 12 months) n=62 (ex-smokers who had quit in past 2 years)
			Proportion of smokers or ex-smokers who quit or attempted to quit unassisted 63% did not use 'counselling, self-help materials and/or NRT' on their longest quit attempt 65% did not use 'counselling, self-help materials and/or NRT' on their final, successful quit attempt
			Notes on definitions used in study

*The three ITC studies report data from the same sample.
†The seven waves were partitioned into six pairs of survey waves, each comprising a baseline and follow-up survey; respondents were included if they were smoking daily at the baseline survey, were present at the follow-up survey and had made a quit attempt in the previous year.
‡Data reported are combined data for all four countries: Australia, USA, UK and Canada.
§Data reported are combined data for all four countries: CTTTS, Cancer Institute New South Wales Tobacco Tracking Survey; CPD, cigarettes per day; CS, cross-sectional survey, ITC study, International Tobacco Control study; LT, longitudinal survey; NRT, BEACH, Bettering the Evaluation and Care of Health; CTTTS, Cancer Institute New South Wales Tobacco Tracking Survey; CPD, cigarettes per day; CS, cross-sectional survey, ITC study, International Tobacco Control study; LT, longitudinal survey; NRT, nicotine replacement therapy; NSW, New South Wales; SCSSO, social and community service organisations (non-government, not-for-profit organisations that provide welfare services to disadvantaged individuals); SHS, Smoking and Health Survey; SSM, stop-smoking medication.

materials) was perceived as being the most helpful method of cessation. As the recent quitters were able to nominate multiple methods used either at the same time or over the course of many quit attempts, the measure of perceived helpfulness allowed quitters to distinguish between methods they believed had helped them and those that had not.³²

The concept of cessation aids 'being a sign of weakness' was mentioned by several,^{35 49} and explored extensively in the 2008 ITC study of Australian smokers and recent quitters.⁵¹ The study reported 35% of smokers and ex-smokers (ranging from 42.2% for those who were not considering quitting to 21.4% for recent quitters) believed using aids was a sign of weakness. Younger and less-well-educated smokers and ex-smokers were more likely to believe use of aids was a sign of weakness. Males and those who smoked fewer cigarettes per day were also more likely to agree that aids were a sign of weakness. Believing that use of aids was a sign of weakness was related to holding 'sceptical' beliefs about smoking and health risk and believing that smoking was 'worth it' (ie, worth the risk). Bond found that those who quit without using smoking cessation aids or support were more likely than those who used cessation aids or support to believe that use of aids was 'evidence of lack of will power'.⁴⁹ Jamrozik reported that smokers, those aged 50 years or over, those who were retired, or whose highest level of education attained was completing Year 10 (ie, leaving school aged 16) were more likely to agree with the statement 'I couldn't quit without using a product such as patches, gum, prescription etc'.⁵²

DISCUSSION

Australian cessation research has little to report about unassisted cessation. On the whole, unassisted cessation is seldom mentioned and inconsistently defined and, when it is referenced, it is usually in terms of what it is not (typically 'non-medical' or 'non-pharmacotherapy'). It is considered to be the absence of an intervention rather than a phenomenon in its own right. This focus on assisted cessation aligns with the research priorities of the smoking cessation community worldwide.²²

Unassisted cessation used to be more favourably viewed and more widely researched,^{53 54} but with the introduction of nicotine chewing gum in the 1980s and nicotine replacement patches in the 1990s it came under fire,⁵⁵ perhaps fuelled by the growing speculation that NRT would significantly improve cessation rates.^{56 57} Yet the Australian data reported in this current review confirm that nearly 20 years after the introduction of pharmacotherapy in Australia, the majority of Australian ex-smokers ('all' ex-smokers as well as 'recent' ex-smokers) who successfully quit or current smokers who attempt to quit do so unassisted, mirroring that which has been reported in comparable countries such as the USA^{58–61} and, until recently, the UK.⁶²

Although still the method used by the majority of smokers and ex-smokers, recent data indicate that the proportion who quit unassisted may be declining. This shift towards assisted cessation may be real, or may be an artefact of survey data collection and reporting. The Cancer Institute NSW Smoking and Health Surveys include consulting a GP (9% in 2005 compared with 19% in 2009) and receiving advice from other health professionals (2% in 2006 compared with 12% in 2009) as assistance,²⁰ which many smokers would consider to be what motivated or contributed to them making a quit attempt (the 'why') rather than the method they used to quit (the 'how'); similarly, Cooper's 2011 ITC study classified receiving any advice or information about quitting from a Quitline or the internet as assistance.³¹

The high proportion of current smokers^{30 34 43–48} who had used unassisted cessation when they attempted to quit could be interpreted as evidence of the failure of unassisted cessation as a method of quitting. However, the similarly high use of unassisted cessation as a method of quitting among ex-smokers^{17 32 34 43–45} counterbalances that evidence, especially as five of these six studies reported on the method used on the final, successful quit attempt,^{17 34 43–45} when differential recall bias has no effect.¹⁶ Controlling for recall bias appears to indicate that quit attempts with medication or NRT are more effective than quitting unassisted. In contrast, a NSW study found recent ex-smokers perceived cold turkey to be the most effective method of quitting.³² Continued population-level research into the effectiveness of assisted versus unassisted methods is required. Nonetheless, this review provides evidence that, regardless of the relative success of those who quit assisted and unassisted, there is large proportion of smokers who choose not to use formal assistance in the face of large-scale promotion and widespread availability.

Given its enduring popularity, these findings invite the question, ‘Why is there so little research into unassisted cessation?’ And why, when it is talked about is it often disparagingly,^{15 63 64} as illustrated in the 2012 stop-smoking campaign promoted by a number of English National Health Service Trusts entitled ‘Don’t go cold turkey’,^{23–27} which ran in several areas alongside Pfizer’s campaign bearing the same name.^{65 66}

Possible explanations include the dominance of experimental evidence in evidence hierarchies,^{67 68} the power of evidence-based medicine to inform national and international policy agendas,^{68–70} and the increasing commodification and medicalisation of smoking cessation by the pharmaceutical industry and health professionals.^{71 72} The cessation research agenda globally and in Australia has, perhaps understandably given the long-held belief that a medical or professionally mediated solution would provide the answer to cessation, been shaped first by a desire to assess the efficacy and effectiveness of assisted cessation, and secondly by the goal of extending the reach and uptake of assisted cessation to as many smokers as possible. The failure of these efforts to generate the anticipated population effect is viewed by many as a problem that lies with the smoker’s failure to use ‘evidence-based’ methods to quit^{43 73} rather than any failure or problem of enduring consumer acceptability with the methods of cessation being advocated. Despite considerable and continuing efforts invested in creating effective interventions and in encouraging the majority of smokers to use them, their impact on population cessation rates in Australia, as elsewhere, has been less than expected.^{3 6–8}

Future cessation research might benefit by considering other areas of addiction research^{74 75} where quitting without formal help, or the phenomenon of natural recovery or self-change,^{76 77} is widely acknowledged and overtreatment questioned.⁷⁸ There are far more ex-smokers who have quit unassisted than smokers who quit using professionally or pharmacologically mediated assistance. This enduring and large-scale phenomenon remains largely neglected and the lived cessation experiences of these large numbers of ex-smokers deserve far greater research attention than has occurred. Our review reveals many potentially instructive questions that remain largely unexamined and that might yield useful insights to the planning of future cessation policy and research (box 1). Instead of perceiving unassisted cessation only as a problem, it might be wise to embrace it as an opportunity to discover possible implications for supporting the many smokers who remain uninterested in or resistant to using assistance when they attempt to quit. It would be surprising if the experiences of millions of ex-smokers around the world

Box 1 Potentially instructive research questions that the Australian research does not currently answer

Attitudes and beliefs

- ▶ Why do so many smokers choose not to use assistance in the face of so much persuasion to do so?
- ▶ Why do smokers who quit on their own perceive assisted cessation to be a sign of weakness?
- ▶ Do ex-smokers inflate their own role in their quitting and downplay the role assistance played to their success?
- ▶ What characterises smokers who want to quit on their own: is it that they want to quit without pharmacotherapy or without any form of help at all (including help from GPs, quitline services and stop-smoking clinics)?
- ▶ Have smokers who quit unassisted tried assistance before and realised that motivation and determination are critically important components of quitting?

Experiences

- ▶ How do those who quit unassisted find the experience in terms of its degree of difficulty?
- ▶ How does the experience of quitting unassisted compare with a smoker’s expectations?
- ▶ Does the experience of quitting unassisted differ for those who are heavily addicted compared with less addicted smokers?
- ▶ Does the current focus on use of medications to quit mislead smokers about how hard or easy it will be to quit?
- ▶ Does marketing for pharmaceutical aids have any impact on smokers’ self-efficacy?
- ▶ Have smokers who successfully quit unassisted previous experience of quitting with assistance? If so, how has this informed their unassisted quit attempt?

Processes

- ▶ How do those who successfully quit unassisted actually go about doing so? Is their success linked to deliberate quitting strategies or lifestyle factors (such as exercise, prayer, meditation or diet) that are not used by those who quit with assistance?
- ▶ Do successful unassisted quitters have common ‘meta-narratives’ or heuristics that they believe assisted their determination to quit and to not relapse?
- ▶ Are there exogenous (environmental) or endogenous (psychological) factors that many successful unassisted quitters have found useful?
- ▶ Is it possible to identify which smokers are likely to quit unassisted, and potentially put in place a spectrum of policy interventions for different types of smokers, which can more effectively and more efficiently help them quit earlier?

who have quit unassisted had little to offer those trying to motivate and support others to quit.

Limitations

Differences in the populations under study and in definitions used in each of the studies made direct comparisons across all studies difficult. These differences included: surveying current smokers who have attempted unsuccessfully to quit versus ex-smokers who successfully quit; the quit attempt under investigation (whether the study reported on assistance used on any previous quit attempt or specifically on the last or final quit

attempt); the period being reported (lifetime quit attempts vs quit attempts in the last 12 months); and differing meanings ascribed to the terms ‘cold turkey’, ‘stopping abruptly’, ‘on own’, ‘assistance’ by the study investigators (and presumably their interpretation by study participants). Limitations noted in several of the studies included recall bias (unassisted attempts tend to be forgotten more readily than assisted attempts)¹⁶ and the inability of the survey questions to adequately capture the process of smoking cessation (such as the multiple quit attempts made by many smokers and the variety of methods that may have been used on different quit attempts).

CONCLUSIONS

The lack of research interest in unassisted cessation is unfortunate. This suggests a form of unreflective research hegemony that privileges knowledge from interventionism as being more ‘real’ or important than that derived from studying the natural history of the cessation process in populations as it so often occurs entirely independently of the influence of cessation ‘treatments’. Prochaska and colleagues drew similar conclusions almost 30 years ago: ‘In spite of the overwhelming preference for and preponderant use of informal self-quit approaches, smoking cessation research continues to focus on formalised treatments.’⁷⁹

Greater study of the unassisted cessation process may reveal important individual and social factors such as life course precursors, environmental events or triggers, characteristic personal narratives and heuristics that successful unassisted quitters acknowledge as important to their success. An awareness and understanding of these factors might be useful to public health practitioners trying to motivate quit attempts and support those making them.

What this paper adds

- ▶ Australia, with its history of vanguard tobacco control policies and fearlessness in questioning established dogmas, was thought to be the ideal place to assess what is currently known about smokers who quit on their own without formal help.
- ▶ Apart from confirming that the majority of Australian smokers do indeed quit on their own without formal help, we found little is known about this significant population and this potentially significant phenomenon.
- ▶ A consequence of the neglect of research into unassisted cessation is the lack of discourse in relation to the potential contribution that unassisted cessation—when promoted alongside existing policy and treatment practices—might make in reducing smoking prevalence at the population level.
- ▶ Given the important role that cessation plays in reducing prevalence, it is essential that we gain a greater understanding about how and why smokers quit on their own without formal help. Lessons learnt from such research are highly likely to be of direct relevance to policy and practice, particularly to informing mass media campaigns that reach all smokers, including those who might prefer to quit unassisted.

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Supplementary files

Smith AL, Chapman S, Dunlop SM. What do we know about unassisted smoking cessation in Australia? A systematic review, 2005–2012. *Tobacco Control* 2015;24:18-27.

Supplementary file 1: Search criteria

Supplementary file 2: Inclusion and exclusion criteria

Smoking cessation in Australia, January 2005 – December 2012

Selection criteria

Criteria	Inclusion	Exclusion
Time period	January 2005–December 2012	
Language	English	
Type of article	Research article	
Study design	Original research articles	Reviews; meta-analyses; study protocols; letters (unless they contain original research data); commentaries; opinion pieces; news stories
Place of study	Australia, including studies in which: <ul style="list-style-type: none"> • data from Australia are compared with data from other countries; • data from Australia are pooled with data from comparable countries such as the UK, USA, New Zealand and Canada 	Research taking place in countries other than Australia
Aspects of smoking-related research	Any research, either pure or applied, that addresses one of the following aspects of smoking cessation: <p>Smoking cessation intervention research, including the acceptability, implementation and evaluation of pharmacologically or professionally mediated interventions, unassisted (mass-reach) interventions/policies or unassisted (on own) cessation</p> <p>Trends, correlates or predictors of smoking cessation, including risks, protective or predictive factors associated with cessation, and barriers and facilitators of cessation</p> <p>Biotechnology or molecular biological research, such as genotyping or vaccine development</p>	<p>Smoking prevalence within the general population or specific sub-populations (if no reference to cessation)</p> <p>Smoking status and health: smoking-related morbidity and mortality; smoking as a risk factor or predictor of disease, other health-related behaviours or adverse outcomes (e.g. diabetes, CHD, depression, substance-misuse, adverse birth outcomes)</p> <p>Effects of cessation on behavioural, cognitive or affective variables; social disadvantage/financial stress/SES</p> <p>Health economics and cost-effectiveness studies</p> <p>Methodology research: study recruitment; assessment of smoking status or smoking intentions of study participants</p> <p>Interventions to prevent uptake of smoking (if no reference to cessation)</p> <p>Trends, correlates or predictors of smoking initiation (if no mention of trends, correlates or predictors of cessation)</p> <p>Development of clinical guidelines or assessment of adherence to clinical guidelines (if no reference to impact on cessation)</p> <p>Impact of environmental tobacco smoke</p>

		<p>(on health, children, non-smokers)</p> <p>Genetics (and smoking status; screening for susceptibility to smoking) (if no reference to cessation)</p> <p>Harm reduction – smokeless tobacco, cutting down (if no reference to cessation)</p> <p>Smokers’ beliefs and knowledge about the harms of smoking; light/mild descriptors, pack or brand appeal (if no reference to cessation)</p> <p>Tobacco control policy – funding priorities, modelling future directions</p> <p>Tobacco consumption – trends and monitoring (unless used as proxy indicator of cessation)</p> <p>Regulation – retail, tobacco industry, tobacco control policies (if no reference to impact on cessation/quitting intentions)</p> <p>Bibliometrics</p> <p>NRT adverse effects</p>
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Smoking cessation in Australia, January 2005 – December 2012

Electronic database search strategies

Medline (via OVIDSP), searched 13 July 2012

1. "tobacco use cessation"/ or smoking cessation/
2. smoking cessation.tw.
3. Smoking/ep, eh, hi, lj, mo, pc, px, sn, th, td [Epidemiology, Ethnology, History, Legislation & Jurisprudence, Mortality, Prevention & Control, Psychology, Statistics & Numerical Data, Therapy, Trends]
4. 1 or 2 or 3
5. australia*.in.
6. new south wales.in.
7. victoria*.in.
8. queensland.in.
9. south australia*.in.
10. northern territory.in.
11. tasmania*.in.
12. australian capital territory.in.
13. ACT.in.
14. australia*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
15. exp australia/ or exp australian capital territory/ or exp new south wales/ or exp northern territory/ or exp queensland/ or exp south australia/ or exp tasmania/ or exp victoria/ or exp western australia/ or exp cities/
16. western australia*.in.
17. NSW.in.
18. VIC.in.
19. QLD.in.
20. WA.in.
21. TAS.in.
22. NT.in.
23. SA.in.
24. 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23
25. 4 and 24
26. remove duplicates from 25
27. limit 26 to (english language and yr="2005 -Current")

CINAHL, searched 12 July 2012

1. (MH "Smoking+/PC/PF/CL/DT/DE/ED/EP/EI/EH/ET/EV/HI/LJ/MO/RH/TH/TD") OR "smoking" OR (MH "Smoking Cessation Programs") OR (MH "Smoking Cessation")
- 2.(MH "Australia+") OR "australia" OR (MH "Australian Capital Territory") OR (MH "New South Wales") OR (MH "Northern Territory") OR (MH "Queensland") OR (MH "South Australia") OR (MH "Tasmania") OR (MH "Victoria") OR (MH "Western Australia")
3. 1 or 2
4. limit 3 to (English language and year January 2005-July 2012)

PreMedline (via OVIDSP), searched 15 July 2012

1. australia*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]

2. australia*.in.
3. new south wales.in.
4. victoria*.in.
5. queensland.in.
6. south australia*.in.
7. western australia*.in.
8. northern territory.in.
9. tasmania*.in.
10. australian capital territory.in.
11. ACT.in.
12. NSW.in.
13. VIC.in.
14. QLD.in.
15. WA.in.
16. TAS.in.
17. NT.in.
18. SA.in.
19. smoking.tw.
20. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18
21. 19 and 20
- 22.remove duplicates from 21
23. limit 22 to (english language and yr="2005 -Current")

PsycINFO (via OVIDSP), searched 12 July 2012

1. "tobacco use cessation"/ or smoking cessation/
2. smoking cessation.tw.
3. Smoking/ep, eh, hi, lj, mo, pc, px, sn, th, td [Epidemiology, Ethnology, History, Legislation & Jurisprudence, Mortality, Prevention & Control, Psychology, Statistics & Numerical Data, Therapy, Trends]
4. exp Australia/ep, eh, th [Epidemiology, Ethnology, Therapy]
5. australia.mp.
6. australia.in.
7. 1 or 2 or 3
8. 4 or 5 or 6
9. 7 and 8
- 10.remove duplicates from 9
- 11.limit 10 to (english language and humans and yr="2005 -Current")

CHAPTER FOUR

The views and experiences of smokers who quit smoking unassisted. A systematic review of the qualitative evidence

Chapter 4 overview

Chapter 4 is a systematic review and synthesis of the qualitative literature on the views and experiences of smokers who quit smoking unassisted. It consists of a published manuscript titled: ‘The views and experiences of smokers who quit smoking unassisted. A systematic review of the qualitative evidence’.

Publication details

Smith AL, Carter SM, Dunlop SM, *et al.* The views and experiences of smokers who quit smoking unassisted. A systematic review of the qualitative evidence. *PLoS One* 2015;10:e0127144.

Authors' contributions

ALS conceived and planned the review. ALS, SMC, SMD, SC and BF wrote the paper. ALS conducted the literature searches, identified studies to include in the review, categorised the studies and extracted the data.

Abstract

Background

Unassisted cessation – quitting without pharmacological or professional support – is an enduring phenomenon. Unassisted cessation persists even in nations advanced in tobacco control where cessation assistance such as nicotine replacement therapy, the stop-smoking medications bupropion and varenicline, and behavioural assistance are readily available. We review the qualitative literature on the views and experiences of smokers who quit unassisted.

Method

We systematically searched for peer-reviewed qualitative studies reporting on smokers who quit unassisted. We identified 11 studies and used a technique based on Thomas and Harden's method of thematic synthesis to discern key themes relating to unassisted cessation, and to then group related themes into overarching concepts.

Findings

The three concepts identified as important to smokers who quit unassisted were: motivation, willpower and commitment. Motivation, although widely reported, had only one clear meaning, that is 'the reason for quitting'. Willpower was perceived to be a method of quitting, a strategy to counteract cravings or urges, or a personal quality or trait fundamental to quitting success. Commitment was equated to

seriousness or resoluteness, was perceived as key to successful quitting, and was often used to distinguish earlier failed quit attempts from the final successful quit attempt. Commitment had different dimensions. It appeared that commitment could be tentative or provisional, and also cumulative, that is, commitment could be built upon as the quit attempt progressed.

Conclusion

A better understanding of what motivation, willpower and commitment mean from the smoker's perspective may provide new insights and direction for smoking cessation research and practice.

Manuscript

The published version of the manuscript follows.

RESEARCH ARTICLE

The Views and Experiences of Smokers Who Quit Smoking Unassisted. A Systematic Review of the Qualitative Evidence

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Abstract

Background

Unassisted cessation – quitting without pharmacological or professional support – is an enduring phenomenon. Unassisted cessation persists even in nations advanced in tobacco control where cessation assistance such as nicotine replacement therapy, the stop-smoking medications bupropion and varenicline, and behavioural assistance are readily available. We review the qualitative literature on the views and experiences of smokers who quit unassisted.

Method

We systematically searched for peer-reviewed qualitative studies reporting on smokers who quit unassisted. We identified 11 studies and used a technique based on Thomas and Harden’s method of thematic synthesis to discern key themes relating to unassisted cessation, and to then group related themes into overarching concepts.

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Conclusion

A better understanding of what motivation, willpower and commitment mean from the smoker's perspective may provide new insights and direction for smoking cessation research and practice.

Introduction

Research into smoking cessation has achieved much. Researchers have identified numerous variables related to smoking cessation and relapse, including heaviness-of-smoking, quitting history, quit intentions, quit attempts, use of assistance, socio-economic status, gender, age, and exposure to mass-reach interventions such as mass media campaigns, price increases or retail regulation.[1] Behavioural scientists have developed a range of health behaviour models and constructs relevant to smoking cessation, such as the theory of planned behaviour, social cognitive theory, the transtheoretical model and the health belief model.[2–5] These theories have provided constructs to smoking cessation research such as perceived behavioural control, subjective norms,[2] outcome expectations, self-regulation,[3] decisional balance,[4] perceived benefits, perceived barriers and self-efficacy.[5] The knowledge generated has informed the development of a range of pharmacological and behavioural smoking cessation interventions. Yet, although these interventions are efficacious,[6–8] the majority of smokers who quit successfully do so without using them, choosing instead to quit unassisted, that is without pharmacological or professional support.[9,10] Many smokers also appear to quit unplanned as a consequence of serendipitous events,[11] throwing into question the predictive validity of some of these cognitive models.

The enduring popularity of unassisted cessation persists even in nations advanced in tobacco control where cessation assistance such as nicotine replacement therapy (NRT) and the stop-smoking medications, bupropion and varenicline, are readily available and widely promoted.[9,10] Yet little appears to be known about this population or this self-guided route to cessation success. In contrast, the phenomenon of self-change (also known as natural recovery) is comparatively well documented in the fields of drug and alcohol addiction,[12,13] and health behaviour change (for example, eating disorders, obesity and gambling).[14]

We recently published a systematic review of unassisted cessation in Australia.[9] We, like others,[15] established that the majority of contemporary cessation research is quantitative and intervention focused.[16] While completing that review we determined that the available qualitative research was concerned primarily with evaluating smoker and ex-smoker perceptions of mass-reach interventions such as marketing or retail regulations, tax increases, graphic health warnings, smoke-free legislation or intervention acceptability from the perspective of the GP, current smoker, or third parties likely to be impacted by mass-reach interventions. Australian smoking cessation research provided few insights into quitting from the perspective of the smoker who quits unassisted. However our systematic review highlighted that 54% to 69% of ex-smokers quit unassisted and 41% to 58% of current smokers had attempted to quit unassisted.[9]

We consequently became interested in what the qualitative cessation literature had to say about smokers who quit unassisted. Qualitative approaches offer an opportunity to explain unexpected or anomalous findings from quantitative research and to clarify relationships identified in these studies.[17,18] By integrating individual qualitative research studies into a qualitative synthesis, new insights and understandings can be generated and a cumulative body of empirical work produced.[19] Such syntheses have proven useful to health policy and practice.[20,21] By focusing our review on the views of smokers (i.e. on the people to whom the interventions are directed), we might start to better understand why many smokers continue to

quit unassisted instead of using the assistance available to them. Such an understanding might help us to decide whether we should be developing better approaches to unassisted cessation or focusing our attention on directing more smokers to use the efficacious pharmacological and professional behavioural support that already exists.

In this review, we examined the qualitative literature on smokers who quit unassisted in order to answer the following research questions: (1) How much and what kind of qualitative research has explored unassisted cessation? (2) What are the views and experiences of smokers who quit unassisted?

Methods

Our qualitative synthesis is based largely on Thomas and Harden's method of thematic synthesis.[\[20\]](#)

Identification of articles for review

We searched MEDLINE via OvidSP, PsycINFO via OvidSP, CINAHL via EBSCO, EMBASE and Sociological Abstracts in September 2013 for articles reporting on views about or experiences of quitting without assistance. Current best practice for identifying qualitative research recommends comprehensive searches of multiple sources, balancing sensitivity against specificity to maximise number of records retrieved while reducing retrieval of records that are not relevant.[\[22\]](#) We used empirically derived qualitative research filters where available (MEDLINE,[\[23\]](#) CINAHL[\[24\]](#) and PsycINFO[\[25\]](#)) ([Table 1](#)). We complemented this search strategy by conducting 'berry picking',[\[26\]](#) including grey literature searching, reference checking and author searching to uncover articles that are difficult to locate by modifying search terms and shifting searching strategies ([Fig 1](#)).

Records were included if: (1) the article reported on the views or experiences of smokers or ex-smokers who quit; (2) the data collection and analysis methods were reported as qualitative by the authors; and (3) the article was in English. We set no date limits believing that early research was as likely to provide insightful data as more contemporary research and anticipating our search would produce relatively few studies. Screening was multi-levelled and moved from liberal to more specific. At the first level of screening (title and abstract), the focus was primarily on whether the study reported on unassisted cessation as abstracts often provided limited, incomplete or insufficient detail to make good decisions about inclusion based on methodological requirements.[\[27\]](#) We identified 3845 reports of which 11 met the inclusion criteria for the synthesis ([Fig 1](#) and [Table 2](#)).

Quality appraisal

We are aware that structured approaches to quality appraisal (such as guidelines and checklists) do not necessarily produce greater consistency of judgements about which papers to include in a qualitative synthesis.[\[41\]](#) Concern with procedural correctness can unduly focus attention on the reporting of the research process and divert attention away from the analytical content of the research.[\[42\]](#) Authors of previous qualitative syntheses have reported a disconnect between papers they believed intuitively to be well conducted research and those that 'passed' when assessed against structured quality assessment criteria.[\[18\]](#) We knew that many of the articles identified in our searches would have been published prior to the development of quality appraisal checklists. The retrospective application of a tool developed many years after a study's publication appeared inappropriate given the changing norms around the reporting of qualitative research. We decided, like Thomas and Harden[\[20\]](#) and others (e.g., Atkins 2008

Table 1. Search terms.

Database	Search period ^a	Search strategy	Retrieved
MEDLINE via OvidSP	1946–Wk 3 Sept 2013	1. Smoking Cessation/	2318
		2. (interview: or experience:).mp. or qualitative.tw. or qualitative/	
		3. 1 and 2	
		4. remove duplicates from 3	
		5. limit 4 to (english language)	
PsycINFO via OvidSP	1806–Wk 3 Sept 2013	1. Smoking Cessation/	1058
		2. (experiences or interview: or qualitative).tw.	
		3. 1 and 2	
		4. remove duplicates from 3	
		5. limit 4 to (english language)	
EMBASE	1966–Wk 3 Sept 2013	1. 'smoking cessation'/exp OR 'smoking cessation program'/exp	225
		2. 'qualitative research'/exp OR 'qualitative research'	
		3. 1 and 2	
		4. 1 and 2 and [English]/lim	
CINAHL via EBSCO	1982–Wk 3 Sept 2013	1. ((ti interview or ab interview) or (mh "audiorecording" not mm "audiorecording") or (ti qualitative stud* or ab qualitative stud*))	176
		2. (MH "Smoking Cessation") OR (MH "Smoking Cessation Programs") OR (MH "Smoking Cessation Assistance (Iowa NIC)")	
		3. 1 and 2	
Sociological Abstracts	1952–Wk 3 Sept 2013	1. smok* and (quit* or cessation)	62
		2. qualitative	
		3. 1 and 2	
		Total retrieved	

^a All databases were searched on 24 September 2013.

doi:10.1371/journal.pone.0127144.t001

[18] and Lipworth 2011[43]), to err on the side of inclusion and to judge quality on the basis of conceptual contribution as much as methodological rigor.

Extracting data

Our research questions were deliberately broad: (1) How much and what kind of qualitative research has explored unassisted cessation? (2) What are the views and experiences of smokers who quit unassisted? We were interested not only in what the data had to say about smokers who quit unassisted but also in gaining an understanding of the breadth of themes related to unassisted cessation. We treated as data anything reported in the results or findings sections (usually key concepts or findings, but also direct quotations) and, if relevant, the researchers' interpretations of smokers' and ex-smokers' views and experiences, as reported in the discussion or conclusion of the article.

Thematic synthesis

Data analysis involved three overlapping stages: (1) line-by-line coding of the results from the 11 primary studies followed by (2) grouping of the line-by-line codes into descriptive themes that related to (3) broader, overarching concepts.

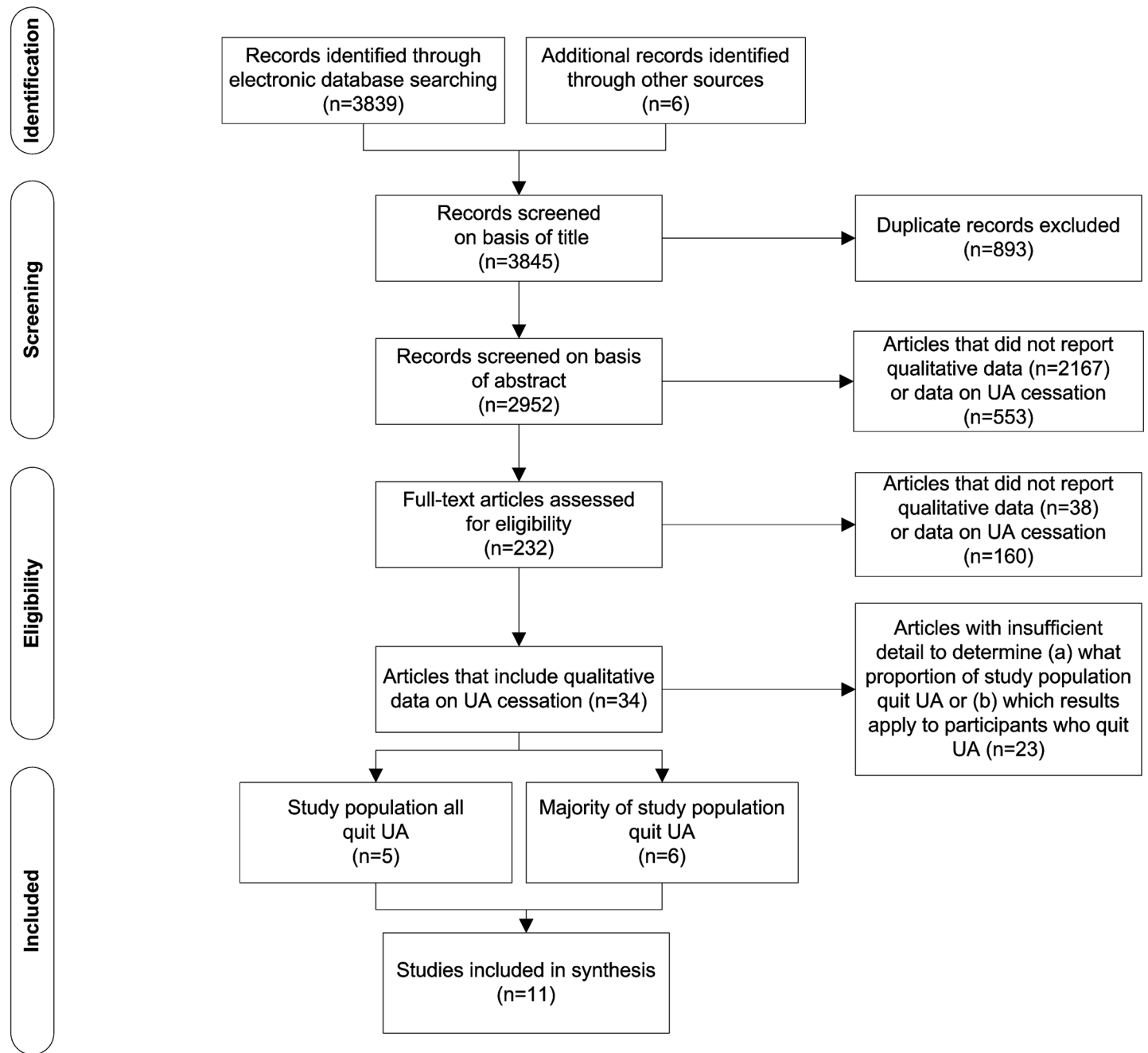


Fig 1. Identification and screening of eligible papers for inclusion in the synthesis.

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During the initial line-by-line coding we read and closely examined fragments of data (words, lines, segments and incidents) for their analytical importance. Line-by-line codes were created to reflect what was happening in these ‘meaning units’, and to show actions; for example, what the participants were thinking, feeling or doing.[44] Next, the line-by-line codes that were conceptually similar were grouped into descriptive themes and then these descriptive themes were grouped into overarching concepts. Once all of the descriptive themes had been

Table 2. Details of 11 studies included in the synthesis.

Source paper	Study year; country; setting	Study focus	Participants and participant characteristics	Participants who quit UA ^a	Data collection and analysis
Baer et al. 1977 [28]	Year not stated; US; community	Quitting without assistance	N = 51 (29 men, 20 women, 2 unknown; aged 29–75 years); ex-smokers who had smoked 2+ packs/day for 5+ years, who quit without professional direction or help, and had been an ex-smoker for 2+ years	All quit UA	Letters; convenience sample; content analysis
Solheim 1989 [29]	Year not stated; US; community	Quitting without assistance	N = 13 (7 men, 6 women; aged 25–49 years); ex-smokers who quit >6 months <2 years without assistance of a formalised intervention program; had previously smoked 0.5 pack/per day for >1 year prior to quitting	All quit UA	Semi-structured interviews; convenience sample; data analysis method not explicitly stated—included coding according to categories based on theoretical framework and interview guide
Thompson 1995 [30]	Year not stated; US; students and church groups	Successful cessation in women	N = 10 (all women; aged 28–48 years); women who had successfully quit smoking; smoked 10+CPD for 1+ year, and had quit >6 months but <3 years	8/10 (80%) quit UA (1 NRT gum; 1 hypnosis); 5/10 had previously used NRT patches unsuccessfully	Semi-structured interviews; purposive sample; data analysis based on Miles and Huberman 1994
Mariezcurrena 1996 [31]	Year not stated; Sweden; community	Recovery from addictions (tobacco, snus, drug, alcohol) without formal treatment	Total N = 58; ex-smokers = 38 (8 women, 30 men; aged 24–75 years); ex-smokers; ceased smoking 2+ years with no treatment or intervention (including prior treatment)	All quit UA	Semi-structured interviews; convenience sample; data analysis based on thematic analysis
Stewart 1999 [32] ^b	Year not stated; US; community	Spontaneous recovery from smoking	N = 40 (21 females, 19 males; aged 30–80 years); ex-smokers; tobacco free for 5+ years without the aid of any self-help or formal treatment programs	All quit UA	Semi-structured interviews (each participant was interviewed 2–4 times); convenience sample; data analysis used Spradley's Development Research Model
Abdullah and Ho 2006 [33]	2002; Hong Kong; secondary school	Adolescents' attitudes to smoking, quitting and smoking cessation programs	N = 32 (all male students in forms 2–4 equivalent to US grades 8–10); current smokers (n = 23) and ex-smokers (n = 9); 26/32 had attempted to quit, of whom 25/26 had attempted to quit UA	25/32 (78%) quit UA	5 focus groups; convenience sample; modified grounded theory
Nichter et al. 2007 [34]	2000–2002; US; Women, Infants & Children's clinics, family practice offices, community	Factors contributing or undermining quit attempts/harm reduction at onset of pregnancy	N = 53 (all women); includes 2 case studies of women who quit UA or with minimal support (aged 20 and 31 years); low income women who were daily smokers at onset of pregnancy; (16 quit; 23 cut down; 14 continued smoking)	2 case studies of women who quit UA or with minimal support	Semi-structured interviews (each participant interviewed x3); convenience sample; discourse analysis.

(Continued)

Table 2. (Continued)

Source paper	Study year; country; setting	Study focus	Participants and participant characteristics	Participants who quit UA ^a	Data collection and analysis
Ogden and Hills 2008 [35]	Year not stated; UK; community	Mechanisms in sustained changes in behaviour (including those who lost weight through diet or exercise; and those who stopped smoking)	Total N = 34; ex-smokers = 10 (6 men, 4 women; aged 25–53 years); ex-smokers who had been quit for 3+ years; (8 quit UA; 2 with A—smoking course); quit 3–20 years ago	8/10 (80%) quit UA	Semi-structured interviews; convenience sample/ possibly purposive; thematic analysis based on Huberman and Miles 1994
Bottorff et al. 2009 [36]	2006–2007; Canada; hospital antenatal units	How new fathers talk about the experience of tobacco reduction or cessation	N = 29 new fathers; ex-smokers who quit prior to birth of baby; (4/29 quit)	4/4 quit UA (remaining participants did not quit)	2x semi-structured interviews with each participant; convenience sample; narrative analysis
Murray et al. 2010 [37] ^c	2008; UK; general practice	The process of unplanned quit attempts and use of support in these attempts	N = 20 (11 male, 4 female); current and ex-smokers (15 ex-smokers, 5 current smokers); 7/10 spontaneous quitters quit UA; 1/10 delayed quitters quit UA	7/10 (70%) of spontaneous quitters quit UA	Semi-structured interviews; convenience sample; thematic analysis based on Ritchie 1994
Medbø et al. 2011 [38]	2008; Norway; community	Why older people smoke, why they quit and remain quit	N = 18 elderly persons (aged 58–80 years); ex-smokers (n = 13) and relapsed smokers (n = 5) all of whom had made temporary stops	“Majority of quitters had stopped themselves without medication”	Semi-structured interviews; convenience sample; content analysis (using a narrative perspective)

^a Studies were only included if the majority of participants quit unassisted (UA) and it was clear that the data analysis/findings were reporting on smokers who quit unassisted.

^b Stewart’s 1998 doctoral thesis,[39] on which this paper is based, was also checked for additional data.

^c Murray’s 2009 doctoral thesis,[40] on which this paper is based, was also checked for additional data.

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sorted and grouped into concepts, the analysis became more focused. We report here only on the most significant themes and concepts: those which were most original and about which the literature had most to say.

Input from team members

The first author coded the primary studies and developed the descriptive themes and concepts. These were then discussed with the team as a whole and with team members individually. The team members brought to the analysis a range of professional experiences and perspectives relevant to smoking cessation (including qualitative health research, tobacco control and health behaviour change).

Ethics statement

As this was a systematic review of existing studies no ethics approval was required.

Results

Our findings are reported in two parts: (1) how much and what kind of qualitative research has explored unassisted cessation (Tables 3 and 4); (2) what are the views and experiences of smokers who quit unassisted? (Table 5).

Table 3. Overview of 11 studies synthesised.

	1970s	1980s–1990s	2000 onwards
Number of studies	1 [28]	4 [29–32]	6 [33–38]
Disciplines	Psychiatry	Sociology, nursing	Medicine, psychology, nursing, public health, community medicine
Population	General, mainstream	General, mainstream	Specific populations (e.g adolescents, the elderly, new parents) ^b
Smoking and quitting status	Ex-smokers, all unassisted	Ex-smokers; all unassisted ^a	Smokers, ex-smokers, relapsed smokers
Primary focus	Unassisted cessation	Unassisted cessation	Cessation in general, health behaviour change in general
Aims	Inform psychotherapy intervention design	Understand the phenomenon of unassisted cessation	Understand attitudes to cessation, reasons for quitting, reasons for relapse; inform intervention design

^a Thompson 1995 included 1 smoker who used NRT gum and 1 who used hypnosis to quit (out of a total of 10 ex-smokers); the focus was cessation in general rather than unassisted cessation in particular but as most participants quit unassisted the data were included in this synthesis.

^b Ogden and Hills 2008 and Murray 2010 reported on general rather than specific populations.

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Research question 1: How much and what kind of qualitative research has explored unassisted cessation?

The earliest study identified was a 1977 US study investigating why smokers seeking treatment (psychotherapy) often fared no better than smokers who quit unassisted.[28] This was followed in the late 1980s and 1990s by three in-depth sociological studies (from the US and Sweden) investigating unassisted cessation as a phenomenon in its own right,[29,31,32] and one US sociological study in which unassisted cessation data were reported but this was not the primary focus of the study.[30] Subsequent to this, no qualitative studies were identified that focused on unassisted cessation *per se*: the six post-2000 studies (from Hong Kong, US, UK, Canada and Norway) had as their primary focus either cessation in general[33,34,36–38] or health behaviour change.[35]

Research question 2: What are the views and experiences of smokers who quit unassisted?

The full set of concepts derived from the qualitative literature is shown in Fig 2. Concepts were grouped into those that included descriptive themes that have already been covered in the literature (Fig 2B, below the line) and those concepts that included descriptive themes that provided potentially new insights into unassisted cessation (Fig 2A, above the line). The existing quantitative smoking cessation literature has, for example, already reported on attitudes to assistance, reasons for quitting, strategies used to quit and reasons for relapsing (Fig 2B). While encouraged by the consistency between the qualitative and quantitative studies, our aim was to focus on what the qualitative literature could report from the smokers’ perspective about quitting unassisted that had the potential to offer new or alternative insights into the process or experience of unassisted cessation (Fig 2A). From this perspective the most interesting themes were those that related to three concepts: (1) willpower; (2) motivation; and (3) commitment. Four further concepts (timing, decision-making, ownership and the perception that quitting unassisted was a positive phenomenon) were of interest but insufficient data were available on which to base an analysis.

We detail the three concepts that appeared central to smokers who self-quit (motivation, willpower and commitment) in Table 5. Although these concepts appear in the scientific and lay literature on smoking cessation, in the following section, we explore the meaning of these

Table 4. Main themes and conclusions relating to UA quitting in the 11 studies and their contribution to the themes and concepts reported in this review.

Source paper	Main themes relating to UA quitting reported in this paper	Main conclusions relating to UA quitting reported in this paper	Concepts and themes reported in this review ^a	Conceptual contribution to this review ^b
Baer et al. 1977 [28]	(1) Pronounced differences in the techniques used by participants to quit; (2) Challenge to self and motivation appeared as a common combination of techniques, as did motivation and self-derogation	Most respondents used multiple techniques to quit, but there was no systematic clustering of these methods	Motivation—equivalent to one’s reason for quitting; Willpower—tautologous, ambiguous; Willpower—a personal quality or trait; Commitment—being serious or resolute	Medium
Solheim 1989 [29]	(1) Socio-environmental factors affect cessation (e.g. interactions with family, friends and health professionals); (2) Thoughts pre-quitting primarily negative (e.g. assessing benefits and consequences of smoking, or process of quitting). Thoughts post-quitting primarily positive; (3) Emotions pre-quitting included guilt, fear, anger, and disquiet. Emotions post-quitting are positive, but also included loss and resentment; (4) Motivational response included decision-making, self-determinism, taking action, messages to oneself	Smoking cessation is a process that begins before an individual stops smoking; characteristic thought processes and emotions occur before and after cessation; actions to aid cessation are unique to each individual; family and friends are influential; factors may be interactive, occur simultaneously and may be cumulative in their effect on the cessation process	Motivation—equivalent to one’s reason for quitting	Low
Thompson 1995 [30]	(1) Evolving commitment to health and personal growth; (2) The effect of a smoke-free environment; (3) The impact of anti-smoking education; (4) Changing conceptualisation of smoking	Anti-smoking education, coupled with smoke-free environment, augments the awareness of the effects of smoking and directly impacts on one’s conceptualisation of smoking	Willpower—a strategy; Commitment—being serious or resolute; Commitment— can be cumulative	Medium
Mariezcurrana 1996 [31]	(1) Triggers precipitating or helping quitting; (2) Coping strategies used to quit; (3) Advice given by ex-smokers about quitting (successful quitting required decision-making, wanting to stop, being determined, and belief in oneself)	Participants attributed their change to their own effort; making the decision to stop was the most frequent trigger to stopping; it was related to fear, health concerns and feeling of loss of control	Motivation—equivalent to one’s reason for quitting; Commitment —being serious or resolute	Low
Stewart 1999 [32]	(1) Contemplation: allows for goal setting; mental preparation; knowledge of addiction; (2) Decision to quit: unique decision; allows for no excuses; willpower; no desire to smoke; (3) Relapse: creates knowledge of pitfalls; less commitment in previous attempt; life events cannot overwhelm willpower; no moderation; (4) Environment: contributed to smoking; motivation; attitude towards other smokers; (5) Process of cessation: multiple techniques; point of no return; dreams	Participants used multiple techniques to quit; most had relapsed and used this as motivation to continue trying to quit	Motivation—equivalent to one’s reasons for quitting; Motivation—not a prerequisite for quitting; Willpower—tautologous, ambiguous; Willpower—a method; Willpower—a personal quality or trait; Commitment — being serious or resolute; Commitment—can be tentative or provisional; Commitment—can be cumulative	High
Abdullah and Ho 2006 [33]	Themes (importance of quitting, perceived barriers to quitting, perceived benefits of quitting, reasons to quit) were general and reported little specifically about UA quitting	Decision to quit smoking was not an urgent or important decision; belief that they could quit at any time with little difficulty; willpower and determination can help quitting	Willpower—tautologous, ambiguous; Willpower—a personal quality or trait	Low

(Continued)

Table 4. (Continued)

Source paper	Main themes relating to UA quitting reported in this paper	Main conclusions relating to UA quitting reported in this paper	Concepts and themes reported in this review ^a	Conceptual contribution to this review ^b
Nichter et al. 2007 [34]	(1) Reasons for quitting (for the baby, social pressure, fear, appeasing family); (2) Moral authority to control environments in which smoking is normative; (3) Smoking is a personal responsibility and quitting is a matter of personal choice	Successful quitters had a strong sense of moral identity as a mother; concern for effect of smoking on foetus; social networks had an important impact on woman's ability to quit; lack of control of environment affected quitting success	Commitment—being serious or resolute	Low
Ogden and Hills 2008 [35]	(1) The role of life crises as specific triggers to initial behaviour change; (2) Key sustaining conditions (a disruption of function; a reduction in choice; behavioural model of causes and solutions) which allowed the initial change in behaviour to be translated into a longer term change in lifestyle	If a person no longer benefits from the behaviour, finds that they are fewer opportunities to carry out the unhealthy behaviour and believes that the behaviour was the cause of his or her problems, then an initial change in behaviour is more likely to be translated into a behaviour change in the longer term; central to all themes was a process of reinvention and a shift toward a new healthier individual	Willpower— a method	Low
Bottorff et al. 2009 [36]	(1) Cold turkey storyline framed quitting smoking as a snap decision with no need for support; (2) The 'baby as the patch' storyline dramatised how the baby displaced the need to smoke, increased motivation for cessation and enhanced success	Common to all storylines was the men's reluctance to rely on smoking cessation resources; instead self-reliance, willpower, autonomy figured more prominently in the narratives	Motivation—equivalent to one's reasons for quitting; Willpower— tautologous, ambiguous; Willpower—a personal quality or trait	Medium
Murray et al. 2010 [37]	(1) The majority of spontaneous quitters had not used any support; (2) Reasons for not using support included lack of time to access support, lack of knowledge about support available, belief general practitioner would not be receptive to offering smoking cessation support, a belief they should quit on own	The majority of spontaneous quit attempts were made without the use of support	Commitment—being serious or resolute	Low
Medbø et al. 2011 [38]	(1) Approaching a decision to stop: reflection on the consequences of smoking; ambivalence hardens into resolution and the smoker waited for an appropriate opportunity to quit; (2) The actual stopping: many stopped suddenly and unplanned as a result of accidental circumstances; no clear decision-making, stopping without visible internal struggle or resolution; (3) Quitting was easier than expected	Patient preferences for quitting should be explored; some smokers may stop unplanned with little motivation; GPs interest in the smoking narrative may sometimes be enough to encourage cessation	Motivation—not a prerequisite for quitting; Commitment—can be tentative or provisional	Low

^a Includes only the themes and concepts reported in this review, not all of the themes and concepts that were coded and mapped (see Fig 2 for full range of concepts).

^b Conceptual contribution to review: low: contributed to <3 themes; medium: contributed to ≥3–5 themes; high: contributed to ≥6 themes (see Table 5 for more detail on how individual studies contributed conceptually to the review).

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concepts as defined by smokers and ex-smokers who have quit unassisted, as well as the researchers who studied them.

Table 5. Concepts and descriptive themes derived from the 11 studies, with illustrative quotes.

Concepts	Descriptive themes	Reported in	Illustrative quotes ^a
Motivation	Equivalent to one's reasons for quitting	Baer; Bottorff; Mariezcurrena; Solheim; Stewart	'I got to thinking about how much money I spend on the habit' <i>Informant quote in Baer</i> ; 'Guilt was experienced in relation to children's health' <i>Solheim</i> ; 'Motivational responses are derived from the individual's need to feel competent and self-determining about his or her life, and stopping the habit of smoking meets this need' <i>Solheim</i> ; 'I didn't like the fact that cigarettes had so much control over where I went and what I did and who I went with ... I wanted to be in control of my life' <i>Informant 7 in Stewart</i>
	Not a prerequisite for quitting	Medbø; Stewart	'Our findings indicate that it is possible to stop smoking even at very low levels of motivation' <i>Medbø</i>
Willpower	Tautologous, ambiguous	Abdullah; Baer; Bottorff; Stewart	'One is successful if one has willpower, one has willpower if one successfully quits' <i>Stewart</i> ; 'Willpower is the answer' <i>Baer</i>
	A method	Ogden; Stewart	'The smoking group had stopped smoking either through will power or a smoking course' <i>Ogden</i>
	A strategy	Thompson	'Six of the women in the study used sheer will-power to overcome the strong urges to smoke they experienced' <i>Thompson</i>
	A personal quality or trait	Abdullah; Baer; Bottorff; Stewart	'Common to all the storylines was the men's reluctance to rely on smoking cessation resources; instead self-reliance, willpower and autonomy figured more prominently' <i>Bottorff</i>
Commitment	Being serious or resolute	Baer; Mariezcurrena; Murray; Nichter; Stewart; Thompson	'One of the factors that did seem to differentiate this decision was that it was a firm decision. It was often described as the firmest commitment they had ever made.' <i>Stewart</i> ; 'I was thinking too that before I actually quit, that the times before, subconsciously, I really didn't want to, or I wasn't taking the task seriously enough' <i>Informant 4 in Stewart</i>
	Can be tentative or provisional	Medbø; Stewart	'I always felt like it would be ... OK, I'm going to give this a valiant attempt and if it's not going to work, then I'll go back to smoking and it will be OK' <i>Informant 12 in Stewart</i> ; 'I had been working on my decision, you can say. I did not dread the stop because if it turned out to be too hard I would start smoking again' <i>Informant quote in Medbø</i> ; 'I don't think that in previous attempts that I ever decided that I would quit because I wanted to. I guess I never really wanted to stop' <i>Informant 16 in Stewart</i>
	Can be cumulative (commitment builds as the quit attempt progresses)	Stewart; Thompson	'You can't quit [relapse] now you only have a little bit left' <i>Informant 17 in Stewart</i> ; 'I knew that if I stopped [relapsed] it would have killed me. I had put too much time into this' <i>Informant 38 in Stewart</i> ; 'The evolving commitment was also evident in words that echoed repeatedly a personal determination and desire to achieve the goal of quitting smoking. Declarations such as "I knew I could not turn back once I made my mind up"' <i>Thompson</i> ; "It gets to the point where you know you can do it. You've got so much invested that if you [relapsed] it'd be really hard. At that point you just can't [relapse]" <i>Informant 17 in Stewart</i>

^a The majority of the quotes report the study authors' conclusions; the remainder are direct quotes from participants.

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Motivation. Although motivation was widely reported it was difficult to discern exactly what motivation meant to the smokers as opposed to the researchers. Smokers rarely talked directly about motivation or used the word motivation to describe their quit attempt. Yet motivation was frequently included in the accounts *researchers* gave of how and why smokers quit. That is, there appeared to be a disjunct between the way that researchers talked about motivation and the way that ex-smokers understood it. On looking at the data related to motivation it became clear that when researchers talked about motivation they were in fact talking almost exclusively about reasons for quitting. Typical reasons included cost,[28] a sense of duty,

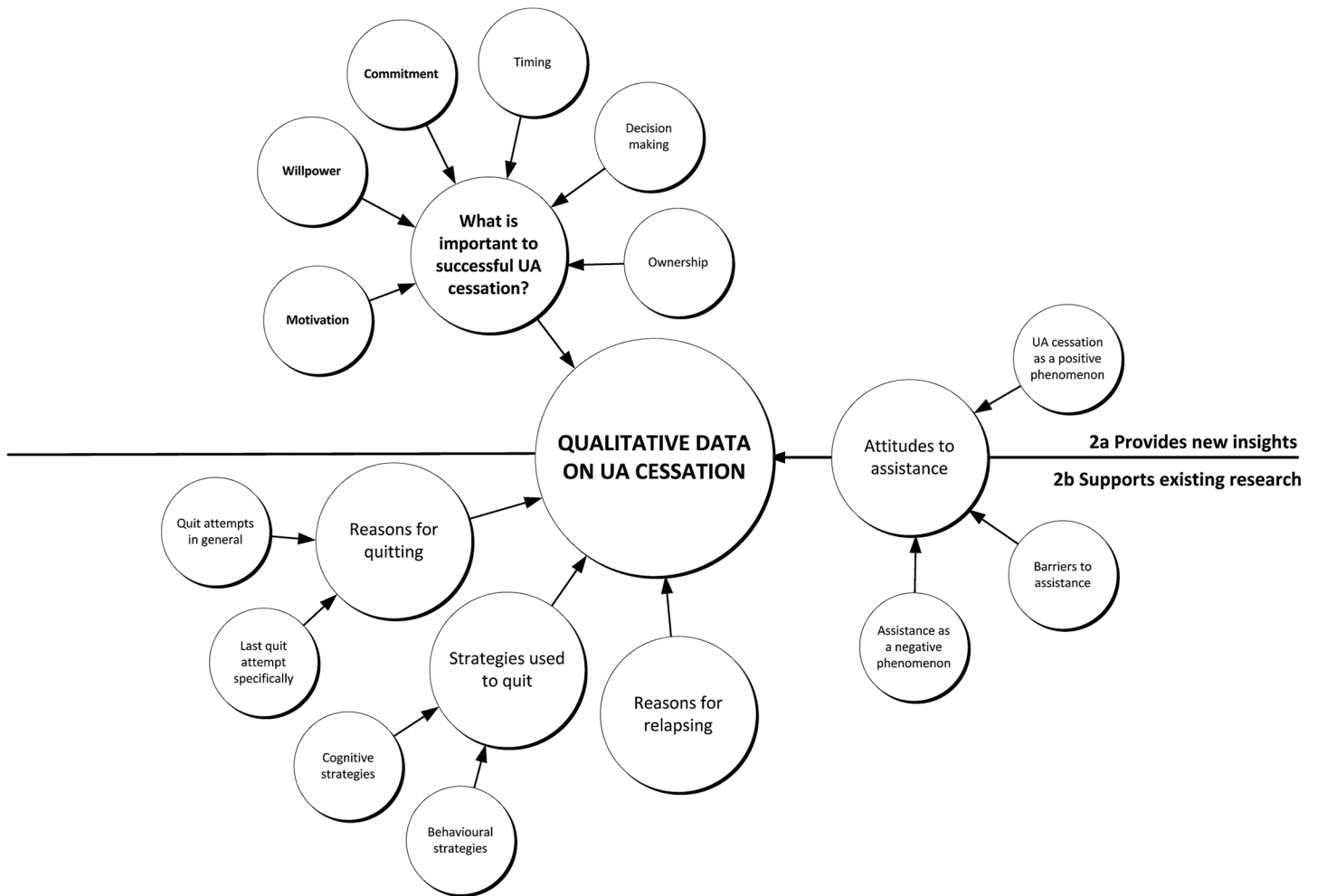


Fig 2. Themes and concepts derived from the 11 primary studies. UA, unassisted.

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[28,29,31,32,36] health concerns,[28,29,31,32] feeling out of control, feeling diminished by being a smoker,[28,29,31,32] deciding the disadvantages of smoking outweighed the benefits, [29] or expectations that life would be better once quit.[29] We concluded the data on motivation reported in these 11 qualitative studies added no new insights to the data on reasons for quitting already reported in the quantitative literature.

Smokers used the word motivation differently: not to describe the reason they quit, but to describe what sustained them through their quit attempt. We have included these data under the concept of commitment (see below). Our main conclusion about motivation is that smokers and researchers appear to be using the word to denote different concepts.

Willpower. The concept of willpower was clearly important to smokers and often used by researchers to account for smokers’ success or failure, but rarely examined or unpacked. Willpower was reported to be a method of quitting, a strategy to counteract cravings or urges (much as NRT or counselling is regarded as a method of quitting or a way of dealing with an urge to smoke)[30,32,35] or a personal quality or trait fundamental to quitting success. [28,32,33,36] For example, although Ogden and Hill (2008) classified their participants according to whether they had ‘stopped smoking through willpower or a smoking course’, they gave no definition or explanation of what willpower was. Similarly, Thompson (1995) reported

many participants used 'sheer willpower to overcome the strong urges to smoke', and Abdullah and Ho (2006) reported relapsed smokers cited 'willpower and determination' as key factors for quitting success, but did not elaborate on what was meant by willpower. Stewart's 1999 sociological study of smokers who quit unassisted[32] attempted to understand willpower from the smokers' perspective, yet despite directly questioning smokers about willpower, Stewart could find no agreement among smokers as to what willpower was. In summing up, Stewart concluded: 'it is difficult to connect a successful cessation attempt with the use of willpower without creating a tautology: one is successful if one has willpower, and one has willpower if one is successful,' capturing what is arguably still an issue in contemporary smoking cessation research.

Commitment. Smokers' talk about commitment was nuanced and multilayered. In contrast to motivation and willpower we did not need to rely upon the researchers' interpretations to gain an insight into what commitment might mean to smokers. Smokers talked directly about being committed. To them it meant being determined, serious or resolute. Being committed was essential to their quitting success.[28,30–32,34,37] Commitment was what differentiated a serious quit attempt from previous unsuccessful quit attempts,[32] and was the hallmark of their final successful quit attempt.

Commitment could also be tentative or provisional.[32,38] Medbø (2011) reported smokers who appeared keen to try to quit but were not necessarily committed to seeing the quit attempt through. It is possible a further level of commitment was being withheld, contingent perhaps on how difficult quitting turned out to be or on how the smoker felt about being quit once they got there. One of Stewart's participants illustrates the difference, 'OK I'm going to give this a valiant attempt and if it's not going to work then I'll go back to smoking and it will be OK.'[32] The smoker is committed to trying but not necessary committed to quitting.

Commitment could also be cumulative. Smokers talked about a point of no return, which described a point in the cessation process when they had made a firm commitment to quit, they had made a decision and they would not change their mind.[30,32] Smokers described this as the point in time at which they believed there was too much invested to relapse now.[32]

Discussion

In this review we have synthesised the qualitative data reporting on the views and experiences of smokers who successfully quit unassisted (without pharmacological or professional behavioural support). The existence of only a handful of studies over more than 50 years, with no study specifically addressing unassisted cessation post-2000, indicates that up until now little research attention has been given to the lived experiences and understandings of smokers who successfully quit unassisted. As a consequence relatively little is known about smokers' perspectives on what is the most frequently used means of quitting[10] and the way described by the majority of ex-smokers as being the most 'helpful'. [45,46] It is widely accepted that searching the qualitative literature is difficult.[21,47] Although it is possible that relevant studies were missed, given the comprehensiveness of our search strategy, the comparative lack of studies found through searching seems likely to reflect an evidence gap, and therefore an important area for future research.

This lack of qualitative research was unexpected for two reasons. First, we were aware of a small but not unsubstantial body of quantitative evidence on smokers who quit unassisted;[48–52] and second, in the course of our literature search we had identified a considerable number of qualitative studies on smoking cessation. On closer examination it became clear that few of these reported specifically on smokers who quit unassisted. This supports what Kluge found in 2009, that is, the qualitative smoking cessation research that does exist is concerned primarily

with evaluating the success or acceptability of smoking cessation interventions, particularly in vulnerable populations such as adolescents or the socially disadvantaged.[16]

Concepts central to self-quitting

Motivation was identified as a central concept in this review, but analysis of the studies showed that motivation appeared primarily in the researchers' accounts of quitting rather than in the smokers' accounts of quitting. On closer examination, the data related to motivation consisted almost entirely of reasons for quitting. Within the quantitative literature on smoking cessation, motivation is an established psychological construct which has been operationalised in numerous studies designed to determine the role of motivation in quitting success.[53,54] Motivation has been identified as critical to explaining cessation success.[55] The lack of explicit discussion about motivation by smokers who quit unassisted in the studies included in this review is therefore interesting. Though motivation could be inferred from the smokers' accounts; it had to be done by using the variables that comprise motivation, such as reasons (motives) for quitting or the pros and cons of smoking versus quitting. Given the relative lack of data, it is difficult to conclude whether this is (1) because smokers do not talk directly about motivation, or (2) whether from the participants' perspective motivation is not the driving force behind successful unassisted cessation (either because another concept is more important or because too much time has passed since their quit attempt for them and they have forgotten how important motivation was to them).

From the studies included in this review, it appears that—at least in smokers' self-understanding—commitment might be more important than motivation as an explanation of successful unassisted cessation. The enthusiastic and explicit talk about being determined, committed, or serious suggests that this concept resonates more with smokers than the concept of motivation. The overlapping and at times contradictory natures of commitment and motivation have been highlighted recently by Balmford and Borland who concluded that it may be possible to quit successfully while ambivalent, as long as the smoker remains committed in the face of ebbs and flows in motivation.[56] Further complicating the relationship, some regard commitment as a component of motivation,[57] operationalizing motivation as, for example, 'determination to quit'[58] or 'commitment to quit'.[59]

The greater research interest in reasons for quitting or pros and cons of quitting (i.e., motivation) as opposed to commitment may be because motivation is simpler to measure, for example by asking people to rate or rank reasons, costs or benefits. From a policy and practice perspective, it may also be easier to draw attention to these reasons, costs and benefits, rather than engage with commitment. For example, mass media campaigns can remind smokers of why they should quit by pointing out the benefits to short-term and long-term health. However this review draws attention to the importance of commitment for sustained quitting, at least from the point of view of smokers and quitters. The UK's annual Stoptober campaign in which smokers committed to being smoke-free for 28 days indicates that creative approaches to addressing commitment can be successful.[60]

The final concept identified, willpower, was described in terms of multiple constructs (a personal quality or trait, a method of quitting, a strategy to counteract cravings or urges), suggesting smokers and researchers may use it as a convenient or shorthand heuristic when talking about or reporting on quit success. Despite this lack of clarity, the word has persisted in the qualitative and quantitative smoking cessation literature. It could be fruitful for future research to further examine the meaning of willpower, and particularly its relationship to other more tightly defined concepts such as self-efficacy,[61] self-regulation[62] and self-determination,[63] from the perspective of both researchers and smokers.

No matter how widely available and affordable smoking cessation assistance becomes, it is likely there will always be a significant proportion of smokers who choose to quit unassisted. [9] It is important to understand what drives these smokers to quit this way and to better understand their route to success. Orford and colleagues working on the UK Alcohol Treatment Trial made a strong case for including the client's perspective, arguing that it is wrong to assume that clients have no perspective into their own change processes, and that we should resist the dominant 'drug metaphor' which has adopted the model of an active professional applying a technique to a passive recipient. [64] McDermott and Graham also advocated for the need for contemporary public health policy to ground itself in the experiences of those whose lifestyles it seeks to change. [65] As the vast majority of smokers who quit successfully continue to do so without formal help, it is likely that a better understanding of this experience, from the perspective of the smokers and ex-smokers themselves, could inform more nuanced and effective communication and support for quitting.

Limitations

A potential limitation was the quality of the original articles. Our *a priori* decision not to assess articles based on the overall quality of the studies using standard guidelines or checklists meant that some of the included studies failed to report, for example, the theoretical framework, the sampling strategy, the procedures for data analysis, or the theoretical justification for their data analysis. In addition, several of the studies, especially those post-2000 reported data that were descriptive rather than analytic.

It is possible that we, the authors of the review, were sensitised to some of the themes identified as important due to our involvement in an ongoing grounded theory study into how and why smokers quit unassisted. Some of our interviews with ex-smokers took place at the same time as this qualitative review. The influence of this overlap, however, is likely to be minimised by the fact that not all authors had been involved in the data collection or analysis of the grounded theory study at the time of the review, and the whole authorship team were involved in the development and refinement of the analysis.

And finally, the three concepts identified are not discrete, and are likely to overlap in many ways. The studies identified confirmed the importance of these concepts, but did not always analyse them in sufficient detail to allow us to draw firm and transferable conclusions about their meaning. We have identified the importance of these concepts: further research is needed to strengthen our understanding of how smokers understand and use them.

Conclusion

Our review identifies three key concepts, motivation, willpower and commitment, circulating in smokers' and ex-smokers' accounts of quitting unassisted. Insufficient qualitative evidence currently exists to fully understand these concepts, but they do appear to be important in smokers' and ex-smokers' accounts and so worthy of research attention. A more detailed qualitative investigation of what motivation, willpower and commitment mean to smokers and ex-smokers would complement the existing body of behavioural science knowledge in tobacco control. A better understanding of these concepts from the smokers' perspective may help to explain the often-puzzling popularity of quitting unassisted rather than opting to use the efficacious pharmacological or professional assistance that is available. Health practitioners could potentially use such knowledge, in combination with what we already know from population-based research into smoking cessation, to better support all smokers to quit, whether or not they wish to use assistance.

Supporting Information

S1 PRISMA Checklist. PRISMA checklist
(DOC)

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Author Contributions

Conceived and designed the experiments: SMD SC SMC BF. Performed the experiments: ALS. Analyzed the data: ALS SMC SMD SC BF. Wrote the paper: ALS SMC SMD SC BF. Conceived and planned the review: ALS. Conducted the literature searches, identified studies to include in the review, categorised the studies and extracted the data: ALS.

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Supplementary file

Smith AL, Carter SM, Dunlop SM, *et al.* The views and experiences of smokers who quit smoking unassisted. A systematic review of the qualitative evidence. *PLoS One* 2015;10:e0127144.

Supplementary file 1 PRISMA checklist



PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	p1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	p2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	p2
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	p3
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	N/A
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	p4
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	p4 (see also Table 1)
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	p16 (Table 1)
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	Figure 1
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	pp4-5
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	Table 2
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	p4
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	N/A s
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	p5



PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	N/A
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N/A
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	Figure 1
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Table 2 (pp17-18)
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	N/A
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	N/A
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	N/A
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	N/A
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	N/A
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	pp7-9
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	p9
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	p10
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	p11

SECTION 3: EMPIRICAL FINDINGS

CHAPTER FIVE

Why do smokers try to quit without medication or counselling?

A qualitative study with ex-smokers

Chapter 5 overview

Chapter 5 is the first chapter reporting on my primary empirical study. In this chapter I present data relating to what unassisted quitting meant to participants. It consists of a published manuscript titled: ‘Why do smokers try to quit without medication or counselling? A qualitative study with ex-smokers’.

Publication details

Smith AL, Carter SM, Chapman S, *et al.* Why do smokers try to quit without medication or counselling? A qualitative study with ex-smokers. *BMJ Open* 2015;5:e007301.

Authors' contributions

SC conceived the study. SC, SMC, SMD and BF obtained funding. All authors were involved in designing the study and developing the methods. ALS coordinated the running of the study, conducted the interviews, read the transcripts, coded the transcripts and wrote the memos. ALS and SMC developed the analytical framework. All authors contributed to the analysis. ALS drafted the manuscript. All authors contributed to the interpretation of the analysis and critically revised the manuscript.

Abstract

Objective

When tobacco smokers quit, between half and two-thirds quit unassisted: that is, they do not consult their general practitioner (GP), use pharmacotherapy (nicotine-replacement therapy, bupropion or varenicline), or phone a quitline. We sought to understand why smokers quit unassisted.

Design

Qualitative grounded theory study (in-depth interviews, theoretical sampling, concurrent data collection and data analysis). Participants: 21 Australian adult ex-smokers (aged 28–68 years; 9 men and 12 women) who quit unassisted within the past 6 months to 2 years; 12 of these had previous experience of using assistance to quit; and 9 had never previously used assistance. Setting: Community, Australia.

Results

Along with previously identified barriers to use of cessation assistance (cost, access, lack of awareness or knowledge of assistance, including misperceptions about effectiveness or safety), our study produced new explanations of why smokers quit

experiences and indirectly from others over professional or theoretical knowledge; (2) their evaluation of the costs and benefits of quitting unassisted versus those of using assistance favours quitting unassisted; (3) they believe quitting is their personal responsibility; and (4) they perceive quitting unassisted to be the ‘right’ or ‘better’ choice in terms of how this relates to their own self-identity or self-image. Deep-rooted personal and societal values such as independence, strength, autonomy and self-control appear to be influencing smokers’ beliefs and decisions about quitting.

Conclusions

The reasons for smokers’ rejection of the conventional medical model for smoking cessation are complex and go beyond modifiable or correctable problems relating to misperceptions or treatment barriers. These findings suggest that GPs could recognise and respect smokers’ reasons for rejecting assistance, validate and approve their choices, and modify brief interventions to support their preference for quitting unassisted, where preferred. Further research and translation may assist in developing such strategies for use in practice.

Manuscript

The published version of the manuscript follows.‡

‡ A paper by Morphett *et al.* (Morphett, K., Partridge, B., Gartner, C., Carter, A. and Hall, W. (2015). Why don’t smokers want help to quit? A qualitative study of smokers’ attitudes towards assisted vs. unassisted quitting. *Int J Envir Res Public Health*, 12(6), pp.6591–607), which was published after the paper I present in this chapter, reported findings that resonate with my findings. In particular Morphett and colleagues report that smokers identified quitting unassisted as the ‘best’ way to quit, and one they valued for the sense of achievement that it would bring, while using cessation aids was seen as ‘cheating’.

BMJ Open Why do smokers try to quit without medication or counselling? A qualitative study with ex-smokers

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ABSTRACT

Objective: When tobacco smokers quit, between half and two-thirds quit unassisted: that is, they do not consult their general practitioner (GP), use pharmacotherapy (nicotine-replacement therapy, bupropion or varenicline), or phone a quitline. We sought to understand why smokers quit unassisted.

Design: Qualitative grounded theory study (in-depth interviews, theoretical sampling, concurrent data collection and data analysis).

Participants: 21 Australian adult ex-smokers (aged 28–68 years; 9 males and 12 females) who quit unassisted within the past 6 months to 2 years. 12 participants had previous experience of using assistance to quit; 9 had never previously used assistance.

Setting: Community, Australia.

Results: Along with previously identified barriers to use of cessation assistance (cost, access, lack of awareness or knowledge of assistance, including misperceptions about effectiveness or safety), our study produced new explanations of why smokers quit unassisted: (1) they prioritise lay knowledge gained directly from personal experiences and indirectly from others over professional or theoretical knowledge; (2) their evaluation of the costs and benefits of quitting unassisted versus those of using assistance favours quitting unassisted; (3) they believe quitting is their personal responsibility; and (4) they perceive quitting unassisted to be the 'right' or 'better' choice in terms of how this relates to their own self-identity or self-image. Deep-rooted personal and societal values such as independence, strength, autonomy and self-control appear to be influencing smokers' beliefs and decisions about quitting.

Conclusions: The reasons for smokers' rejection of the conventional medical model for smoking cessation are complex and go beyond modifiable or correctable problems relating to misperceptions or treatment barriers. These findings suggest that GPs could recognise and respect smokers' reasons for rejecting assistance, validate and approve their choices, and modify brief interventions to support their preference for quitting unassisted, where preferred. Further research and translation may assist in developing such strategies for use in practice.

Strengths and limitations of this study

- The qualitative design allowed us to extend the existing literature on barriers and facilitators of assistance utilisation to provide a more in-depth discussion of the complex reasons of why smokers may choose to quit unassisted.
- Concurrent data collection and analysis allowed interesting, unanticipated findings to be followed up and explored in subsequent interviews.
- Asking ex-smokers to talk about previous assisted and unassisted quit attempts provided new insights into why some smokers go on to quit unassisted.
- As participants were ex-smokers who had quit unassisted between 6 months and 2 years ago, it is possible that their recollections may have been subject to recall bias.

INTRODUCTION

Smoking cessation researchers, advocates and healthcare practitioners have tended to emphasise that the odds of quitting successfully can be increased by using pharmacotherapies such as nicotine-replacement therapy (NRT), bupropion and varenicline¹ or behavioural support such as advice from a healthcare professional^{2–5} or from a telephone quitline.⁶ However, instead of using one or more of these forms of assistance, it appears most quit attempts are unassisted⁷ and most long-term and recent ex-smokers quit without pharmacological or professional assistance.⁸

Researchers have identified a number of issues relating to the choice to use assistance. They generally conclude that failure to use assistance can be explained by treatment-related issues such as cost and access, and patient-related issues such as lack of awareness or knowledge about assistance, including misperceptions about the effectiveness and safety of pharmacotherapy or concerns about addiction.^{9–12}

The policy and practice response to the low uptake of cessation assistance has typically focused on improving awareness of, access to, use of assistance and in particular, pharmacotherapy. NRT, bupropion and varenicline are often provided free-of-charge or heavily subsidised by the government or health insurance companies.^{13–15} NRT is on general sale in pharmacies and supermarkets, and is widely promoted through direct-to-consumer marketing.^{16 17} Clinical practice guidelines in the UK, USA and Australia advise clinicians to recommend NRT to all nicotine-dependent (>10 cigarettes per day) smokers.^{18–20} Specialist stop-smoking clinics, and dedicated telephone and online quit services provide smokers with tailored support and advice.^{21–23} These products and services have not had the population-wide impact that might have been expected from clinical trial results,^{16 24 25} leading some researchers to suggest that patient-related barriers such as misperceptions about effectiveness and safety are a greater impediment than treatment-related barriers.²⁶ Little attention, however, has been given to how and why smokers quit unassisted.^{8 27} If we can explain how the process of unassisted quitting comes about and what it is about unassisted quitting that appeals to smokers, we may be better placed to support all smokers to quit, whether or not they wish to use assistance.

We conducted a qualitative study to understand why half to two-thirds of smokers choose to quit unassisted rather than use smoking cessation assistance. Smoking cessation researchers have recently highlighted the importance of gaining the smokers' perspective^{28 29} and suggested qualitative research might provide the means of doing so.³⁰ Although a number of qualitative studies have examined non-use of assistance in at-risk or disadvantaged subpopulations,^{31–33} only a few have looked at smokers in general.^{26 34} Cook-Shimanek *et al*³⁰ report that few studies have examined explicit self-reported reasons of why smokers do not use NRT; to our knowledge, none has examined explicit, self-reported reasons of why smokers do not use prescription smoking cessation medications.

A qualitative approach was well suited to the research questions guiding the current study, which were:

- (1) What does quitting unassisted mean to smokers?
- (2) What factors influence smokers' decisions to quit unassisted?

In order to contextualise the findings of our qualitative study, we also performed a comprehensive review of the literature on non-use of smoking cessation assistance.

METHODS

Literature review

We searched MEDLINE via OvidSP, PsycINFO via OvidSP and CINAHL via EBSCO in February 2015 for articles reporting on non-use of smoking cessation assistance (see online supplementary file 1 for search strategies and results). We complemented this search

strategy by manually searching the reference lists of relevant papers. Articles were included if: (1) the article reported on non-use of smoking cessation assistance; (2) the article was published in 2000 or later; and (3) the article was in English. Articles were excluded if (1) they reported only on the characteristics or demographics of smokers who did not use assistance; (2) the study was evaluating the feasibility of a smoking cessation intervention; or (3) the study reported only on specific subpopulations such as pregnant women, youth or prisoners. We identified 1066 articles of which 14 met the inclusion criteria (figure 1). The included papers were not critically appraised for quality as our intent was not to synthesise the results of the studies, but to report on how the issue is currently framed.

Qualitative study design

A constructivist grounded theory methodology underpinned the study design, research questions, data collection, analysis and interpretation.³⁵ In a grounded theory study, data collection and analysis are iterative with each informing the other. Sampling is theoretically driven, that is, researchers shape their sampling strategy based on the developing analysis. Recruitment continues until theoretical saturation has occurred and an explanation generated for the process or phenomenon under investigation.³⁶

Recruitment and participant selection

We recruited from the general community using traditional media (media release, print and online newspaper articles, talk-back radio) as well as social media (Twitter, Facebook). Potential participants were screened for eligibility. Eligible participants were adult (18+ years of age) ex-smokers who had quit unassisted in the previous 6 months to 2 years. Risk of relapse to smoking, which reduces with time quit,^{37 38} was balanced against potential for recall bias.³⁹ Participants' smoking and quitting histories (eg, cigarettes per day, years smoking, number and type of prior quit attempts) and basic demographic information (eg, age, gender, education, income and geographical location) were collected. Eligible participants were initially purposively sampled (n=9), and then theoretically sampled on the basis of their screening information (n=12). We selected ex-smokers with varied smoking and quitting histories from a diverse range of backgrounds. This sampling strategy ensured we generated rich, relevant and diverse data pertinent to the research questions and to our evolving theories about quitting and use/non-use of assistance. Participants were offered AU\$80 reimbursement for sparing their time. We interviewed 21 ex-smokers who had quit without assistance within the past 6 months to 2 years. Participant characteristics are summarised in table 1.

Conducting the interviews

Interviews took place between December 2012 and December 2013. Where geographically feasible,

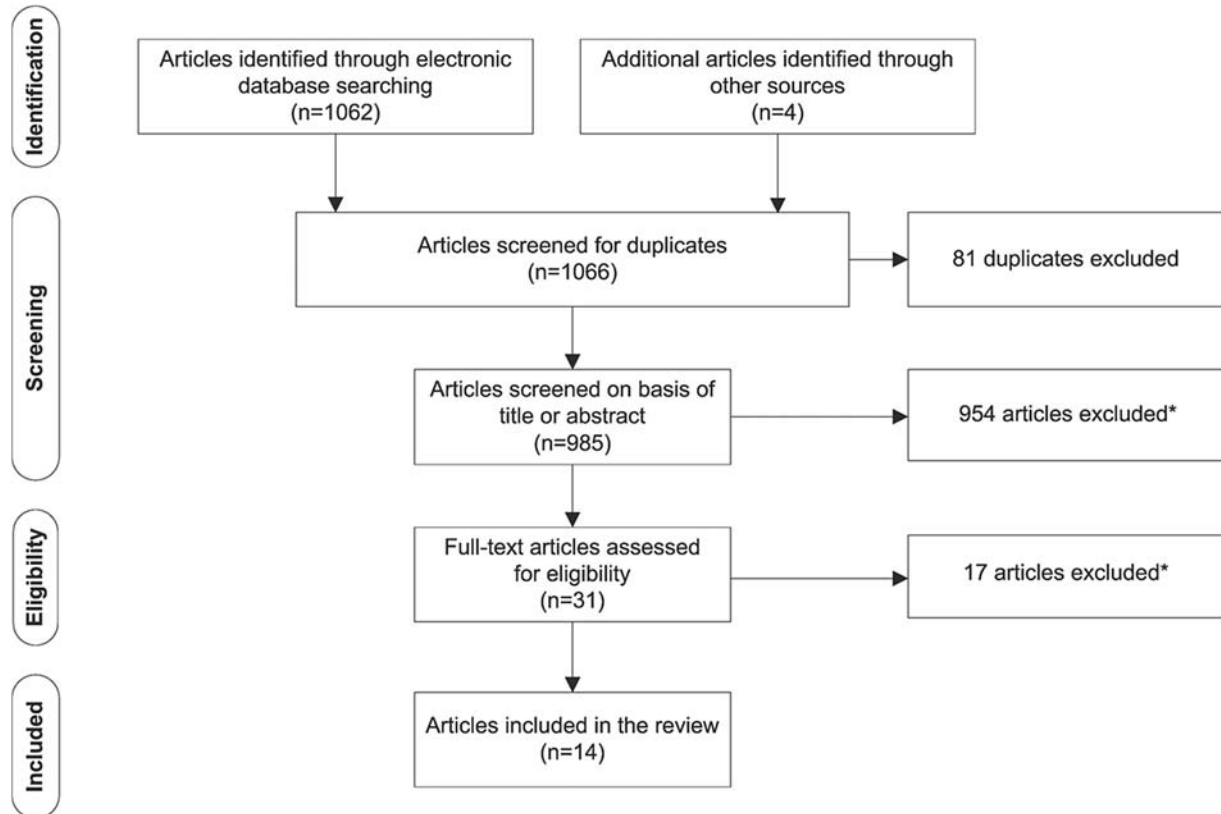


Figure 1 Identification and screening of eligible articles for inclusion in the literature review. *Articles were excluded if they reported only on (1) the characteristics of smokers who did not use assistance; (2) the feasibility/acceptability of a smoking cessation intervention; (3) specific subpopulations, for example, culturally and linguistically diverse populations, pregnant women, or at-risk populations such as hospital patients or youth.

participants were encouraged to be interviewed face-to-face; however, the final decision was left to the participant. All interviews were conducted by ALS. The University of Sydney Human Research Ethics Committee approved all study procedures and materials. Potential participants were provided with a participant information sheet; participants provided written consent for their participation prior to enrolment in the study.

A semistructured interview guide was used for each interview, but the specific questions asked reflected the quitting experiences of the participant and the stage in data collection. Questions evolved as recruitment and interviewing progressed, with subsequent interviews becoming more specific in order to help the development of provisional ideas and theories. Both the screening questionnaire and interview guide were pilot tested prior to start of the study.

Data capture, coding and analysis

Interviews were audio recorded and transcribed verbatim; interviews lasted between 37 min and 1 h 50 min. Field notes were made directly after each interview. Theoretical saturation was reached after 21 interviews; at this point our evolving ideas and theories were fully evidenced from the data, and few or no new insights were forthcoming from participants.

Data management and analysis were aided by use of computer-assisted qualitative data analysis software NVivo 10 (QSR International). Data analysis involved (1) using the first 5 interview transcripts and field notes to create detailed codes reflecting what appeared to be most important to those participants; (2) sorting the codes into a coding hierarchy; (3) coding the subsequent transcripts, and revising the codes and coding hierarchy as necessary; (4) comparing and contrasting data from within and between interviews; and (5) writing memos. During memoing, the researcher documented the analytical thinking driving the coding process and explored relationships between categories.

Coding and memoing were performed by ALS. The codes, coding hierarchy, memos and evolving ideas and theories were regularly discussed with the other researchers. In addition to experience in tobacco control, each of the researchers had expertise in different areas relevant to the project, including smoking cessation, behavioural psychology, bioethics and qualitative health research methodology. The diversity of viewpoints and experiences were critical to the interpretation of the data.

When the researchers had established the central categories in the analysis, these were mapped against what had been reported in the existing literature. Those

Table 1 Participant characteristics

Characteristic	Participants (n=21)
Gender	
Male	9
Female	12
Age (years)	
20–29	1
30–39	5
40–49	3
50–59	8
60–69	4
Geographical location*	
Major cities	13
Inner regional Australia	2
Outer regional Australia	6
Remote Australia	0
Very remote Australia	0
Total household income (before tax) (AU\$)†	
≤30K	4
>30–60K	3
>60–90K	3
>90–120K	6
>120K	4
Experience of assistance	
Had never tried to quit before	2
Had never used assistance to quit	7
Had previously used assistance to quit	12
Previous quit attempts	
None	2
<3	10
3–10	7
>10	2
Recruitment method‡	
Traditional	12
Social media	9
Interview format	
Face-to-face	8
Telephone	13

*Classified according to the Australian Standard Geographical Classification Remoteness Area system.

†One participant did not answer the question on income.

‡Traditional: media release, print and online newspaper articles, talk-back radio; social media: Twitter, Facebook.

categories that had not previously been discussed in the literature were analysed further and connections between them explored.

RESULTS

Study perspective

Key categories identified in our data were mapped against reasons for non-use of assistance as reported in the smoking cessation literature (table 2). These included treatment-related and patient-related issues, as well as a number of social–environmental issues. We were encouraged by the consistency between our categories and the findings of previous research.

Our central analytical focus, however, was the original, previously unreported categories in our analysis (table 3).

When grouped, these suggested 4 new processes that could help explain unassisted quitting:

1. Prioritising lay knowledge;
2. Evaluating assistance against unassisted quitting;
3. Believing quitting is their personal responsibility;
4. Perceiving quitting unassisted to be the ‘right’ or ‘better’ choice.

Illustrative quotes for each category are provided in table 3.

Prioritising lay knowledge

Many participants expressed views about assistance that were at odds with accepted knowledge in smoking cessation on the effectiveness, side effects and long-term safety of assistance (table 2). These ‘misperceptions’ about assistance appear to arise because participants’ personal experiences and lay knowledge of assistance do not tally with what they have been told about assistance by their general practitioner (GP), pharmacist or through direct-to-consumer marketing of NRT by pharmaceutical companies. The gulf between what smokers have personally experienced or heard from others, and what health professionals are telling them was particularly evident in participants’ talk of unmet expectations of what assistance could realistically do for them. For many, the experience of using assistance had not been as expected, including not being as effective as they had believed it would be.

Participants talked of the importance of shared narratives of assistance that were predominantly negative and shared narratives of quitting unassisted that were predominantly positive. Shared stories of assistance—both personal and secondhand—were stories of failure to quit, and of unpleasant and sometimes serious side effects. In contrast, talk about quitting unassisted often featured family and friends who had managed to quit successfully on their own.

In order to resolve the tension between what is going on in ‘their world’ and what the professional medical and healthcare worlds are endorsing, participants prioritised what they knew: either directly from their own experiences or indirectly from ‘trusted’ sources. As a consequence, participants appeared to discount professional advice in favour of their own first-hand quitting experiences and the collective narratives of quitting successes and failures that circulated in their social groups. This lay knowledge-making based on personal and collective experiences appears to be a powerful force at play in smokers’ decisions about quitting.

Evaluating assistance against unassisted quitting

On the whole, participants did not seem to be quitting unassisted because of a lack of awareness or knowledge about the assistance available to them. Instead participants appeared to have engaged in an evaluation of the perceived costs and benefits of using assistance compared with the costs and benefits of quitting unassisted. Factors in this cost–benefit balance related primarily to

Table 2 Data from current study mapped against known issues related to non-use of smoking cessation assistance
Issues related to non-use of smoking cessation assistance

Studies	Treatment-related issues		Patient-related issues		Social-environmental issues	
	Access (eg, delay in getting prescription; GP as gatekeeper)	Cost	Effectiveness/ how assistance works	Lack of awareness or knowledge about assistance (including misperceptions): Safety/side effects/ future health/new addiction	Availability (eg, how to get NRT, free or subsidised pharmacotherapy or behavioural support)	Overconfidence in own abilities
Quantitative						
Etter and Perneger ⁹				✓		✓
Bansal <i>et al</i> ¹⁰			✓	✓		✓
Cummings <i>et al</i> ⁴⁰			✓	✓		✓
Hammond <i>et al</i> ⁴¹			✓	✓		✓
Mooney <i>et al</i> ⁴²			✓	✓		✓
Gross <i>et al</i> ¹¹	✓					
Shiffman <i>et al</i> ¹²			✓	✓		
Vogt <i>et al</i> ^{26*}			✓	✓		
Vogt <i>et al</i> ^{43†}			✓	✓		
Borland <i>et al</i> ⁴⁴			✓	✓		✓
Willems <i>et al</i> ⁴⁵			✓	✓		✓
Cobb <i>et al</i> ⁴⁶	✓		✓	✓		✓
Cook-Shimaneck <i>et al</i> ³⁰	✓	✓	✓	✓		✓
Qualitative						
Vogt <i>et al</i> ^{26*}	✓	✓	✓	✓		✓
Vogt <i>et al</i> ^{43†}			✓	✓		✓
Uppal <i>et al</i> ³⁴			✓	✓		✓
Data from current study	✓	✓	✓	✓		✓

*Vogt *et al*²⁶ reported data from two studies, one qualitative and one quantitative

†Vogt *et al*⁴³ reported data from two studies, one qualitative and one quantitative. GP, general practitioner; NRT, nicotine replacement therapy.

Table 3 The four analytical categories that explain the process and meaning of quitting unassisted, with illustrative quotes

Category	Participant quotes
Prioritising lay knowledge <ul style="list-style-type: none"> ▶ Valuing personal experiences ▶ Being influenced by shared/collective knowledge 	<i>'I've done this, I've done the gum before, it's my turn to just do it by myself with common sense and willpower.'</i> Female, 57 years old <i>'I've known a couple of people around town that have tried to give up with patches and that and they've gone 3 or 4 weeks and they've started smoking again and all that.'</i> Female, 52 years old <i>'I've got friends that have used the patches and the gum a lot. They've been unsuccessful. They've done the gum and the patches, I don't know how many times. They've spent so much money on them, and they just cannot make it work.'</i> Female, 31 years old <i>'Well [assistance] hadn't worked in the past and I didn't think—I'd come to the realisation that it was just in the mind, it was just a matter of willpower, it was just a matter of saying no and sticking to it.'</i> Male, 59 years old
Evaluating assistance against unassisted quitting <ul style="list-style-type: none"> ▶ Weighing up the 'value' assistance brings to them and their quit attempt (is it worth using assistance to quit?) ▶ Wanting to save money <i>now</i> (spending money to quit is irrational, especially on something that brings no 'pleasure') ▶ Wanting to quit 'instantly', be a non-smoker <i>now</i> (which assistance does not allow) ▶ Disliking the 'inconvenience' of assistance (assistance is too complicated, too fiddly) ▶ Associating assistance with additional effort (eg, adopting new, but temporary, routines) 	<i>'It was a big thing that if I'm going to save money by not smoking then why should I spend money on not smoking.'</i> Male, 45 years old <i>'The cigarettes, that's the fun. Why would you spend \$20 on non-fun?'</i> Female, 34 years old <i>'I found [NRT] expensive. I thought that if you're going to get nicotine anyway at least there should be some positive reason for it.'</i> Female, 56 years old <i>'If I'm going to quit smoking I'm going to do it cold turkey and get it over and done with.'</i> Female, 52 years old <i>'I went to the GP and he said oh, you need to continue to smoke though for a couple of—what was it? It is a week? I was like oh no, but I want to stop now.'</i> Female, 34 years old <i>'It's too much of a hassle... You've got to go out and buy the thing. You've got to stick it on or chew it or unwrap it.'</i> Male, 61 years old <i>'It's my problem. Not problem, I think that's a bad choice of words, but I was the one smoking.'</i> Male, 28 years old <i>'That's so important that you don't make an issue out of it. It is a personal—you're right. You are so right. It is a personal thing.'</i> Male, 61 years old <i>'Yeah, okay, I screwed up, I smoked for years, I really need to do something about this and cope with it.'</i> Female, 57 years old <i>'I'm not much of someone to go to a doctor unless there was, unless I thought there was a serious problem with myself I don't normally go to a doctor.'</i> Male, 45 years old <i>'I'm independent and I'm stubborn and that's the only way that I knew how to do it. I wasn't going to—I'm not a person to ask for help. So I don't think I would have asked for help to quit smoking.'</i> Female, 31 years old <i>'OK I did the Champix, I stopped for maybe—I can't remember if it was 2 or 3 months—but like it didn't work because it actually, the change sort of wasn't from within.'</i> Female, 56 years old <i>'I think quitting cold turkey, you're going to have more chance of actually [staying] a non-smoker, if you quit cold turkey...because I think that you need that willpower to stay motivated to not smoke.'</i> Female, 31 years old <i>'Because grand scheme of things, it's always your willpower that's going to stop you. So you might be able to use other methods to help you quit smoking, but six months down the track, you need to have that willpower to stop you doing that again.'</i> Female, 31 years old <i>'I feel a sense of accomplishment in knowing that I did it cold turkey. Knowing that I didn't have to go to other means to do it. That I was able to use my willpower.'</i> Female, 31 years old
Believing quitting is their personal responsibility <ul style="list-style-type: none"> ▶ Smoking and quitting are personal problems (and the responsibility of the individual) ▶ Smoking and quitting are not medical conditions ▶ The smoker is best placed to know how to quit, what will work 	<i>'I think I just didn't want to [use assistance], I just felt that for me to do it properly I actually had to be able to do it myself.'</i> Female, 50 years old <i>'[Taking medication] had crossed my mind, but I'm a fairly stubborn person I suppose. I don't really—I believe that I should be able to do it myself, without those sorts of things.'</i> Male, 31 years old <i>'I think that if you're truly committed you don't need anything'</i> Female, 56 years old
Perceiving quitting unassisted to be the 'right' or 'better' choice <ul style="list-style-type: none"> ▶ Quitting unassisted is the 'best' way to quit ▶ Equating quitting unassisted with being serious about quitting 	

the perceived convenience of unassisted quitting (in terms of time to being 'quit' and the effort required to make the quit attempt happen) and the importance of short-term financial savings. These arguments were sometimes explicit and sometimes implicit.

Participants talked about wanting to quit now, immediately. NRT and smoking cessation medication both involve a treatment period in which the smoker is still a smoker: they cannot yet call themselves a 'non-smoker'. In their opinion, use of assistance essentially delays their

progression to being totally quit. In contrast, going ‘cold turkey’ (ie, quitting suddenly without cutting down or using any assistance) provides an immediate satisfaction and instant non-smoker status. There often appeared to be a sense of urgency or a need for an immediate and complete change of status in those who opted to quit unassisted.

Using assistance was also associated with an investment of practical and logistical effort. Assistance required the adoption of new—but temporary—routines and habits. It was a middle ground or half-way house through which the smoker would have to pass. They would have to complete this ‘assistance’ phase before being able to adopt yet another set of routines and habits to become nicotine-free or drug-free. These temporary routines associated with assistance included obtaining or purchasing assistance, carrying it around and remembering to use it. For some this temporary, additional set of routines appeared simply too complex, too bothersome and too high a price to pay in terms of the inconvenience generated.

For a number of participants, spending money to quit, especially when quitting was motivated by a desire to save money, appeared counter-intuitive. For such participants, thoughts were focused on the here and now, on the short-term rather than long-term savings. Few participants appeared to regard money spent on assistance as a long-term investment in future financial savings. As a consequence, using assistance to quit was viewed as a barrier to maximising potential savings while quitting. For NRT specifically, this balancing of the pros and cons extended beyond the financial cost of cigarettes versus cost of NRT to the perceived pleasure that the financial spend was likely to provide. Spending \$20 on cigarettes was reasonable because it would deliver pleasure; spending \$20 on something that was going to make you miserable was not. An unwillingness to spend on NRT also appeared related to an inability to reconcile nicotine’s dual role as part of the problem and the solution, and to fears of becoming addicted to NRT gums, patches or inhalers.

Believing quitting is their personal responsibility

Quitting appeared to be an intensely individual experience and one that the smoker believed only they could take charge of. Ultimately quitting was something they had to face themselves. Many participants seemed to have reached a point where they regarded smoking to be their problem and quitting to be their personal responsibility. Quitting was, therefore, not necessarily something that could be helped or facilitated by external support (be it from family, friends or health professionals).

Participants often talked about being the person best placed to know why they smoked, why they wanted to quit, and what was likely to work for them. To these participants, external help or assistance was unlikely to be useful or necessary. For many this appeared to be

because they had previous experience of unsuccessful assisted quit attempts (with, eg, over-the-counter NRT, prescription NRT, smoking cessation medications or behavioural support) and had learnt that for them, assistance was unhelpful or solved only part of the problem. Conversely, other participants had not previously used professional or pharmacological support to quit and therefore, did not see the need to do so now. Others simply did not equate smoking with being ill, or regard smoking and quitting as medical conditions: this meant medical support was not appropriate and little benefit would be gained from involving a GP in the quit attempt. Several participants implied that a GP would be able to offer only generic or lay quitting advice that was unlikely to be relevant to them personally: in other words, from the participant’s perspective, the GP could add little to the participant’s own personal store of quitting experiences.

A number of participants also appeared to have an issue with adopting a substitute behaviour (ie, NRT or smoking cessation medication). To these participants, the use of NRT or drugs meant that they were still dependent on nicotine or another substance to deal with their need for nicotine. If they really wanted to quit and to quit for good, they needed to take that step themselves, which to them essentially precluded use of assistance and in particular, NRT.

Perceiving quitting unassisted to be the ‘right’ or ‘better’ choice

In contrast to the dominant medical and health promotion discourse about quitting unassisted being undesirable or even foolhardy, for many participants quitting unassisted was the ‘right’ or ‘better’ way to quit. This belief appeared to be closely associated with what participants referred to as ‘being serious’ about quitting. It appears that underlying these beliefs may be a set of values that the participant and perhaps also Australian society, as a whole, endorses.

Participants talked, either explicitly or implicitly, about the values that were important to them in relation to their quit attempt: independence, strength, autonomy, self-control and self-reliance. These values are, broadly speaking, also reflective of values central in many western societies and cultures. It seems likely that these broadly held values were influential in shaping participants’ beliefs about quitting unassisted being the right or better choice and the belief that quitting was ‘up to me’. Quitting unassisted allowed the participant to realise a need to feel independent, in control and autonomous, something that they would not necessarily have felt if they had used assistance. Some participants even suggested that seeking help from a GP or another source such as the Quitline would be tantamount to admitting failure. The independent nature of their quit attempt was seen as an important contributor to the success of that attempt.



In summary, many participants believed they had achieved something of value by quitting unassisted, and appeared to take this achievement as an indicator of the strength of their moral character. In this context, quitting unassisted was presented as a morally superior option; quitting unassisted was evidence of personal virtue. It is important to note, however, that this was rarely used as a measure of the moral worth of others. Participants rarely suggested that other smokers who used assistance to quit were morally inferior. Rather, they presented their final, unassisted quit attempt as evidence that their personal virtue had increased over time, thus bolstering their own sense of identity and self-worth.

DISCUSSION

Principal findings

In this community sample of ex-smokers who had quit on their own without consulting their GP or using smoking cessation assistance, issues of cost and access to assistance, misperceptions relating to the effectiveness and safety of pharmacotherapy, and confidence in their ability to quit on their own affected their decision to quit unassisted. This was consistent with earlier quantitative and qualitative research (table 2). However, we found that the influences on non-use of assistance were more complex, involving careful judgements about the value of knowledge, the value of different quitting strategies, the importance of taking personal responsibility and the moral significance of quitting alone. Future efforts to improve uptake of assistance may need to take some of these influences into consideration.

In an effort to understand what appears to be conflicting advice about quitting and how to quit successfully, participants appear to fall back on trusting their intuition or common sense, giving preference to their personal and shared knowledge of quitting over professional or theoretical knowledge. Lay knowledge (or lay epidemiology) has previously been used to understand how health inequalities develop in smokers,^{47–49} to inform health-promotion practices in smoking cessation,⁵⁰ and to explain the range of self-exempting beliefs used by smokers to avoid quitting.⁵¹ Our study is the first to demonstrate how lay knowledge influences non-use of assistance when attempting to quit smoking.

Participants who quit on their own often appeared reluctant to consult their GP, primarily because they did not view smoking or quitting as an illness, reflecting what others have also reported.^{52 53} Our analyses show that this reluctance to consult a GP may also be because smokers perceive the GP has little to offer beyond the smoker's own lay knowledge, reflecting what others have recently reported for smoking cessation consultations in general practice in the UK.⁵⁴ This reluctance to consult a GP may be reinforced if the smoker is hesitant about using pharmacotherapy or if they believe smoking is not

a 'doctorable' condition. Doctorable is a term coined by Heritage and Robinson⁵⁵ to explain the way in which patients in the USA account for their visits to primary care physicians and to demonstrate how patients orientate to a need to present their concerns as doctorable. Before visiting a physician, patients make a judgement as to whether they require medical help. They are aware that the physician will subsequently judge their judgement when they present at the surgery. It is conceivable that this need to present only when the individual perceives the condition to be doctorable could apply not just to smoking cessation, but to other difficult-to-change health behaviours such as losing weight or getting fit.

In addition to judgements relating to the value of lay knowledge, our study highlights how smokers make judgements about the value of different quitting strategies based on perceptions of time and effort required, convenience and cost. This process of evaluation has been reported for decisions related to the taking of other prescribed medications.⁵⁶ Pound *et al*⁵⁶ reported that patients often weigh-up the benefits of taking a medicine against the costs of doing so and are often driven by an overarching desire to minimise medicine intake. In the current study, this evaluation of different quitting strategies often resulted in the participant forming a negative opinion of assistance and in particular, of NRT. Given nicotine's complicated history and transformation from an addictive, toxic and potentially harmful drug to a medically useful drug it was not surprising that many participants found it difficult to reconcile nicotine's portrayal as being part of the problem and a possible solution,⁵⁷ and as a result appeared to be resisting use of medications to assist them to quit.

Layered underneath the prioritising of lay knowledge and the evaluation of different quitting strategies were deep-rooted cultural values, such as independence, strength, self-reliance, self-control and autonomy, which influenced participants' views on assisted and unassisted quitting. Lay knowledge in combination with these multilayered influences lead many participants to believe that quitting unassisted was the 'right' or 'better' way to quit, that the participant was personally responsible for their quitting and that quitting unassisted was a prerequisite for 'being serious' about quitting. This key concept, being serious, is one we believe is critically important to Australian smokers and one we are exploring further in our ongoing research.

It should be noted that this study included only successful ex-smokers (quit for at least 6 months). Given that these individuals were interviewed in the context of a successful quit attempt, attribution theory⁵⁸ might provide some insight into the emergence of independence, strength, self-control and personal virtue as components of the successful unassisted quit attempt in these interviews. Attribution theory suggests a self-serving bias in attributions such that success is attributed to internal factors (such as personal virtue), and failure to external or situational factors. It might be informative to conduct

some research with smokers who tried to quit on their own and failed, as well as with ex-smokers who successfully quit with assistance to explore whether concepts relating to external or internal attributions emerge for these different groups of quitters.

Strengths and limitations

The qualitative design and in particular, the grounded theory methodology is a strength of this exploratory study. The concurrent data collection and analysis allowed unanticipated findings to emerge (such as the importance of lay knowledge and the sense of the participant being personally responsible for their quitting) and to be followed up and more fully explored in subsequent interviews. Allowing ex-smokers to talk about previous assisted and unassisted quit attempts provided new insights into why smokers quit unassisted. The qualitative design of the current study allowed us to extend the existing literature on barriers and facilitators of assistance utilisation to provide a more in-depth discussion of the complex reasons for why many smokers may choose to quit unassisted. By using a sample of ex-smokers from the general population we were able to broaden previous research that had focused specifically on at-risk or disadvantaged subpopulations.^{31–33} In the current study, rather than controlling for context, we actively sought to retain context in order to reveal the historical, social and cultural factors that may have impacted on quitting decisions. Limitations of the current study include using a non-representative sample of ex-smokers. Nonetheless, we minimised volunteer bias by recruiting directly from the general community. By recruiting through mainstream (press releases, newspaper articles and talkback radio) and social media (Twitter and Facebook), screening potential participants and providing participants with financial reimbursement for sparing their time, we achieved a sample of ex-smokers from diverse socioeconomic backgrounds who varied in age, education, income, geographical location, prior quitting experiences and prior use of assistance. As participants were ex-smokers who had quit unassisted between 6 months and 2 years ago, it is possible that their recollections may have been subject to recall bias. However, this possibility was balanced against the potential for relapse to smoking, which was an important consideration for this study.

Implications and future research

A proportion of smokers are unlikely to choose to use assistance to quit smoking or are reluctant to do so. Too much focus on pharmacological assistance may fail this group. It may be a more productive and a potentially more patient-centred approach to acknowledge that for these smokers quitting unassisted is a valid and potentially effective option.

Evidence-based medicine (EBM) and clinical practice guidelines prioritise results from randomised controlled trials (RCTs) and meta-analyses of RCTs. As a

consequence, current smoking cessation guidelines in the UK,¹⁸ USA¹⁹ and Australia²⁰ position pharmacotherapy as first-line therapy for those dependent on nicotine (>10 cigarettes per day). A range of government policies ensure pharmacotherapy is free or heavily subsidised, available on prescription and/or over-the-counter and that smokers have access to widely promoted and free quitline advice and support, and/or dedicated stop-smoking services.

As RCTs are designed to evaluate the efficacy of interventions, such as medications, in carefully controlled study populations, they cannot capture and often seek to eliminate the complexities associated with patients' lived experiences. This complexity may, however, be of relevance when making decisions about how to manage patients with complicated health-related behaviours, such as smoking. By retaining and examining some of the complexity surrounding quitting smoking, we have highlighted how participant's beliefs, values and preferences can influence the decision to quit unassisted. Previous research into patient-centred care has also identified that respect for a patient's beliefs and values,⁵⁹ needs and preferences,⁶⁰ and knowledge and experience⁶¹ are central to delivering care that is tailored to the needs of the individual patient. Accordingly, patient-centred care for smokers may include recognising and respecting smokers' reasons for declining assistance, validating and approving their choices and modifying brief interventions to support their preference for unassisted quitting, where preferred.

Healthcare policy does not operate in a vacuum. As our study indicates, success of any given policy is critically dependent on the broader social and cultural context. This is especially true for tobacco control given the influence of key stakeholders such as the tobacco industry. Recent research highlights how the tobacco industry capitalised on the powerful notion of personal responsibility to frame tobacco problems as a matter for individuals to solve.⁶² To our knowledge, our analysis is the first to indicate smokers do indeed feel personally responsible for quitting. Smoker's beliefs about quitting have been heavily influenced by social and cultural ideals, some of which are highly likely to have been shaped by the tobacco industry's individual choice rhetoric. The complexity of how such a rhetoric has influenced smokers has to date been unexplored.

The value placed on lay knowledge and on different quitting strategies by participants indicates that GPs, health promotion practitioners and pharmaceutical companies may be advised to be mindful of the consequences of overselling assistance and potentially unrealistically raising smokers' outcome expectations, further fuelling the apparent gulf between lay experiences and expert-derived knowledge. The low absolute efficacy rates of NRT and stop-smoking medications¹ create a challenge: is it possible to communicate about these products without disheartening smokers or making promises that may be difficult to deliver?

Cultural values are likely to play a role in the choice to use assistance or not, and future research should explore these issues in other cultures. It would be useful to replicate this study in other cultural contexts and in countries less advanced in tobacco control to determine whether the study findings are applicable across countries, cultural dimensions and stages of the tobacco epidemic.

For those patients who do seek medical advice, GPs may need to be cognisant of the role of lay knowledge and the patient's evaluation of different quitting strategies when counselling and advising about quitting smoking. The challenge will be to support those smokers who wish to quit unassisted while avoiding stigmatisation of those smokers who want or need assistance to quit.

CONCLUSION

A smoker's reluctance to use assistance to quit may sometimes be difficult to understand. Through this empirical work we are now able to suggest some explanations for this behaviour.

The reasons for smokers' rejection of the conventional medical model for smoking cessation are complex and go beyond the modifiable or correctable issues relating to misperceptions or treatment barriers. Lay knowledge and contextual factors are critically important to a smoker's decision to seek or resist assistance to quit. Smokers prioritise lay knowledge, evaluate assistance against unassisted quitting, believe quitting is their personal responsibility and perceive quitting unassisted to be the right or better option. Accordingly, GPs might recognise and respect smokers' reasons for rejecting assistance, validate and approve their choices, and modify brief interventions to support their preference for unassisted quitting, where preferred.

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Contributors SC conceived the study. SC, SMC, SMD and BF obtained funding. All authors were involved in designing the study and developing the methods. ALS coordinated the running of the study, conducted the interviews, read the transcripts, coded the transcripts and wrote the memos. ALS and SMC developed the analytical framework. All authors contributed to the analysis. ALS drafted the manuscript. All authors contributed to the interpretation of the analysis and critically revised the manuscript. All authors are guarantors.

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Supplementary file

Smith AL, Carter SM, Chapman S, *et al.* Why do smokers try to quit without medication or counselling? A qualitative study with ex-smokers. *BMJ Open* 2015;5:e007301.

Supplementary file 1 Search criteria

Supplementary file 1. Search terms

Database	Search period ^a	Search strategy	Retrieved
MEDLINE via OvidSP	1946–Wk 2 Feb 2015	<ol style="list-style-type: none"> 1. Attitude to Health/ 2. *Health Knowledge, Attitudes, Practice/ 3. Patient Acceptance of Health Care/sn [Statistics & Numerical Data] 4. *"Tobacco Use Cessation Products"/ut [Utilization] 5. *Smoking Cessation/mt [Methods] 6. *Smoking Cessation/px [Psychology] 7. *"Tobacco Use Cessation Products"/ut [Utilization] 8. 1 or 2 or 3 or 4 9. 5 or 6 10. 8 and 9 11. limit 10 to (english language and humans and yr="2000-Current") 	630
PsycINFO via OvidSP	1806–Wk 2 Feb 2015	<ol style="list-style-type: none"> 1. exp Health Attitudes/ 2. *health knowledge/ 3. *Health Behavior/ 4. *Client Attitudes/ 5. *Smoking Cessation/ 6. 1 or 2 or 3 or 4 7. 5 and 6 8. limit 7 to (human and english language and yr="2000-Current") 	225
CINAHL via EBSCO	1982–Wk 2 Feb 2015	<ol style="list-style-type: none"> 1. MM 'smoking cessation' or MM 'smoking cessation programs' 2. MM 'health knowledge' 3. MM 'attitude to health' 4. MM 'health behaviour' 5. 2 or 3 or 4 6. 1 and 5 7. limit 6 to[English][human][published date 20000101–20150231] 	207
Total retrieved			1062

^aDatabases were searched on 12 February 2015.

CHAPTER SIX

Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers' perspective

Chapter 6 overview

Chapter 6 is an analysis of the data relating to the process of quitting, in particular participants' experiences of quitting. It consists of a published manuscript titled: 'Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers' perspective'.

Publication details

Smith AL, Carter SM, Dunlop SM, *et al.* Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers' perspective. *BMC Public Health* 2017;17:430-40.

Authors' contributions

SC conceived the study. SC, SMC, SMD and BF obtained funding. All authors were involved in designing the study and developing the methods. ALS coordinated the running of the study, conducted the interviews, read the transcripts, coded the transcripts and wrote the memos. ALS and SMC developed the analytical framework. ALS drafted the manuscript. All authors contributed to the interpretation of the analysis and critically revised the manuscript.

Abstract

Background

To better understand the process of quitting from the ex-smokers' perspective, and to explore the role spontaneity and planning play in quitting.

Methods

Qualitative grounded theory study using in-depth interviews with 37 Australian adult ex-smokers (24–68 years; 15 men, 22 women) who quit smoking in the past 6–24 months (26 quit unassisted; 11 used assistance).

Results

Based on participants' accounts of quitting, we propose a typology of quitting experiences: measured, opportunistic, unexpected and naïve. Two key features integral to participants' accounts of their quitting experiences were used as the basis of the typology: (1) the apparent onset of quitting (gradual through to sudden); and (2) the degree to which the smoker appeared to have prepared for quitting (no evidence through to clear evidence of preparation). The resulting 2×2 matrix of quitting experiences took into consideration three additional characteristics: (1) the presence

or absence of a clearly identifiable trigger; (2) the amount of effort (cognitive and practical) involved in quitting; and (3) the type of cognitive process that characterised the quitting experience (reflective; impulsive; reflective and impulsive).

Conclusions

Quitting typically included elements of spontaneity (impulsive behaviour) and preparation (reflective behaviour) and, importantly, the investment of time and cognitive effort by participants prior to quitting. Remarkably few participants quit completely out-of-the-blue with little or no preparation. Findings are discussed in relation to stages-of-change theory, catastrophe theory, and dual process theories, focusing on how dual process theories may provide a way of conceptualising how quitting can include elements of both spontaneity and preparation.

Manuscript

The published version of the manuscript follows.

RESEARCH ARTICLE

Open Access



Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers' perspective

Andrea L Smith^{1*}, Stacy M Carter¹, Sally M Dunlop², Becky Freeman³ and Simon Chapman⁴

Abstract

Background: To better understand the process of quitting from the ex-smokers' perspective, and to explore the role spontaneity and planning play in quitting.

Methods: Qualitative grounded theory study using in-depth interviews with 37 Australian adult ex-smokers (24–68 years; 15 males, 22 females) who quit smoking in the past 6–24 months (26 quit unassisted; 11 used assistance).

Results: Based on participants' accounts of quitting, we propose a typology of quitting experiences: measured, opportunistic, unexpected and naïve. Two key features integral to participants' accounts of their quitting experiences were used as the basis of the typology: (1) the apparent onset of quitting (gradual through to sudden); and (2) the degree to which the smoker appeared to have prepared for quitting (no evidence through to clear evidence of preparation). The resulting 2 × 2 matrix of quitting experiences took into consideration three additional characteristics: (1) the presence or absence of a clearly identifiable trigger; (2) the amount of effort (cognitive and practical) involved in quitting; and (3) the type of cognitive process that characterised the quitting experience (reflective; impulsive; reflective and impulsive).

Conclusions: Quitting typically included elements of spontaneity (impulsive behaviour) and preparation (reflective behaviour), and, importantly, the investment of time and cognitive effort by participants prior to quitting. Remarkably few participants quit completely out-of-the-blue with little or no preparation. Findings are discussed in relation to stages-of-change theory, catastrophe theory, and dual process theories, focusing on how dual process theories may provide a way of conceptualising how quitting can include elements of both spontaneity and preparation.

Keywords: Qualitative, Grounded theory, Smoking cessation, Catastrophe theory, Stages of change, Dual process theory

Background

Like many difficult-to-change health behaviours, the process of quitting smoking is complex and often unsuccessful. Although wanting to quit is a necessary condition for attempting to quit, it is not in itself sufficient to ensure success. We know the vast majority of smokers express regret at ever having started to smoke

[1], that most smokers want to quit, and that every year about half attempt to quit [2], yet annually only 3–5% of smokers successfully quit for at least 12 months [3, 4].

Clinical practice guidelines and telephone quit-lines in countries such as Australia generally advise smokers that their chances of quitting successfully will improve if they plan their quit attempt in advance. Smokers are advised to set a quit date, address perceived barriers to quitting, seek social support, use pharmacological or behavioural support, and practice strategies to deal with cravings to smoke [5–7]. However, in 2005 the widely held belief

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that planning is a necessary prerequisite for quitting was challenged when a Canadian GP reported more than half of the smokers and ex-smokers she had interviewed had quit or attempted to quit without any pre-planning [8]. This finding was subsequently supported by studies in the UK [9–11], USA [12], and Sweden [13]. Several of these studies also reported that spontaneous quit attempts were more successful than planned quit attempts [8–10, 12, 13]. In contrast, several International Tobacco Control (ITC) studies reported that neither prior consideration nor delay between decision to quit and implementation was clearly related to quitting success and that there was no clear benefit of planning on short-term (1 month) cessation outcomes [14, 15]. Interestingly, a recent qualitative study has highlighted the difficulties involved in measuring concepts such as planning and spontaneity in relation to quitting, and the limitations of questionnaire-based surveys when assessing the prevalence and impact of planning on quitting success [16].

Aim and scope of the grounded theory study

Qualitative research has the potential to make a significant contribution to our understanding of the process of quitting by offering deep insights into the experiences of smokers when they quit. Grounded theory is a qualitative methodology that has already been used to better understand processes involved in difficult-to-change health behaviors [17]. For example, grounded theory studies in the UK have provided valuable insights into why clients seek professional treatment for drinking problems, which lead to the development of a model of the behavior-change process while utilizing these services [18, 19].

In this paper we report on a grounded theory study using in-depth, one-on-one interviews with recent ex-smokers (quit >6 months but <24 months). The current study is part of a larger qualitative study exploring how and why many smokers in Australia quit without using assistance despite pharmaceutical and professional smoking cessation assistance being affordable and widely available. It is anticipated the results of this study could provide rich information about the complex and highly variable process of quitting. It is hoped this information could inform a more nuanced response to the challenge of smoking cessation perhaps, for example, by providing campaign developers with insights that might allow them to develop more targeted quit campaigns tailored to the needs of specific audiences. Our purposive sampling strategy initially focused on ex-smokers who had quit without pharmacological or professional assistance as this was our primary area of interest and is an understudied area of research [20]. We subsequently expanded our sampling to include smokers who had

used assistance to quit to allow us to make analytical comparisons across cases and conditions. Our initial analysis indicated that there were more similarities than differences between the two methods of quitting and that using assistance appeared to be only one of many parts of a complicated process. In the initial analysis we also noticed very few participants appeared to have quit spontaneously (i.e. without any planning or preparation). This was noteworthy as this contradicts what many quantitative, survey-based studies into spontaneity and quitting have reported. Based on our initial findings, our subsequent analysis examined: (1) the process of successful quitting from the recent ex-smokers' perspective; and (2) the concepts of spontaneity and planning in the participants' accounts of quitting.

Methods

Rationale for choice of methodology

A constructivist grounded theory methodology underpinned the study design, research questions, data collection, analysis and interpretation [17]. Grounded theory was established in 1967 to reinstate inductive field-work underpinned by interactionist sociological theory. [21] Grounded theory has evolved considerably since then and is now one of the most-used methodologies in qualitative research, including health. In this current study we have drawn on the work of Kathy Charmaz, a contemporary leader in the field of grounded theory. Charmaz's constructivist grounded theory methodology is ideally suited to studying processes in individuals such as the process of quitting smoking (see Table 1 for key characteristics of a grounded theory study) [17].

Our methods were also influenced by informed grounded theory rather than Glaser's classic grounded theory [21–23]. Informed grounded theory recognizes that pre-existing theories can help the researcher to

Table 1 Key characteristics of a grounded theory study [17, 44]

- In a grounded theory study, theory is generated rather than tested.
- Data collection and analysis are cyclical and take place throughout the study.
- The sampling strategy (and sample size) is not pre-determined but is instead flexible.
- Recruitment continues until the central concepts in the developing theory are well understood (i.e. theoretical saturation is reached).
- Analysis typically involves:
 - (1) coding, in which the researcher develops codes to specify elements of the process under study
 - (2) memoing, in which the researcher writes analytical memos exploring how elements in the process under study relate to one another and the range of variation in the process
 - (3) diagramming or modeling, in which the researcher maps the relationships between elements in the process under study. As analysis progresses, data collection and analysis become more focused on clarifying and relating an ever-decreasing number of central concepts.

focus attention on certain phenomena, aspects or nuances. Pre-existing theories can provide a framework for thinking about a problem and for seeing beyond the data [24]. In this current study we were mindful of theories relating to how people think, how they make decisions, and how their motivational system generates action [25]. We were also aware of behaviorist theories [26, 27], rationality-based cognitive theories [28], catastrophe theory [9], comprehensive theories of addiction such as PRIME (plans, responses, impulses, motives and evaluations) theory of motivation [29], and theories of hard-to-maintain behavior change such as CEOS (context, executive and operational system) dual process theory [30].

Recruitment and participant selection

We recruited participants from the general community using traditional media (media release, print and online newspaper articles, talk-back radio) as well as social media. Eligible participants were former smokers who had quit in the previous 6 months to 2 years. Risk of relapse to smoking, which reduces with time quit [31, 32] was balanced against potential for recall bias [33]. Participants were classified as having quit unassisted or with the help of pharmacotherapy or professionally mediated behavioural support (see [34] for full definition of unassisted and assisted).

Each participant was asked about their smoking and quitting histories (e.g. cigarettes per day, years of smoking, number and type of prior quit attempts, use of assistance to quit) and to provide basic demographic information (e.g. age, gender, education, income and geographical location). In keeping with grounded theory methodology, sampling evolved from a purposive to a theoretical strategy as the study progressed [17]. Purposive sampling allowed us to interview participants with varied smoking and quitting histories from a diverse range of backgrounds. This sampling strategy ensured we generated rich, relevant and diverse data pertinent to the research questions. As data analysis progressed we moved to theoretical sampling in order to test our evolving theories about the process of successful quitting. Participants were offered AU\$80 reimbursement for their time.

Data collection

We interviewed 37 Australian adult (18+ years) former smokers who had quit within the past 6 months to 2 years (Table 2). Interviews took place between December 2012 and December 2015. Participants nominated to be interviewed face-to-face or by telephone. All interviews were conducted by AS. The University of Sydney Human Research Ethics Committee approved all study procedures and materials (reference

Table 2 Demographic, smoking and quitting characteristics of participants

Characteristic	Participants (n = 37)
Gender	
Male	15
Female	22
Age (years)	
20–29	4
30–39	6
40–49	9
50–59	11
60–69	7
Geographical location ^a	
Major cities	25
Inner regional Australia	4
Outer regional Australia	7
Remote Australia	1
Total household income (AU\$) ^b	
≤ 30 K	7
> 30 K–60 K	5
> 60 K–90 K	6
> 90 K–120 K	7
> 120 K	9
Cigarettes per day	
< 10 CPD	11
> 10 CPD	26
Use of assistance to quit	
Used assistance	11
Unassisted	26
Previous quit attempts	
None	3
< 3	16
3–10	11
> 10	7
Previous experience of assistance	
Had never tried to quit before	3
Had never used assistance to quit	11
Had previously used assistance to quit	23

^aClassified according to the Australian Standard Geographical Classification Remoteness Area system

^b3 participants did not answer the question on income

number 15019). Participants provided written consent for their participation prior to enrolment in the study. Pseudonyms were used to ensure anonymity.

A semi-structured interview guide was used for each interview. Participants were asked to talk about their smoking and quitting from when they first started to

smoke. A timeline was drawn up of their smoking and quitting history on which all quit attempts were documented. Questions evolved as recruitment and interviewing progressed, with questions in later interviews becoming more specific in order to further develop provisional ideas and theories. The screening questionnaire (Additional file 1) and interview guide (Additional file 2) were pilot tested prior to study commencement. Interviews were audio-recorded and transcribed verbatim. Interviews lasted between 37 min and 2 h 15 min. Field notes were made directly after each interview. Data analysis from each interview helped to inform subsequent sampling, allowing us to target who to interview next and what questions to ask them. This purposive and then theoretical sampling allowed us to test the validity and relevance of the proposed typology of quitting experiences. It also allowed us to be confident that our sampling had been adequate, that is we had continued to collect data until we could fully explain how the key elements in the quitting process related to one another and that our theory explained the variation in the experiences of quitting as reported by participants.

Coding and analysis

We used the computer-assisted qualitative data analysis software NVivo 10 (QSR International) for data management and coding. Coding and memoing were carried out by AS, a trained and experienced qualitative researcher. Interview transcripts were read several times before being coded line-by-line (open coding) [17]. The line-by-line coding aimed to identify what was important to that particular participant when they quit. Comparison of the line-by-line codes from within individual interviews and across all interviews lead to a consolidation and refinement of codes based on patterns observed across interviews relating to key circumstances surrounding quitting (focused coding). Coding was followed by diagramming and modeling to establish how various elements in the quitting process were related to one another.

To improve validity of this interpretive study, the open and focused codes, the coding hierarchy, the memos, the diagrams and models, and the developing ideas and theories were regularly discussed among members of the research team, whose expertise in smoking cessation, behavioural psychology, public health ethics and qualitative health research methodology were critical to the interpretation of the data. These discussions fostered a deeper understanding of the data and ensured our conclusions were grounded in the data. Transparency and auditability of the analytical process were enhanced through the use of memos that documented the researchers' provisional interpretations.

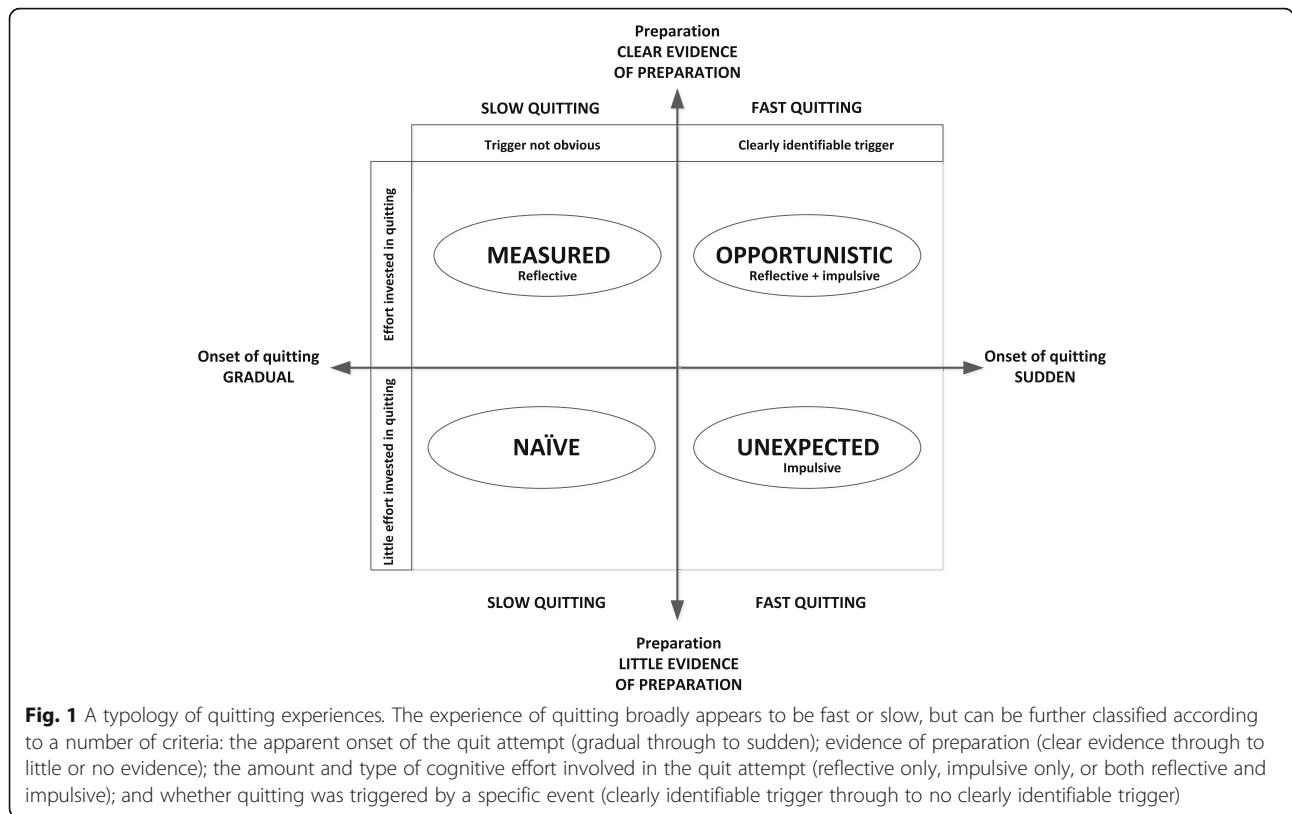
Results

Overview: the process of quitting

Participants were initially divided into those who took a slower, less direct path to quitting success (slow quitters) and those who quit rapidly, suddenly, and in some cases almost unexpectedly (fast quitters). However, we suspected the fast and slow dichotomy was too simplistic and did not fully capture the variation and complexity of participants' quitting experiences. This suspicion was confirmed when we attempted to divide participants into those whose experience of quitting had been slow and less direct and those whose experience had been one of quitting rapidly or suddenly. We found that not all participants' quitting experiences could be clearly classified as being slow or fast; indeed it appeared as if many participants' experiences included elements of fast and slow quitting. At this point we went back to the coded interview transcripts, field notes and memos to see if further analysis could create a typology that more closely reflected the process of quitting as described by participants.

After memoing and modeling various possibilities we concluded that the range and complexity of participants' experiences could be accounted for if each participant's quit attempt and their quitting history were assessed against two criteria: (1) the apparent onset of quitting (gradual through to sudden); and (2) the degree to which the smoker appeared to have prepared for quitting (no evidence of preparation through to clear evidence of preparation). Combining the onset of quitting and preparation for quitting produced a 2×2 matrix (Fig. 1) in which fast and slow quitting were sub-categorised, resulting in a typology of four quitting experiences: measured, opportunistic, unexpected and naïve. Importantly, this matrix also took into account three other factors that varied among participants: (1) the presence or absence of a clearly identifiable trigger; (2) the amount of cognitive effort involved in thinking about quitting; and (3) the type of cognitive process that drove the quit attempt (reflective; impulsive; or reflective and impulsive).

Each participant's account of quitting was then reviewed by returning to their interview transcript, field notes and memos. In so doing we satisfied ourselves that the typology accounted for the range of quitting experiences reported by all 37 participants (see Fig. 2 for illustrative case studies of each quitting experience). Within the study sample we observed accounts of measured, opportunistic and unexpected quitting. However, despite continuing to sample theoretically for participants who may have been naïve quitters, no accounts of naïve quitting were found. We comment in the discussion why this might be.



Fast quitting: unexpected and opportunistic quitters

Unexpected and opportunistic quitters quit suddenly. Quitting was characterized by the presence of a clearly identifiable event that triggered quitting.

Opportunistic quitters

For opportunistic quitters, although a trigger was present, quitting had not come out-of-the-blue. Close examination of the participant’s quitting history revealed quitting had been preceded by a period of deliberation and planning.

‘I realised that on that trip I was going to not be able to smoke on the aircraft, I was going to not be able to smoke in the hire car. Not be able to smoke in the hotels where I stayed. Wouldn’t be able to smoke in the homes of my children. I thought what a perfect time to quit.’ Gregory, 68 years old, opportunistic quitter.

Opportunistic quitters leveraged their quit attempt around a particular event or set of circumstances. They had been thinking about quitting, and were ready and able to recognize and embrace an upcoming event or set of circumstances as an opportunity on which to hang their quit attempt.

‘I said to my boyfriend and I said to myself, it’s like the day I go [relocate for 3 months] that’s the day I’m going to quit because it’s going to be easier, that’s probably the easiest option I’ve got there to quit. I thought right that’s a chance there to quit, so I took it.’ Sarah, 26 years old, opportunistic quitter.

Not all opportunistic quitters had set a quit date or chosen a significant event around which they planned to quit. Instead, some opportunistic quitters quit almost on impulse in response to a situation or a coming together of events that suddenly represented an opportunity too good to miss. It was as if they had been waiting for the right moment, and having already invested time and effort into thinking about quitting, and into making quitting personally important, they were ready and able to recognize and seize an opportunity to quit when it presented itself.

‘I certainly was thinking ahead [about quitting] ... I think getting this book about it was a step and making myself accessible to the information about the negatives was also a step.’ Lesley, 58 years old, opportunistic quitter.

Although quitting arose against a backdrop of wanting or needing to quit, of having thought about quitting, and

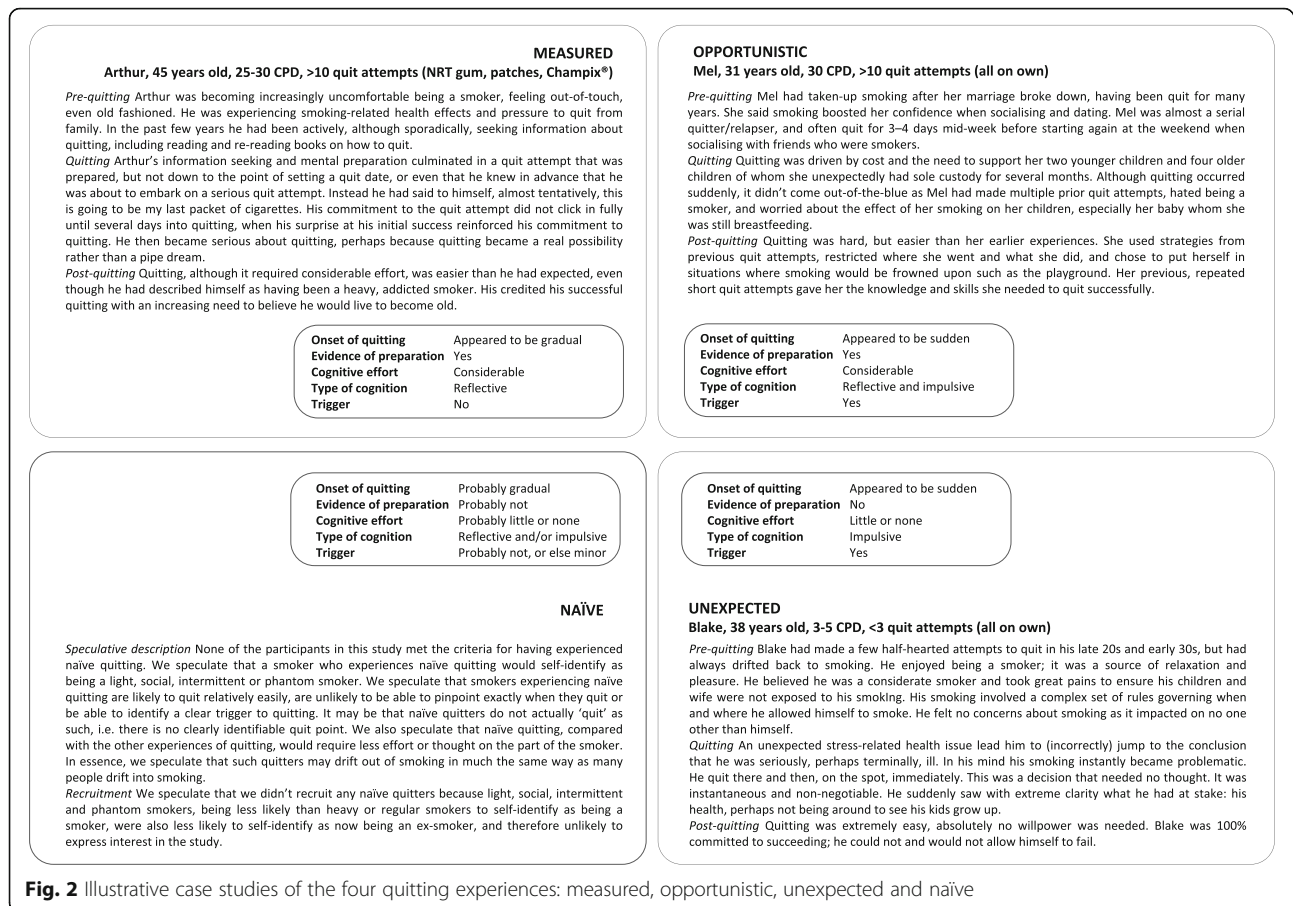


Fig. 2 Illustrative case studies of the four quitting experiences: measured, opportunistic, unexpected and naïve

of having had an intention to quit at some point in the future, when the participant finally quit they were acting on impulse, in response to a momentary increase in their motivation brought about by social and environmental circumstances that suddenly made quitting attractive, easier or more important.

'But this is what serendipity threw my way. Once I had the circumstances, which were serendipitous, I certainly did make sure I used them... I was saying to myself that day ... it's a really good opportunity and it's really important.' Lesley, 58 years old, opportunistic quitter.

Unexpected quitters

In contrast, although unexpected quitters quit suddenly, in response to a trigger, their quitting was unplanned in that they had no prior intention of quitting and were instead acting purely on impulse. On the whole they had been 'happy' being a smoker or else resigned to being a smoker for life.

'I didn't feel like I needed to give up. I didn't want to give up ...I enjoyed it. Yeah, I enjoyed the smoking. It was a relaxer.' Blake, 38 years old, unexpected quitter.

An unexpected event, often health-related, forced the participant to take immediate stock of their smoking. This event could be described as an existential or identity threat that forced them to re-evaluate their smoking.

'Something was going wrong with my body and I had – I was – I thought, I had cancer. Because my father had cancer, he passed away with cancer ... I thought, just literally, the moment, cancer – it was then, it was the big health thing. I wasn't immortal anymore. Whoa.' Blake, 38 years old, unexpected quitter.

For unexpected quitters the decision to quit happened instantaneously. The participant often stated that they had no choice, that the decision to quit did not require any thought, that it had been taken out of their hands.

'I walked out the hospital and threw the pack in the bin. I haven't touched them since. It just went out of my mind. I didn't think about it.' Patrick, 60 years old, unexpected quitter.

Unexpected quitters frequently claimed quitting was easy, requiring surprisingly little effort or willpower.

'It hasn't been hard. Over the last six months there's hardly been an event that's occurred where I would have wanted a fag.' John, 62 years old, unexpected quitter.

Slow quitting: measured and naïve quitters

Slow quitters gradually moved towards quitting success, often through a circuitous or winding route. In contrast to fast quitters, there appeared to be no specific, memorable or clearly defined trigger associated with their final successful quitting.

'There was no particular [trigger]... I had something in the back of my mind that I should quit. I should quit. I should quit. Then I thought one day, okay this is the last cigarette.' Matthew, 53 years old, measured quitter.

Measured quitters

Quitting appeared to be driven by an acceptance that smoking was wrong and that they should quit, but this desire or need to quit appeared to be difficult to maintain and many struggled to make quitting important enough to sustain their quitting in the long-term. Measured quitters often wrestled with their desire or need to quit versus their desire or need to smoke.

'There was constant talk about we really should give up, but it was always a should rather than a I really want to ... part of the problem was that I still enjoyed smoking ... I wasn't one of those smokers who had gotten to the point of going oh this is really bad, that's really horrible. I knew it was bad for me but I still found it very pleasurable.' Juliette, 46 years old, measured quitter.

Measured quitters often seemed to have been searching for a good enough reason to quit and to stay quit.

'The price had gone up, you know it was becoming more expensive and like I said [I had] less money. My health, being older, it was noticeable the increase in my smoking, and a noticeable difference in my health. There was just no reason, I couldn't talk myself into it, there was no reason to keep smoking.' Josephine, 56 years old, measured quitter.

Many measured quitters had tried to quit before (similar to opportunistic quitters, but unlike unexpected quitters), often using a range of different strategies and techniques to prepare for and sustain their quit attempt. Many seemed to find quitting a struggle, something that required considerable effort and dedication, and an acceptance that it was not going to be easy to quit and that it might require several attempts before they succeeded. Participants who used assistance to quit were usually measured quitters (although a few were opportunistic quitters).

'We approached this last time not being very up about it, going well we know it's really hard and shitty at the beginning. I guess you just get more realistic. It's like doing exercise. You just get used to it, that you can fall off and getting back to it's going to be bloody hard, it will hurt, but eventually it will feel good.' Juliette, 46 years old, measured quitter.

Naïve quitters

None of the participants was a naïve quitter. This category therefore remained speculative (Fig. 2). We comment in the Discussion why this might be.

Discussion

We have created a typology that accounts for the experience of quitting as reported by all 37 participants. The typology is based on a number of characteristics seen across the different accounts of quitting. These characteristics interact to create a typology of quitting experiences: measured, opportunistic, unexpected or naïve. Three of these typologies were directly observed in participants' accounts of quitting; the fourth (naïve) remains speculative. We hypothesise that naïve quitters are likely to have been light, social, intermittent, phantom or defensive smokers who may not have self-identified as smokers and therefore may not self-identify, once quit, as being an ex-smoker [35, 36]. It is possible such ex-smokers did not come forward in response to our recruitment strategies as they may not have considered the study relevant to them or their experience of quitting.

This typology of quitting experiences may help smoking cessation researchers better understand what spontaneity and planning mean in relation to successful quitting, concepts that have been acknowledged by some to be more complex than the way in which they are currently conceptualized [16, 37, 38]. The typology provides a new conceptual framework for understanding the process of successful quitting that accounts for: (1) how quit attempts and quitting success can be driven by rational plans *and* impulsive behavior, and (2) how the concept of planning should not necessarily be limited to

the period immediately prior to the quit attempt but could be expanded to include planning learnt, left-over or carried forward from an earlier quit attempt.

In this study we found very few participants quit completely out-of-the-blue with little or no preparation or planning. For most participants quitting involved some form of pre-planning or preparation, making them measured or opportunistic quitters rather than unexpected quitters. In contrast, many other studies on quitting report that a significant proportion of smokers and ex-smokers quit without planning (37–52%) [8–13]. Several of these studies also report that spontaneous quit attempts are more successful than planned quit attempts [8–10, 12, 13]. Our findings are in line with those of a recent prospective US study of quit attempts in real-world settings which reported that although unplanned attempts were more prevalent (defining “planned” quit attempts as “attempts preceded by an intention not to smoke the next day”), planned attempts were more likely to succeed [38].

We suggest that some of the reported differences in prevalence and effectiveness of spontaneous versus planned quitting might be explained by two factors. The first is the lack of clarity surrounding what spontaneity and planning mean and the consequent difficulties inherent in measuring these concepts, an issue others have raised when attempting to understand the different results from studies into spontaneous quitting [11, 14]. We note that several studies [10, 12, 13, 39] reporting on the prevalence of planned versus unplanned quitting relied on a single question from the 2005 British Marketing Research Bureau household omnibus survey [9]. The question asked: ‘Which of these statements best describes how your most recent quit attempt started?’ to which the first response was ‘I didn’t plan the quit attempt in advance; I just did it’. It is possible the emotive Nike slogan-like phrase (‘I just did it’) may have influenced how participants responded. Smokers, like others seeking to change health-related behaviors, often see themselves or wish to be perceived as central to their success even when they have used some form of assistance [19, 40]. Furthermore, its position as the first response of eight may have resulted in a response-order effect [41]. These factors may in part explain Murray’s 2010 finding that on in-depth questioning, many of their participants who had originally responded ‘I didn’t plan the quit attempt in advance; I just did it’ had been misclassified as spontaneous quitters. Murray’s in-depth interviews revealed that these participants had either delayed their quitting or had used some form of assistance when they quit and therefore had not actually quit spontaneously [16].

The second explanation for the difference between studies is that previously researchers have tended to

assume that spontaneity and planning are mutually exclusive: our findings challenge this assumption [8, 9, 12]. At first glance, a substantial proportion of our participants did indeed appear to have quit spontaneously, often in response to what was essentially a minor trigger. However on examining their smoking and quitting history it became clear that for many of these participants quitting had not come out-of-the-blue. This is in keeping with what Cooper and colleagues report, that most quit attempts were not made on the spur of the moment but were preceded by a period of serious consideration [14]. Many of the participants in the current study had invested time and effort into thinking about quitting, and some had made plans to quit. In these participants it was the exact timing or initiation of the quit attempt that was spontaneous or unplanned, not the quitting *per se*. Thus, these opportunistic quitters demonstrate that quitting can include elements of both spontaneity and planning. The presence of spontaneity and planning in the process of quitting reflects current theorizing about how people think, how they make decisions, and how their motivational system generates action. The presence of spontaneity and planning is reminiscent of Haidt’s elephant and rider metaphor [42], and Kahneman’s explanation in *Thinking, Fast and Slow* of why human beings depart in systematic ways from standard economic approaches to rationality [25].

Our analysis suggests the process of quitting involves both sudden (impulsive) and gradual (reflective) components. The existence of impulsive and reflective components lends further support to claims that behaviourist theories [26, 27] and rationality-based cognitive theories (e.g. the transtheoretical model of behaviour change, also known as stages of change or SOC) [28] only go so far in explaining hard-to-maintain behavior change such as quitting smoking [30]. For example, the SOC model assumes individuals make rational, coherent and stable plans that gradually move them closer to achieving a permanent change in their behaviour. This would mean smokers make a clear decision to quit, set a date to quit, and then act on this intention (i.e. decide, plan, implement). In the current study, the SOC model would be able to account for the behavior of measured quitters, but would not be able to account for opportunistic or unexpected quitters.

A number of researchers have already challenged the relevance of rationality-based cognitive theories such as SOC to smoking cessation [8, 9, 13, 43]. Our analysis supports parts of West’s 2005 critique of the SOC model, notably the suggestion that transition through pre-action stages is not always the norm or even necessary for successful change, that the change process is much more dynamic, heterogeneous and stimulus-driven than is implied by the model, and that the SOC

model places too much emphasis on conscious decision-making [43]. In addition, the SOC model fails to take into account the strong situational determinants of behavior, and the fact that behavior change can arise from a response to a trigger even in apparently unmotivated individuals.

A number of alternatives have been proposed that take into account the unpredictable and dynamic nature of quitting and in particular the role of spontaneity in quitting. The catastrophe theory, based on chaos theory, proposes that tensions develop in systems in such a way that even small triggers can lead to sudden catastrophic changes [9]. According to catastrophe theory, quitting can take place unexpectedly without the smoker going through the slow process of cognitive shifts, quitting plans and intentions, and finally action. Instead, the catastrophe theory proposes smokers experience tension, or dissonance, about their smoking over a period of time but don't act until a precipitating event triggers action. Although compelling, the catastrophe theory's premise that many if not the majority of quit attempts are sudden and spontaneous and largely devoid of anticipatory planning does not fit with our typology of quitting experiences: as mentioned earlier, many participants who at first appeared to have quit spontaneously had actually invested time and effort into thinking about quitting.

Our typology of quitting experiences is perhaps more consistent with comprehensive theories of addiction such as West's PRIME theory of motivation [29] and theories of hard-to-maintain behavior change such as Borland's CEOS dual process theory [30]. These theories integrate both spontaneity and planning into the process of smoking cessation. Our typology of quitting experiences demonstrates explicitly what Borland has proposed that PRIME theory implicitly assumes: 'spontaneity relates to peaks in fluctuating levels of longer term concern; that is, that "spontaneous" quit attempts are typically preceded by periods of deliberation that are not strong enough to trigger action rather than occurring completely out of the blue' [37].

Successful quitting, like other behaviour changes, appears to be a struggle between our rational, reflective selves and our impulsive natures [25]. Most smokers know smoking is harmful, and most smokers want to quit. Yet their behavior is often at odds with what they know they should do. The current study indicates that for many of the participants quitting was characterized by a slow movement towards achieving that goal, with only a few of the participants taking an accelerated pathway triggered suddenly and unexpectedly by significant external events such as a diagnosis of a smoking-related illness. Many of the participants were instead influenced by a multitude of environmental and social factors and gradually come round to accepting that what they were

doing (smoking) was at odds with what they valued or believed in (being in control, staying healthy, being a good role model). For some, this was a slow slog with multiple attempts to quit before success was achieved, others managed to opportunistically leverage their success off a timely trigger, while relatively few quit suddenly and unexpectedly when faced with an existential or identity threat.

Strengths and limitations

We spoke directly and in-depth to successful recent ex-smokers. By allowing participants to talk freely and at length about their quitting experiences the data collection focused on what smokers perceived to be important. Data collection and analysis were not restricted to variables predetermined by the researchers or to a pre-existing theoretical framework. By recruiting ex-smokers who had quit in the previous 6 months to 2 years we balanced risk of relapse to smoking [31, 32] against potential for recall bias [33]. Approximately two-thirds of participants had quit on their own, reflecting recently reported Australian rates of smoking cessation assistance use [34].

We did not observe any naïve quitters among participants. We believe naïve quitters are likely to have been former light, social, intermittent, phantom or defensive smokers [35, 36], and may potentially have self-identified as non-smokers rather than serious or regular smokers. On quitting such smokers may not self-identify as being a former smoker, making our study irrelevant to them. In contrast, our study is likely to have appealed to former smokers who had smoked heavily or regularly and for whom quitting had been a far more significant event in their lives. Future research could explore the hypothesised category of naïve quitters to establish whether this quitting experience and its proposed characteristics exist.

Conclusions

Quitting typically included elements of both spontaneity (impulsive behaviour) and preparation (reflective behaviour). Quitting came completely out-of-the-blue for only a few participants. Research that dichotomises spontaneity and planning may oversimplify the process of quitting; such oversimplification may account for the conflicting prevalence and effectiveness data for spontaneous versus unplanned quitting. The current analysis suggests quitting should be viewed as a gradual process influenced not only by events that happen immediately prior to quitting but also more distant events in the former smokers' quitting history. Future research could focus on the role of planning and preparation carried forward from earlier quit attempts on the success of subsequent quit attempts, and on the importance of

encouraging smokers to act on impulses to quit rather than focusing on getting smokers to make a rational decision to quit based on an evaluation of the costs and benefits of smoking and quitting.

Additional files

Additional file 1: Screening questions. Questions used to screen potential study participants to assess eligibility, collect basic demographic data, and smoking and quitting data. (DOCX 84 kb)

Additional file 2: Interview questions. The interview schedule listing the type of questions asked in the semi-structured interviews. (DOC 40 kb)

Abbreviations

CEOS: Context, executive and operational system; ITC: International Tobacco Control; PRIME: Plans, responses, impulses, motives and evaluations; SOC: Stages of change.

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Availability of data and material

The datasets generated and analysed during the current study are not publicly available due to participant confidentiality but are available from the corresponding author on reasonable request.

Authors' contributions

SC conceived the study. SC, SMC, SMD and BF obtained funding. All authors were involved in designing the study and developing the methods. ALS coordinated the running of the study, conducted the interviews, read the transcripts, coded the transcripts and wrote the memos. ALS and SMC developed the analytical framework. All authors contributed to the analysis. ALS drafted the manuscript. All authors contributed to the interpretation of the analysis and critically revised the manuscript.

Competing interests

The authors declare that they have no competing interests.

Consent for publication

Not applicable.

Ethics approval and consent to participate

The University of Sydney Human Research Ethics Committee approved all study procedures and materials (reference number 15019). Each participant gave signed consent prior to being interviewed and for their de-identified data to be reported in reports, articles and presentations.

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Supplementary files

Smith AL, Carter SM, Dunlop SM, *et al.* Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers' perspective. *BMC Public Health* 2017;17:430-40.

Supplementary file 1 Screening questions

Supplementary file 2 Interview questions

Date	Excel <input type="checkbox"/>	Email / post / both: PCF <input type="checkbox"/>	PIS <input type="checkbox"/>
		Email / post / both: Interview conf. <input type="checkbox"/>	Etter <input type="checkbox"/>

Participant's contact details

Name

Address Postcode

Tel Mobile Email

Recruitment strategy

Where did you hear about the study?

- [1] Facebook (status update)
- [2] Twitter
- [3] Facebook ad
- [4] Flyer or word of mouth
- [5] Media – talkback radio
- [6] Media – print
- [7] Other

Personal information and demographics

Q1 Gender

- [1] Male
- [2] Female

Q2 What's your date of birth?

Q3 What is the highest level of education you have attained?

- [1] No formal schooling
- [2] Primary school
- [3] Junior high school (Years 7-10)
- [4] Senior high school (Years 11-12)
- [5] TAFE/Technical college
- [6] University OR
- [7] Another tertiary institution
- [8] Other (please specify)

Q4 Which of the following best describes your employment status?

- [1] Working full time
- [2] Working part-time or casual
- [3] Retired
- [4] Student
- [5] Home duties
- [6] Unemployed or looking for work
- [7] Other (please specify)

Q5 Roughly speaking, is your annual household income (before tax) more or less than \$60,000?

- [1] Less than \$60,000
- [2] More than \$60,000

Q6 And into which of the following ranges would your annual household income fall?

- [1] Up to \$15,000 (\$290 per week)
- [2] \$15,001-\$30,000 (\$290-\$580 per week)
- [3] \$30,001-\$45,000 (\$580-\$860 per week)
- [4] \$45,001-\$60,000 (\$860-\$1,150 per week)
- [5] \$60,001-\$75,000 (\$1,150-\$1,440 per week)
- [6] \$75,001-\$90,000 (\$1,440-\$1,730 per week)
- [7] \$90,001-\$105,000 (\$1,730-\$2,020 per week)
- [8] \$105,001-\$120,000 (\$2,020-\$2,300 per week)
- [9] Over \$120,000 (\$2,300 per week)

Screening questions – smoking status

Q1 Do you currently smoke cigarettes, cigars or pipes?

- No, not at all – go to Q2
- [1] Yes – IF YES, how often?
 - [1] Daily – go to Q9
 - [1] At least weekly (if not daily) – go to Q9
 - [1] Less often than weekly – go to Q9

Q2 Over your lifetime would you have smoked at least 100 cigarettes or a similar amount of tobacco?

- [2] No – EXCLUDE, THANK THEM FOR TAKING THE TIME TO ANSWER THE QUESTIONS
- [3] Yes – go to Q3

Q3 How frequently were you smoking?

- [1] Daily – go to Q4
- [2] At least weekly (if not daily) – go to Q4
- [3] Less often than weekly - go to Q4

Q4 How many cigarettes per day / per week (or packs per day/ per week) were you smoking?

- [1] Fewer than 10 CPD (1/2 pack per day) - go to Q5
- [2] More than 10 CPD (1/2 pack per day) – go to Q5

Screening questions – time since quit and difficulty quitting

Q5a When did you give up smoking?

- Date Number of years/months ago
- [1] Less than 6 months ago – EXCLUDE, THANK THEM FOR TAKING THE TIME TO ANSWER THE QUESTIONS
 - [2] More than 6 months ago but less than 2 years ago – go to Q6
 - [3] More than 2 years ago – EXCLUDE, THANK THEM FOR TAKING THE TIME TO ANSWER THE QUESTIONS

Previous quit attempts

Q6 Was this the first time you tried to quit?

- [1] Yes – go to Q7
- No – IF NO, how many times have you tried to quit before?
 - [2] Less than 3 – go to Q6b
 - [3] Between 3 and 10 – go to 6b
 - [4] More than 10 – go to Q6b

Q6b On a scale of 1 to 10, if 1 is very easy and 10 is extremely difficult, how would you describe your last quit attempt?

- [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] – go to Q6c

Q6c Would you say that on your *last* quit attempt, quitting was:

- [1] Easier than you'd expected – go to Q7
- [2] Harder than you'd expected – go to Q7
- [3] Pretty much as you'd expected – go to Q7

Screening questions – method of quitting

Q7 Thinking about [the LAST time you quit] OR [when you quit], would you say that you ‘gave up on your own’ or did anyone or anything help you to give up?

- [1] On my own – go to Q8
- [2] With help – go to Q8

Q8 We’re interested in what people define as ‘giving up on their own’. I’d like to find out if you used any of the following strategies [the LAST time you quit] OR [when you quit].

8a Complementary or alternative therapies, such as hypnotherapy or acupuncture?

- [1] Yes – EXCLUDE, but go to Q8b
- No – go to Q8b

8b Incentive schemes that encourage people to give up smoking, such as a quit smoking competition or an incentive scheme at work?

- [1] Yes – EXCLUDE, but go to Q8c
- No – go to Q8c

8c Self-help materials such as brochures, books, CDs, DVDs, internet sites, apps for mobile devices, or the Quitline?

- No – go to Q8d
- Yes – IF YES, did you use these self-help materials with the help or guidance of a health professional or counsellor? [DO NOT INCLUDE ‘BRIEF ADVICE’, i.e. VERBAL MESSAGE TO QUIT FROM DOCTOR OR NURSE]
 - [1] Aided by health professional or trained counsellor (includes using QuitCoach or follow-up support from Quitline) – EXCLUDE, but go to Q8d
 - Unaided by health professional or trained counsellor (includes calling Quitline or receiving Quitkit) – go to Q8d

8d Counselling sessions, either one-on-one or in a group?

- [1] Yes – EXCLUDE, but go to Q8e
- No – go to Q8e

8e Nicotine replacement products that you can buy from chemists or supermarkets, such as gum, lozenges, tablets, inhalers or patches [Nicobate, Nicotinell, QuitX, Nicorette], or that you can buy online, such as e-cigarettes?

- [1] Yes – EXCLUDE, but go to Q8f
- No – go to Q8f

8f Prescription medications such as Champix [varenicline] or Zyban [bupropion], or nicotine replacement therapy patches [Nicobate, Nicotinell, QuitX, Nicorette]?

- [1] Yes – EXCLUDE, but go to Q8g
- [2] No – INCLUDE, go to Q8g

8g Are there any other forms of help that you used that I haven’t mentioned?

.....

FOR THOSE THAT MET THE SELECTION CRITERIA, ASK IF THEY’D BE INTERESTED IN FINDING OUT MORE ABOUT THE STUDY

Additional questions to screen for 'being serious'

Q9 What was it about the tweet or our website that made you decide to register your interest in the study?

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Q10 Is there anything in particular about the study that interests you?

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Q11 Do you believe 'being serious' is essential to quitting success?

- Yes
- No

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.....

.....

.....

Natural history of unassisted smoking cessation – Interview questions

Questions	Prompts
<p>1. Smoking history</p> <p>Tell me about when you first started smoking.</p> <p><i>[Interviewee will be asked to draw on a piece of paper a timeline beginning with when they started smoking]</i></p>	<ul style="list-style-type: none"> • Age when first took up smoking • Reasons for starting to smoke • Amount smoked • Situations in which they smoked
<p>2. Quitting history</p> <p>Have you ever tried to quit before?</p> <p>Show me on this timeline when you had a go at giving up smoking, no matter how short.</p> <p><i>[Indicate year/age when interviewee stopped and for how long; ask participant to include significant milestones on timeline, such as leaving home, getting married, having children as an aid to prompt recall of quit attempts].</i></p> <p>Tell me a bit about each of the times you quit.</p> <p><i>[For each quit attempt use prompts in next column as appropriate.]</i></p>	<p>For each quit attempt:</p> <p>Deciding to quit</p> <ul style="list-style-type: none"> • Describe the events that led up to you quitting • Tell me about anything that might have had an influence on your decision to quit • Had you been planning on quitting? <p>Deciding how to quit</p> <ul style="list-style-type: none"> • Tell me about how you quit – did you quit on your own, did someone help you or did you use anything to help you quit? What help did you use? • Tell me about why you decided to quit on your own/use [insert type of assistance] • Tell me about the attitudes or reactions of others to your decision to quit on your own/using [insert type of assistance]. Did anything anyone say or do affect your decision to quit or your quit attempt? <p>The quitting experience</p> <ul style="list-style-type: none"> • Tell me about your experience of quitting on your own/using [insert type of help]. Was it harder or easier than you had expected? • How did this quit attempt compare with your experience of previous quit attempts? • Tell me about anything that helped your quit attempt or hindered your quit attempt • How did your attempts to quit differ when you used [insert type of help] and when you tried to quit on your own? • Tell me about when you started smoking again. Why do you think you started smoking again? <p>For assisted quit attempts</p> <ul style="list-style-type: none"> • How did you think the [insert type of assistance] would help? How did this compare with your experience with it?
<p>3. Unassisted quitter's toolbox</p> <p>Imagine I'm about to stop smoking today. What advice would you give me about how I should quit?</p> <p>If I decided to quit on my own, what advice would you give me?</p>	<p>Strategies/techniques used to help quit unassisted</p> <ul style="list-style-type: none"> • Tell me about any situations or experiences that made quitting difficult? Or any situations that helped you to quit? • Who was most helpful to you during this time? How was he/she helpful? <p>Barriers to quitting</p> <ul style="list-style-type: none"> • social (e.g. friends who smoke) • psychological (e.g. stress relief) <p>Facilitators of quitting</p> <ul style="list-style-type: none"> • environmental (e.g. workplace smoking bans) • structural (e.g. tax increases) • personal (e.g. health, pressure from family, image) <p>Strategies/techniques to prevent relapse</p> <ul style="list-style-type: none"> • Tell me about any situations or experiences that make staying quit difficult? Or any situations that have helped you to stay quit? • Do you have any strategies/tricks to help out when you feel tempted to smoke? • Did your previous quitting experience affect how you handled your final successful quit attempt? • Do you think you will ever start smoking again? Tell me about that.

CHAPTER SEVEN

Revealing the complexity of quitting smoking: a qualitative grounded theory study of the natural history of quitting in Australian ex-smokers

Chapter 7 overview

Chapter 7 is an analysis of data relating to participants' entire smoking and quitting histories. It focuses on how earlier quit attempts and experiences can impact on the final quit attempt. It consists of a published manuscript entitled: 'Revealing the complexity of quitting smoking: a qualitative grounded theory study of the natural history of quitting in Australian ex-smokers'.

Publication details

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Authors' contributions

SC conceived the study. SC, SMC, SMD and BF obtained funding. All authors were involved in designing the study and developing the methods. ALS coordinated the running of the study, conducted the interviews, read the transcripts, coded the transcripts and wrote the memos. ALS and SMC developed the analytical framework. ALS drafted the manuscript. All authors contributed to the interpretation of the analysis and critically revised the manuscript.

Abstract

Objective

To explore the quitting histories of Australian ex-smokers in order to develop an understanding of the varied contribution of smoking cessation assistance (either pharmacotherapy or professionally mediated behavioural support) to the process of quitting.

Design

Qualitative grounded theory study; in-depth interviews. Participants: 37 Australian adult ex-smokers (24–68 years; 15 men, 22 women) who quit in the past 6–24 months.

Results

Although participants' individual quitting histories and their overall experiences of quitting were unique, when the 37 quitting histories were compared it was clear two experiences were common to almost all participants: almost no one quit at their first quit attempt and almost everyone started out quitting unassisted. Furthermore, distinct

patterns existed in the timing and use of assistance, in particular the age at which assistance was first used, how some participants were resolutely uninterested in assistance, and how assistance might have contributed to the process of successful quitting even if not used on the final quit attempt. Importantly, three patterns in use of assistance were identified: (1) only ever tried to quit unassisted (n=13); (2) started unassisted, tried assistance but reverted back to unassisted (n=13); (3) started unassisted, tried assistance and quit with assistance (n=11). For most participants, insight into what quitting would require was only gained through prior quitting experiences with and without assistance. For a number of participants, interest in assistance was at its lowest when the participant was most ready to quit.

Conclusion

Quitting should be viewed as a process drawing on elements of assisted and unassisted quitting rather than a stand-alone event that can be labelled as strictly assisted or unassisted.

Manuscript

The published version of the manuscript follows.

Revealing the complexity of quitting smoking: a qualitative grounded theory study of the natural history of quitting in Australian ex-smokers

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ABSTRACT

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Conclusion Quitting should be viewed as a process drawing on elements of assisted and unassisted quitting rather than a stand-alone event that can be labelled as strictly assisted or unassisted.

INTRODUCTION

It is generally accepted by smoking cessation professionals that smokers wanting to quit will be more successful if they use one of the proven forms of smoking cessation assistance.¹ In contrast, smokers often seem doubtful of the proffered benefits of evidence-based assistance,² and opt instead to quit or attempt to quit on their own.³ This suboptimal use of smoking cessation assistance has been attributed to misinformation about safety or effectiveness, and to barriers such as affordability.⁴ However, it would appear there is more to unassisted quitting than misinformation or issues of affordability and availability.⁴ In a recent qualitative

study, we reported that some Australian ex-smokers chose to quit unassisted because they believed unassisted quitting had distinct benefits over quitting with assistance. In addition, these ex-smokers also placed considerable value on the process and act of quitting unassisted.⁴

Historically smoking cessation researchers, like smokers and other addiction researchers,^{5–7} have also placed value on unassisted quitting or what addiction researchers often refer to as self-change or natural recovery. Up until the 1980s, smoking cessation researchers looked to unassisted quitting for insights into quitting in general.^{8–9} This is, however, no longer the case: unassisted quitting currently attracts little research attention,¹⁰ and the motives of researchers interested in unassisted quitting are openly questioned.^{11–12} The reasons for unassisted quitting's fall from professional favour are manifold, but possibly two of the most pertinent are the alluring promise offered by pharmacotherapy and what some addiction researchers believe is 'an overly simplistic and medico-centric notion' of substance misuse.¹³ The once held belief that the creation of effective treatments for smoking would mean 'smokers would beat a path to our door' has proven overly simplistic.¹⁴ One response has been to call for a more consumer-oriented approach to the marketing and promotion of smoking cessation assistance. Another is to ask smokers about their experiences of quitting.^{15–18} Such information might then be used to inform more nuanced responses to the challenge of improving smoking cessation attempts and successes.^{19–21}

The aim of this current study was to understand from the smokers' perspective what the process of quitting involves and how it varies in relation to smokers' use of assistance. This required looking not just at the events and conditions surrounding a specific quit attempt but at smokers' smoking and quitting histories in their entirety, with a particular focus on the experience of unassisted quitting given the relative lack of research¹⁰ and the continuing interest in unassisted quitting among Australian smokers.³

In this study, we interviewed recent ex-smokers, sampling to ensure a wide variety of smoking and quitting experiences, and purposively oversampling ex-smokers who quit unassisted. The study methodology was guided by grounded theory,²² one of the most used methodologies in qualitative research. We drew on the work of Charmaz,²³ a contemporary leader in the field whose methodology is ideally suited to studying processes in individuals such as the process of quitting smoking.



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Research paper

Table 1 Demographic, smoking and quitting characteristics of participants

Characteristic	Participants (n=37)
Gender	
Male	15
Female	22
Age (years)	
20–29	4
30–39	6
40–49	9
50–59	11
60–69	7
Geographical location*	
Major cities	25
Inner regional Australia	4
Outer regional Australia	7
Remote Australia	1
Total household income (\$A)†	
≤30 000	7
>30 000–60 000	5
>60 000–90 000	6
>90 000–120 000	7
>120 000	9
Cigarettes per day (CPD)‡	
<10 CPD	11
>10 CPD	26
Use of assistance to quit	
Used assistance	11
Unassisted	26
Previous quit attempts (prior to successful quitting)	
None	3
<3	16
3–10	11
>10	7
Previous experience of assistance§	
Had never tried to quit before	3
Had never used assistance to quit	11
Had previously used assistance to quit	23

*Classified according to the Australian Standard Geographical Classification Remoteness Area system.

†Three participants did not answer the question on income.

‡CPD was at time of last quit attempt.

§Experience of smoking cessation assistance included hypnotherapy, acupuncture, Allen Carr seminars, telephone cessation support (Quitline), one-on-one behavioural counselling, group behavioural counselling, aversion therapy, nicotine replacement therapy (NRT) gum, NRT patches, NRT inhalers, NRT lozenges, varenicline (Champix), bupropion (Zyban), first and second-generation electronic nicotine delivery systems (ENDS).

METHODS

Design

A constructivist grounded theory methodology underpinned the research questions, study design, data collection, analysis and interpretation.²³

Recruitment and participant selection

We recruited participants from the general community using traditional (media release, print and online newspaper articles, talkback radio) and social media. Eligible participants were adult (+18 years) former smokers who had quit in the previous 6–24 months. Risk of relapse to smoking, which reduces with time quit,^{24 25} was

balanced against potential for recall bias.²⁶ Participants were classified as having quit unassisted or with the help of pharmacotherapy or professionally mediated behavioural support (see Smith *et al*³ for full definition of unassisted and assisted; see also online supplementary file 1). Individuals interested in participating were screened (online supplementary file 2) to ensure they met the selection criteria and to ensure a wide variety of smoking and quitting experiences were included (table 1). We initially focused on recruiting individuals whose final quit attempt was unassisted as this understudied area was our primary area of interest; however, we also recruited a smaller number of people whose final quit attempt had been assisted to allow us to make analytic comparisons across cases and conditions. Participants provided written consent prior to enrolment in the study. Pseudonyms were used to ensure anonymity. Participants were offered \$80 reimbursement for their time.

Data collection

We interviewed 37 participants (table 1). Interviews took place between December 2012 and December 2015. A semistructured interview guide was used for each interview (online supplementary file 3). Participants were asked to talk about their smoking and quitting from when they first started to smoke. A timeline was drawn up of each participant's smoking and quitting history on which all quit attempts were documented. Interviews lasted between 37 min and 2 hours 15 min. Field notes were made directly after each interview. Data analysis from each interview helped to inform subsequent sampling, allowing us to target who to interview next and what questions to ask of them.

Coding and analysis

We used NVivo V.10 (QSR International) for data management and coding. Coding and memoing were carried out by ALS, an experienced qualitative researcher. Interview transcripts were read several times before being coded line by line (open coding).²³ Comparison of the line-by-line codes from within individual interviews and across all interviews led to a consolidation and refinement of codes based on patterns relating to key circumstances surrounding quitting (focused coding). Coding was followed by diagramming and modelling to establish how various elements in the quitting process were related to one another. See Smith *et al*²⁷ for a full description of the recruitment, data collection, coding and analysis processes.

RESULTS

The quitting experiences of the ex-smokers in this study cover a 50-year period. Between them, participants reported using all of the commonly available forms of smoking cessation assistance (table 2).

Although participants' individual quitting histories and their overall experiences of quitting were unique, when the 37 quitting histories were compared it was clear two experiences were common to almost all participants: almost no one quit at their first quit attempt and almost everyone started out quitting unassisted (table 2; figures 1 and 2). Furthermore, distinct patterns existed in the timing and use of assistance, in particular the age at which assistance was first used, how some participants were resolutely uninterested in assistance and how assistance might have contributed to the process of successful quitting even if not used on the final quit attempt.

Observations related to age of participant

Quitting unassisted happened at almost any age (23–66 years) but was more likely, if not the norm, in participants younger than 40 years of age. Very few of the participants aged younger than

Table 2 Quitting experiences of participants (n=37)

Participant's pseudonym	Quit age	Gender	Age at first cigarette	Prior experience of smoking cessation assistance for quitting*		Method used on last quit attempt
				Non-pharmacological	Pharmacological	
Joanne	31	F	15			UA
Eric	28	M	19			UA
Ingrid	31	F	13			UA
Jordan	39	M	21		NRT patches, NRT gum	UA
Charlie	30	M	13			UA
Graham	45	M	13		Varenicline, NRT patches, NRT gum	UA
Mel	30	F	16			UA
Julie	52	F	16	*	*	UA
Shirley	52	F	17		NRT gum	UA
Jane	34	F	19		Varenicline	UA
Patrick	59	M	29			UA
Mary	68	F	11	Hypnotherapy	NRT patches, NRT gum,	NRT inhaler
Margaret	53	F	14			UA
Tanya	55	F	15		NRT gum	UA
John	61	M	13		NRT patches	UA
Alexandra	50	F	14		Varenicline, NRT gum	UA
Lesley	58	F	20			UA
Gregory	66	M	14	Hypnotherapy, one-on-one behavioural counselling		UA
Craig	57	M	16		NRT patches, NRT gum	UA
Peggy	58	F	12		NRT patches	UA
Josephine	54	F	15		NRT patches, NRT gum, bupropion	UA
Arthur	44	M	14		NRT patches	UA
Alice	52	F	14		NRT patches	Varenicline
Briddy	45	F	15	Hypnotherapy, acupuncture, Quitline	NRT patches, NRT lozenges, bupropion, varenicline	ENDS
Juliette	45	F	18		Varenicline	Varenicline
Rebecca	52	F	13	Aversion therapy, acupuncture, hypnotherapy	NRT patches, NRT gum, NRT lozenges, NRT inhaler, bupropion	ENDS
Yvonne	47	F	12	Acupuncture, hypnotherapy, Quitline	NRT patches, NRT gum, bupropion, varenicline	ENDS
Ahmed	61	M	15	Hypnotherapy, one-on-one behavioural counselling, acupuncture	NRT patches	ENDS
Jai	44	M	14	Hypnotherapy, acupuncture	NRT gum, NRT inhaler, varenicline	ENDS
Blake	35	M	14			UA
Lucy	23	F	13	*	*	UA
Matthew	51	M	22		NRT gum	UA
Elijah	48	M	22	One-on-one behavioural counselling	Varenicline	Group behavioural counselling
Dorothy	41	F	16			UA
Sarah	24	F	13			UA
Frederik	63	M	35			NRT patches, ENDS
Coco	23	F	21	*	*	NRT gum, ENDS

Participants are listed in the order in which they were interviewed.

Quitline is Australia's national telephone support line for smokers.

See Smith *et al*³ for definition of smoking cessation assistance.

*Three participants had never previously tried to quit.

ENDS, electronic nicotine delivery systems; F, female; M, male; NRT, nicotine replacement therapy; UA, unassisted.

40 years had ever used assistance, with most of them having quit or attempted to quit unassisted on all of their prior quit attempts (figure 1). In contrast, almost all participants older than 40 years of age had used assistance on at least one of their earlier quit attempts, and about half went on to use assistance on their final quit attempt (figure 1). Those participants older than 40 years of age who quit unassisted without ever having used assistance seemed to have quit almost 'unexpectedly', often in response to an existential or identity threat such as a serious health scare. In these individuals, unassisted quitting was not so much planned as triggered by circumstance.

Patterns in use of assistance

Our analysis indicated three distinct patterns of quitting: (1) only ever tried to quit unassisted; (2) started unassisted, tried assistance but reverted back to unassisted; (3) started unassisted, tried assistance and quit with assistance.

Only ever tried to quit unassisted

Some participants (n=13) had never used assistance and were resolutely uninterested in doing so, preferring to quit 'on their own', even if it took several attempts (eg, Sarah, figure 1). As

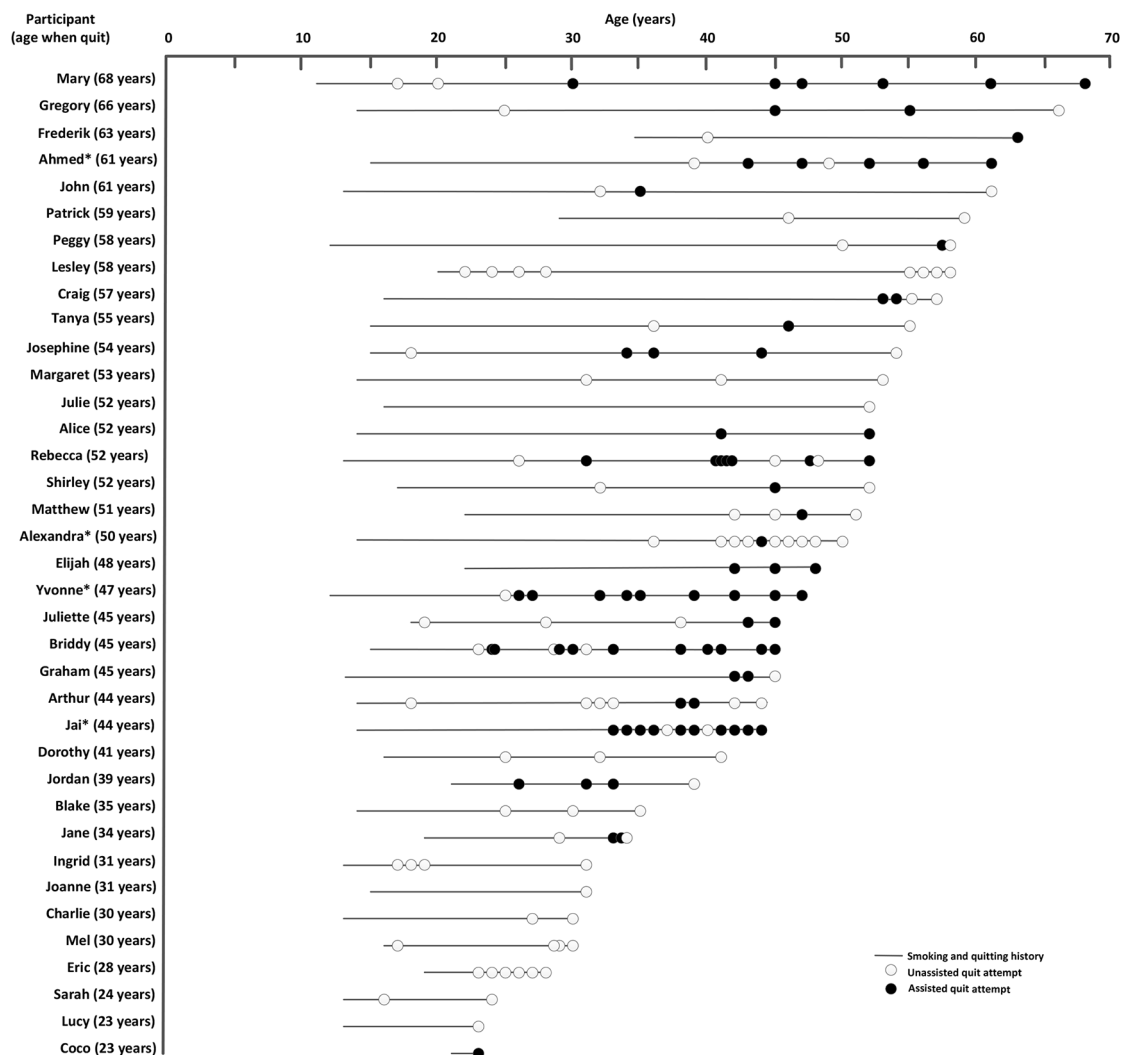


Figure 1 Quitting and smoking histories of participants (n=37). Only ever tried to quit unassisted (n=13); started unassisted, tried assistance but reverted back to unassisted (n=13); started unassisted, tried assistance and quit with assistance (n=11). *A number of participants, particularly those who had tried to quit on multiple occasions, could not recall the exact year in which a quit attempt had taken place. An approximate date was used based on the information given by the participant.

mentioned earlier, almost all participants younger than 40 years of age reported quitting this way as most had never used assistance on any of their quit attempts.

Started unassisted, tried assistance but reverted back to unassisted
Other participants (n=13) had attempted to quit unassisted (often on multiple occasions), failed, tried assistance (again, often on multiple occasions), failed again and then reverted to quitting unassisted. Assistance was typically first used when the participant was in their mid-30s or early 40s. Participants tended to first try non-pharmacological forms of assistance, such as hypnotherapy or acupuncture, and over-the-counter forms of nicotine replacement therapy (NRT), such as NRT gum or patches. Use of assistance often appeared to coincide with the realisation that the participant could no longer regard himself or herself to be a social, light, intermittent or non-addicted smoker (eg, Blake, [figure 2](#)). For many participants, there was also a growing dissatisfaction with their smoking identity and what they believed their continued smoking said about them. To many participants, smoking had been acceptable in their youth and early adulthood, but not as they grew older (eg, Sarah, [figure 2](#)).

There was a discordance between their always envisaged future self (a non-smoker) and the person they had become (a proper or addicted smoker) (eg, Lesley, [figure 2](#)). Key life stage events such as finding a partner, turning 30 or 40, or becoming a parent appeared to focus attention on this discordance and consequently on their smoking status and the need to quit. Their previous failure to quit on their own and the realisation that quitting might not be as simple as they had originally envisaged appeared to act as a catalyst for use of assistance. However, despite conceding to the need for assistance, after having tried assistance a number of participants came to believe assistance did not provide a ‘complete’ quitting solution and reverted back to quitting unassisted (eg, Alexandra, [figure 2](#)).

Several of the participants who reverted to quitting unassisted talked about how quitting involved two components: overcoming the addiction to nicotine and dealing with the ritualistic habits associated with smoking (eg, Arthur, [figure 2](#)). Having tried pharmacotherapy, many participants found that although products such as NRT patches or gum could modulate cravings, considerable personal input was still required to overcome the behavioural aspects of smoking (eg, Juliette, [figure 2](#)).

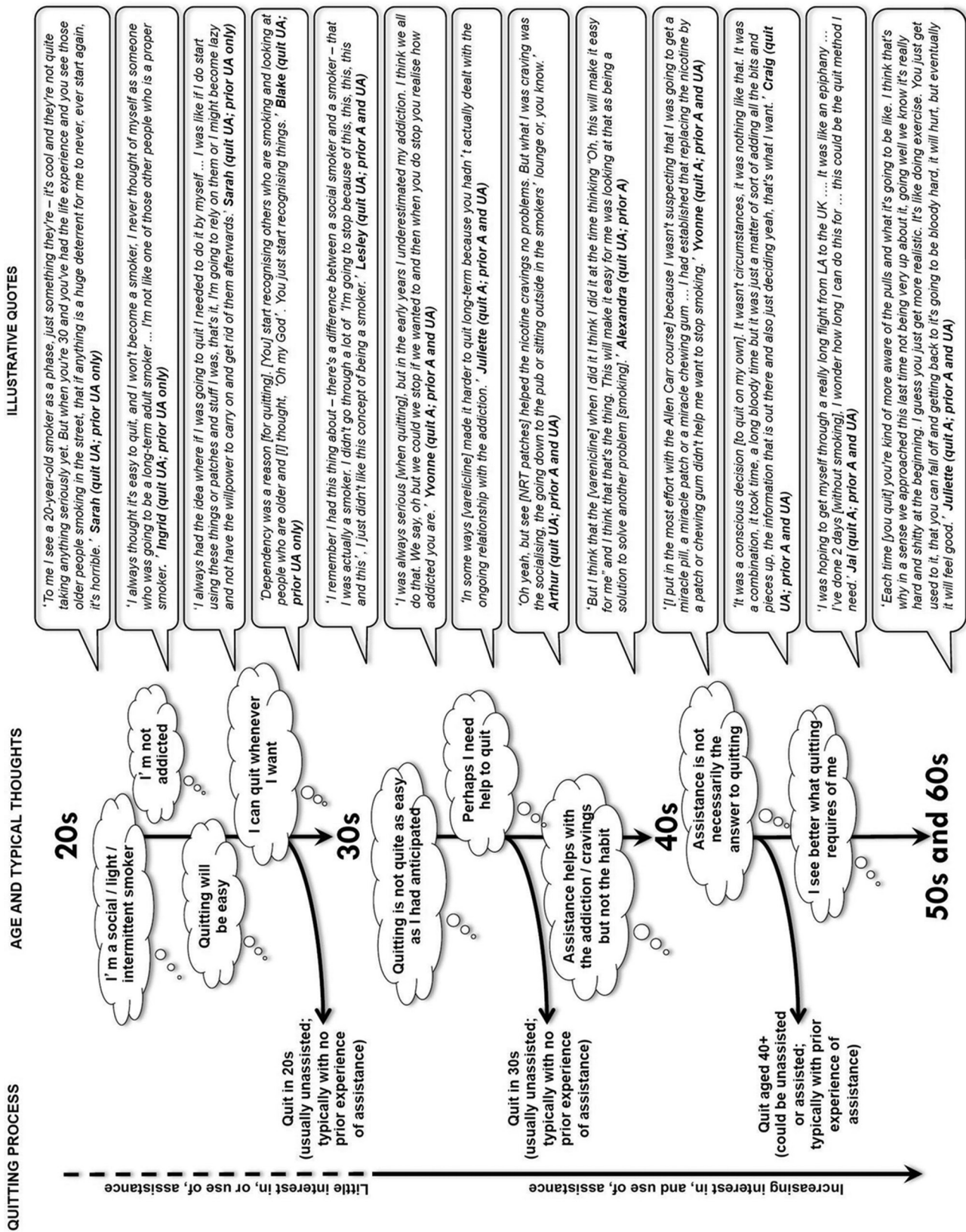


Figure 2 Quitting, age and use of assistance increased with age among participants (n=37). A, assisted; UA, unassisted.

Research paper

Participants often appeared to have been overly optimistic about how much help pharmacotherapy could provide in controlling cravings, or had in some way believed pharmacotherapy might compensate for a lack of commitment or effort on their part (eg, Alexandra, [figure 2](#)). First-hand experience of assistance often helped to clarify in a participant's mind exactly what assistance could deliver, and what was left for the participant to contribute to the quit attempt. Assistance, although it could help with controlling cravings and with dealing with the nicotine addiction, could not make the smoker want to quit, and could not compensate for lack of commitment to quitting (eg, Yvonne, [figure 2](#)). Furthermore, for certain participants, experience with assistance helped them to realise that a great deal of the quitting process remained their responsibility, that assistance was indeed just 'assistance' and it was not a complete quitting solution. Having cycled through using various forms of assistance, participants gained insight into the sorts of skills they would need to use if they were to successfully quit. In so doing, it appeared that for a number of participants interest in using assistance was at its lowest when the participant was most ready to quit.

Started unassisted, tried assistance and quit with assistance

Finally, there were participants who quit with assistance (n=11), often after a long history of multiple assisted and unassisted quit attempts ([figure 1](#)). Many of these participants appeared to struggle not so much with making quit attempts, as most of them had made many, but with long-term quitting. There was a sense that these participants had put considerable effort into quitting over many years. For a couple of participants, quitting success ultimately resulted from a well-timed trigger on which the participant leveraged the quit attempt (eg, Jai, [figure 2](#)). But for most, quitting had been slow and arduous. In addition, several participants appeared to have finally, and often unexpectedly, found a type of assistance that suited their quitting requirements, and for several of the participants this was electronic nicotine delivery systems (ENDS). Reasons why several participants used ENDS are covered in the Discussion section (see Strengths and limitations).

Contribution of smoker versus contribution of assistance

Contribution of the smoker

Participants consistently placed themselves at the heart of their quitting success, and assistance, even if used, was almost always reported as being of secondary importance. ENDS users appeared to be an exception to this observation as many enthusiastically credited their quitting success to ENDS; however, on probing ENDS users often spoke at length about the amount of effort, time and commitment successful ENDS use required, and that it would not work for everyone:

My gut reaction is to initially say [my quitting success was due] 100 per cent to e-cigarettes. But when I think about it, it's not. I think it's 50/50 because if I worked full-time I don't think I could have been as successful with e-cigarettes because it does take so much work and effort. You've got to charge things, you've got to buy—order things in from overseas, you've got to find a flavour you like, you've got to change wicks. You've got to make sure you've got a spare. So it does take a lot of work. (Yvonne, quit assisted aged 47)

The centrality of the smoker to quitting success was reinforced by the almost universal reluctance of participants to provide 'how to quit advice' to hypothetical would-be quitters: 'No [I wouldn't give any advice about how someone should quit] because I think what works for one doesn't work for another. To

me giving up smoking is a very individual thing' (Margaret; quit unassisted aged 53). What came through was that quitting was such an individual process and so critically dependent on individual circumstances and past experiences that generic advice from an ex-smoker was almost irrelevant. Learning how to quit was something that the participant had to do for themselves, typically through past quitting experiences. For some, the fact that a smoker was asking for advice on how to quit indicated they had not reached the point of being able to quit. They had not yet learnt enough about their smoking and quitting, and consequently could not be serious about quitting:

I'd say just do it ... the fact that you're asking me, it's just another cop out. It's just another way to make it seem as though you want to quit and you really don't. When you want to quit, you'll quit and you won't have to talk to me about it. (Gregory, quit unassisted aged 66)

Contribution of assistance

Assistance appeared to play a role in quitting that went beyond craving control. Experience with assistance could make smokers look at their smoking with fresh eyes, laying bare the heretofore hidden unpleasantness of smoking:

The first time round [varenicline] reduced the urge to smoke because it made it deeply unpleasurable ... It was like you could suddenly see past the cigarette. [Cigarettes] always taste disgusting but I guess when you're addicted to nicotine you kind of overlook that—so [the varenicline] kind of took away the pleasure and left a horrible taste. So you didn't get a kick out of the nicotine anymore, all you got was the foul taste. (Jane, quit unassisted aged 34)

In this example, use of varenicline forced the participant to confront how the nicotine (the addictive side of smoking) hid or masked just how unpleasant smoking was. With the pleasure gone, smoking was seen in a new light. Although varenicline was not used on the final quit attempt, the insights into smoking that varenicline provided contributed to the final quitting success.

First-hand experience with assistance could also alert the smoker to the limitations of assistance; it made them appreciate that assistance on its own could only do so much. Assistance could not make them want to quit, it could not make up for ambivalence around quitting and it could not do the quitting for them. It appeared that the assisted quit attempts, although not always successful, could therefore impact on how participants acted in future (assisted and unassisted) quit attempts. This was evident in how some participants talked about their final quit attempt in which they drew on experiences with assistance on earlier quit attempts. Juliette, for example, used varenicline on her final quit attempt, but her previous experience of varenicline made her more realistic about what varenicline could do and what was left for her to contribute:

I think maybe it was about taking responsibility more, and so maybe that's why it didn't feel as likely to happen either ... I guess I wasn't really confident that [varenicline] works. I knew [varenicline] had failed for me before ... it was very much well this is down to me. (Juliette, quit assisted aged 45)

DISCUSSION

We identified three distinct patterns of quitting: only ever tried to quit unassisted; started unassisted, tried assistance but reverted back to unassisted; started unassisted, tried assistance and quit with assistance. Very few of the participants successfully

quit on their first attempt. Use of assistance increased with age and with experience of failed unassisted quit attempts.

In debates about smoking cessation, quitting has often been dichotomised as being assisted *or* unassisted, with attention focused on establishing which is the better 'method' of quitting. By examining the entire smoking and quitting histories of 37 ex-smokers we have established: (1) this dichotomy may be unhelpful and simplistic; (2) the final 'method' of quitting (ie, unassisted or assisted) may not necessarily be as relevant as current discourse might suggest; and (3) quitting is more usefully viewed as a process that often (but not always) draws on elements of both, rather than a stand-alone event that can be clearly labelled as strictly assisted or unassisted.

In the current study, almost all participants started out quitting unassisted. If the participant was older than 40 years of age it was highly likely they had gone on to try assistance, even if they had finally quit unassisted. This movement back to unassisted quitting after use of assistance is consistent with a UK study examining patterns in the use of assistance across multiple quit attempts.²⁸ We suggest smokers used their prior quitting experiences (or lay knowledge)⁴ to guide their decisions on whether or not to use assistance again. The only exceptions to this were the small number of participants older than 40 years of age who quit unassisted who had never previously used assistance. They tended to quit suddenly, almost unexpectedly and the decision to quit was typically in response to a specific trigger, in line with what we have previously reported about unexpected or opportunistic quitting.²⁷

In the current study, many participants stopped using cessation products because they did not do what they had expected, highlighting the difference between efficacy and effectiveness²⁹ and the potential problems associated with the marketing and promotion of cessation products. This finding concurs with other qualitative studies reporting smokers hold unrealistic expectations about what pharmacotherapy can achieve and underestimate the amount of will power or effort quitting will require of them.^{30,31} Marketing claims such as 'double your chances of quitting versus willpower alone'³² may mislead smokers. Such claims are based on relative rather than absolute risk. The risk ratio for quitting with any form of NRT relative to control is 1.60,³³ but the chance of quitting at all is small (3%–5%),²⁵ meaning doubling this small chance of success still leaves more than 90% of quit attempts failing. The experience of this large rate of failure despite using cessation products likely leaves smokers dissatisfied.

The quitting experiences of the ex-smokers in this study span a 50-year period. The social acceptability of smoking and the pharmacological support available to those wanting to quit have changed enormously in this time. Care must therefore be taken when drawing conclusions based on the quitting experiences of smokers from different generations. Even so, it is notable participants younger than 40 years still favoured unassisted quitting despite the widespread availability of affordable cessation assistance in Australia in the past 20 years. This concurs with what others have reported about those who quit unassisted, that is, they tend to be younger,^{34,35} and that younger smokers are uninterested in assistance believing it belongs to the world of older addicted smokers.³⁶ This suggests making assistance the norm for all smokers³⁷ might be unwise and potentially wasteful, in line with what others have argued about the inappropriateness of making smokers opt out of cessation treatment rather than opt in.^{35,38} Instead, greater efforts could be invested in social marketing campaigns encouraging and motivating these smokers to effectively quit unassisted, rather than in suggesting an

unassisted quit attempt is a wasted quit attempt. As others have concluded, no matter how innovative the smoking cessation products are on offer, the reality is not everyone will be interested in using assistance.³⁹ Program developers, health promotion practitioners and social marketers might consider targeting particular audience segments with tailored messages about quitting and use of assistance. For instance, 'use assistance' messages might have most salience among smokers in their late 30s with a history of unassisted quit attempts. Given the findings of the current and other studies,⁴⁰ it would seem wise to tailor such messages to reflect the limited contribution of smoking cessation assistance and the importance of other factors such as personal engagement, commitment and effort.

The interplay between the use of assistance and self-directed change observed in this study aligns with findings from other areas of addiction research. A grounded theory study into behaviour change in clients of a UK alcohol treatment trial found formal behavioural treatments assisted change but were not solely responsible for change.⁴¹ Instead, treatment was part of a broader process that included elements of self-directed change during and following formal treatment.⁴¹ As others have suggested, the change process is a complex, ongoing set of systems within which formal treatments are embedded.¹³ In the current study, assistance was typically pharmacological rather than behavioural, yet the process and outcome were similar. First-hand experience with smoking cessation assistance provided participants with insights into what assistance could realistically do for them (ie, craving control), and what remained for them to contribute (commitment to quitting, personal engagement in quitting). Cessation assistance often helped participants to think (and then act) differently in regard to their smoking and quitting on subsequent quit attempts. Smoking cessation assistance was simply one element of a much more complex, ongoing set of systems in which self-directed change was a critical element. Prior experience with assistance appeared to bolster the self-quitting process, concurring with Lindström's suggestion that treatment may act as a trigger to initiate changes that are caused by the person, rather than being directly caused by the treatment itself,⁴² and Blomqvist's suggestion that self-quitting is a rational and gradual process.⁴³ In the efforts to promote smoking cessation products to smokers, this understanding has been lost in translation, and instead, pharmacological assistance is often portrayed as a 'magic bullet', which it clearly is not. As the footnote on the Australian Nicorette website (promoting NRT products to consumers) states: 'Contains nicotine. Stop smoking aid. Requires willpower.'³²

Strengths and limitations

Previous research on the use of cessation assistance has tended to focus on a single quit event or a specific period in time. A strength of the current study methodology is that it provides rich in-depth data from across participants' entire smoking and quitting histories, providing insights into how earlier quitting experiences with and without assistance may have impacted on the final quit event. We recruited participants from diverse socioeconomic groups, geographical regions and age groups with a wide range of smoking and quitting experiences. However, although recruitment included participants aged 24–68 years, only 2 of the 10 participants younger than 40 years of age had experience of assistance. This may be because younger smokers are indeed less likely to use assistance,^{34–36} but it also highlights the difficulty we experienced in recruiting ex-smokers of any age who had used assistance. This may be because such ex-smokers were less interested in talking about their quitting experiences than smokers who quit unassisted. An

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alternative explanation is that many of them may not consciously credit assistance with their quitting success, possibly because they did not use assistance as directed or only used assistance for a short period of time. Ex-smokers who had used assistance to quit who were easy to recruit included users of ENDS from whom we had considerable interest (such that we were unable to include all such interested persons in the final sample). This may reflect the strength of feeling among this group about the benefits of ENDS and a desire to get that message across to those in research, policy and practice.

Recall bias relating to method of quitting on the final quit attempt was minimised by recruiting ex-smokers who had quit 6–24 months ago. However, given we were interested in the participant's entire quitting and smoking history not just how they eventually quit long term, participants may have forgotten specific details or dates relating to earlier quit attempts (as seen by the clustering of quit dates around key ages such as 30, 40 and 50 years in [figure 1](#)). Although the exact date of a quit attempt might not always have been reported precisely, the pattern of their quitting (and how they quit) was of primary interest. It is also possible participants may have failed to mention quit attempts of short duration especially if they were unassisted.⁴⁴ It is also possible participants credited success to their own efforts and underacknowledged the contribution made by assistance, especially when recalling events in the past.⁴⁵

Much of the information we have gathered about use of assistance relates to the many prior occasions on which participants had used assistance before finally quitting unassisted. We noted that many participants reported not using assistance as directed, for example, not completing a full course of NRT or varenicline treatment. This less than optimal use of assistance does not, however, undermine our central finding, that for many participants the key contribution assistance made to their quitting was to provide them with an opportunity to learn what the quitting process will require of them. This explains why a number of participants may have been least interested in using assistance at the time they were most ready to quit. Given the small number of participants who quit using assistance we suggest further research should target smokers who quit using assistance in order

to more fully understand how assistance is used on successful quit attempts, in particular how smokers tailor use of assistance to their own needs and what it is about assistance that they value.

CONCLUSION

Quitting should be viewed as a process drawing on elements of assisted and unassisted quitting rather than a stand-alone event that can be labelled as strictly assisted or unassisted. For most participants, insight into what quitting would require of them was only gained through their earlier quitting experiences. Assistance, while useful for some participants and at certain points in the quitting journey, was not an adequate substitute for personal engagement, commitment and effort. It may be useful to reconceptualise the role of assistance in quitting as going beyond control of cravings and urges to smoke, to providing the smoker with valuable insights into what assistance can deliver and what remains for them to contribute to the quit attempt.

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Contributors SC conceived the study. SC, SMC, SMD and BF obtained funding. All authors were involved in designing the study and developing the methods. ALS coordinated the running of the study, conducted the interviews, read the transcripts, coded the transcripts and wrote the memos. ALS and SMC developed the analytical framework. All authors contributed to the analysis. ALS drafted the manuscript. All authors contributed to the interpretation of the analysis and critically revised the manuscript.

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Patient consent Obtained.

Ethics approval The University of Sydney Human Research Ethics Committee.

Provenance and peer review Not commissioned; externally peer reviewed.

Data sharing statement The data sets generated and analysed during the current study are not publicly available due to participant confidentiality but are available from the corresponding author on reasonable request.

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What this paper adds

- ▶ Unassisted quitting was possible at any age, but more often occurred in participants younger than 40 years of age. Smoking cessation assistance was rarely used in those younger than 40 years of age.
- ▶ Smoking cessation assistance may be helping smokers to quit, and more interestingly to quit unassisted in two ways. One of these is controlling urges and cravings. The other is providing the smoker with insights into quitting which then boosts the self-change process and supports the smoker in his or her own efforts to quit smoking.
- ▶ For a number of participants, interest in using support to quit smoking appeared to be at its lowest when the participant was most ready to quit.
- ▶ Program developers, health promotion practitioners and social marketers might consider targeting particular audience 'segments' with tailored messages about quitting and use of assistance. For instance, 'use assistance' messages might have most salience among smokers in their late 30s and early 40s with a history of unassisted quit attempts.

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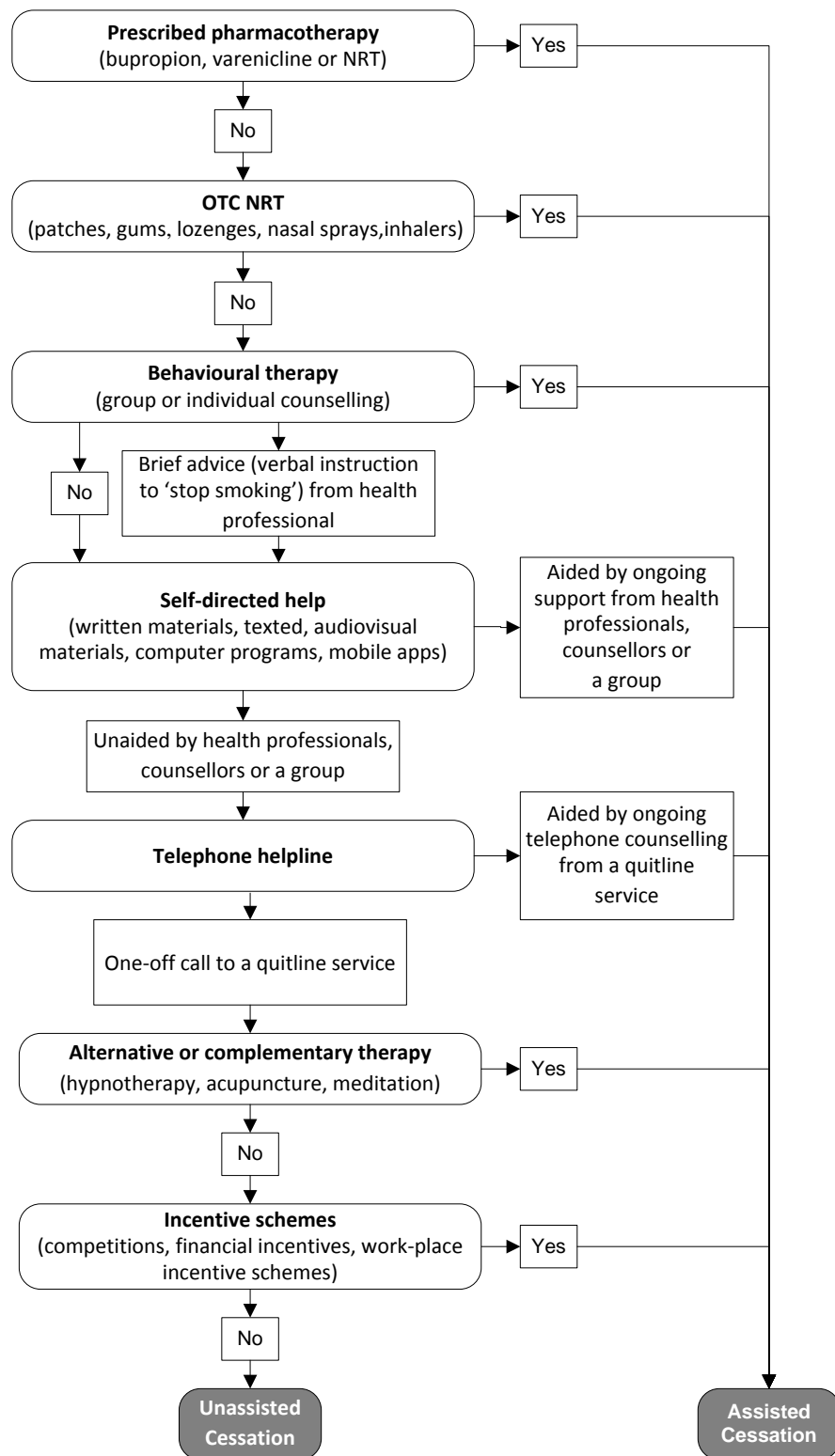
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Supplementary files

Smith AL, Carter SM, Dunlop SM, *et al.* Revealing the complexity of quitting smoking: a qualitative grounded theory study of the natural history of quitting in Australian ex-smokers. *Tobacco Control* Published online first: 23 November 2017. doi:10.1136/tobaccocontrol-2017-05391.

Supplementary file 1 Definition of assisted and unassisted cessation

Supplementary file 2 Screening questions



Date	Excel <input type="checkbox"/>	Email / post / both: PCF <input type="checkbox"/>	PIS <input type="checkbox"/>
		Email / post / both: Interview conf. <input type="checkbox"/>	Etter <input type="checkbox"/>

Participant's contact details

Name

Address Postcode

Tel Mobile Email

Recruitment strategy

Where did you hear about the study?

- [1] Facebook (status update)
- [2] Twitter
- [3] Facebook ad
- [4] Flyer or word of mouth
- [5] Media – talkback radio
- [6] Media – print
- [7] Other

Personal information and demographics

Q1 Gender

- [1] Male
- [2] Female

Q2 What's your date of birth?

Q3 What is the highest level of education you have attained?

- [1] No formal schooling
- [2] Primary school
- [3] Junior high school (Years 7-10)
- [4] Senior high school (Years 11-12)
- [5] TAFE/Technical college
- [6] University OR
- [7] Another tertiary institution
- [8] Other (please specify)

Q4 Which of the following best describes your employment status?

- [1] Working full time
- [2] Working part-time or casual
- [3] Retired
- [4] Student
- [5] Home duties
- [6] Unemployed or looking for work
- [7] Other (please specify)

Q5 Roughly speaking, is your annual household income (before tax) more or less than \$60,000?

- [1] Less than \$60,000
- [2] More than \$60,000

Q6 And into which of the following ranges would your annual household income fall?

- [1] Up to \$15,000 (\$290 per week)
- [2] \$15,001-\$30,000 (\$290-\$580 per week)
- [3] \$30,001-\$45,000 (\$580-\$860 per week)
- [4] \$45,001-\$60,000 (\$860-\$1,150 per week)
- [5] \$60,001-\$75,000 (\$1,150-\$1,440 per week)
- [6] \$75,001-\$90,000 (\$1,440-\$1,730 per week)
- [7] \$90,001-\$105,000 (\$1,730-\$2,020 per week)
- [8] \$105,001-\$120,000 (\$2,020-\$2,300 per week)
- [9] Over \$120,000 (\$2,300 per week)

Screening questions – smoking status

Q1 Do you currently smoke cigarettes, cigars or pipes?

- No, not at all – go to Q2
- [1] Yes – IF YES, how often?
 - [1] Daily – go to Q9
 - [1] At least weekly (if not daily) – go to Q9
 - [1] Less often than weekly – go to Q9

Q2 Over your lifetime would you have smoked at least 100 cigarettes or a similar amount of tobacco?

- [2] No – EXCLUDE, THANK THEM FOR TAKING THE TIME TO ANSWER THE QUESTIONS
- [3] Yes – go to Q3

Q3 How frequently were you smoking?

- [1] Daily – go to Q4
- [2] At least weekly (if not daily) – go to Q4
- [3] Less often than weekly - go to Q4

Q4 How many cigarettes per day / per week (or packs per day/ per week) were you smoking?

- [1] Fewer than 10 CPD (1/2 pack per day) - go to Q5
- [2] More than 10 CPD (1/2 pack per day) – go to Q5

Screening questions – time since quit and difficulty quitting

Q5a When did you give up smoking?

- Date Number of years/months ago
- [1] Less than 6 months ago – EXCLUDE, THANK THEM FOR TAKING THE TIME TO ANSWER THE QUESTIONS
 - [2] More than 6 months ago but less than 2 years ago – go to Q6
 - [3] More than 2 years ago – EXCLUDE, THANK THEM FOR TAKING THE TIME TO ANSWER THE QUESTIONS

Previous quit attempts

Q6 Was this the first time you tried to quit?

- [1] Yes – go to Q7
- No – IF NO, how many times have you tried to quit before?
 - [2] Less than 3 – go to Q6b
 - [3] Between 3 and 10 – go to 6b
 - [4] More than 10 – go to Q6b

Q6b On a scale of 1 to 10, if 1 is very easy and 10 is extremely difficult, how would you describe your last quit attempt?

- [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] – go to Q6c

Q6c Would you say that on your *last* quit attempt, quitting was:

- [1] Easier than you'd expected – go to Q7
- [2] Harder than you'd expected – go to Q7
- [3] Pretty much as you'd expected – go to Q7

Screening questions – method of quitting

Q7 Thinking about [the LAST time you quit] OR [when you quit], would you say that you ‘gave up on your own’ or did anyone or anything help you to give up?

- [1] On my own – go to Q8
- [2] With help – go to Q8

Q8 We’re interested in what people define as ‘giving up on their own’. I’d like to find out if you used any of the following strategies [the LAST time you quit] OR [when you quit].

8a Complementary or alternative therapies, such as hypnotherapy or acupuncture?

- [1] Yes – EXCLUDE, but go to Q8b
- No – go to Q8b

8b Incentive schemes that encourage people to give up smoking, such as a quit smoking competition or an incentive scheme at work?

- [1] Yes – EXCLUDE, but go to Q8c
- No – go to Q8c

8c Self-help materials such as brochures, books, CDs, DVDs, internet sites, apps for mobile devices, or the Quitline?

- No – go to Q8d
- Yes – IF YES, did you use these self-help materials with the help or guidance of a health professional or counsellor? [DO NOT INCLUDE ‘BRIEF ADVICE’, i.e. VERBAL MESSAGE TO QUIT FROM DOCTOR OR NURSE]
 - [1] Aided by health professional or trained counsellor (includes using QuitCoach or follow-up support from Quitline) – EXCLUDE, but go to Q8d
 - Unaided by health professional or trained counsellor (includes calling Quitline or receiving Quitkit) – go to Q8d

8d Counselling sessions, either one-on-one or in a group?

- [1] Yes – EXCLUDE, but go to Q8e
- No – go to Q8e

8e Nicotine replacement products that you can buy from chemists or supermarkets, such as gum, lozenges, tablets, inhalers or patches [Nicobate, Nicotinell, QuitX, Nicorette], or that you can buy online, such as e-cigarettes?

- [1] Yes – EXCLUDE, but go to Q8f
- No – go to Q8f

8f Prescription medications such as Champix [varenicline] or Zyban [bupropion], or nicotine replacement therapy patches [Nicobate, Nicotinell, QuitX, Nicorette]?

- [1] Yes – EXCLUDE, but go to Q8g
- [2] No – INCLUDE, go to Q8g

8g Are there any other forms of help that you used that I haven’t mentioned?

.....

FOR THOSE THAT MET THE SELECTION CRITERIA, ASK IF THEY’D BE INTERESTED IN FINDING OUT MORE ABOUT THE STUDY

Additional questions to screen for 'being serious'

Q9 What was it about the tweet or our website that made you decide to register your interest in the study?

.....
.....
.....
.....

Q10 Is there anything in particular about the study that interests you?

.....
.....
.....
.....

Q11 Do you believe 'being serious' is essential to quitting success?

- Yes
- No

.....
.....
.....
.....

SECTION 4: DISCUSSION AND CONCLUSION

CHAPTER EIGHT

Preface to the ‘being serious’ framework

Preface to the ‘being serious’ framework

The aim of a grounded theory study, such as this one, is to produce an overall explanation that brings together all parts of the analysis. A critical analytical feature of a grounded theory study is the use of constant comparison to compare data from within and between participants. Constant comparison is also used to consolidate the findings from across all parts of a study. In this final publication I draw together and build on the empirical findings presented in Chapters 5–7 to present the core concept ‘being serious’ and the ‘being serious’ framework (Table 4). I explain how the ‘being serious’ framework indicates that successful long-term quitting involves elements at the level of the participant, but also at the societal level, meaning that ‘being serious’ is sometimes outside the control of the would-be quitter. The ‘being serious’ framework highlights the importance of three factors to long-term quitting: (1) prior experiences of quitting; (2) an identity (or existential) threat; and (3) timing and circumstances. Suggestions are made for conditions necessary to promote long-term quitting.

Overview of the empirical papers on which the core concept draws

Chapter 3

In Chapter 3 ('What do we know about unassisted smoking cessation in Australia? A systematic review, 2005–2012', *Tobacco Control*) I reported that in Australia the phenomenon of unassisted cessation is simultaneously widespread and almost entirely unexplored. I highlighted that aside from estimates of prevalence and broad-brush demographic data, little is known about how or why many Australian smokers continue to quit unassisted in the face of the many messages to use assistance. I argued that research into smoking cessation is predominantly intervention-focused and postulated that this research bias may partly explain the dominance of the assistance paradigm in discussions about smoking cessation and the focus on assisted cessation in Australian clinical practice guidelines, policy and practice.

Chapter 4

In Chapter 4 ('The views and experiences of smokers who quit smoking unassisted. A systematic review of the qualitative evidence', *PLoS One*) I summarised what is known from the smokers' perspective about quitting unassisted in the qualitative literature, reporting that although researchers often referred to motivation, smokers instead talked about willpower and commitment. However, although these concepts appeared fundamental they remained nebulous and are at best only loosely defined from the smokers' perspective in the existing literature. Importantly, it seemed that the role these concepts play in the process of quitting remained largely unexplained.

Chapter 5

In Chapter 5 ('Why do smokers try to quit without medication or counselling? A qualitative study with ex-smokers', *BMJ Open*), I provided an explanation for the enduring appeal of unassisted quitting, explaining the hitherto unacknowledged

intrinsic value and meaning unassisted quitting held for many participants. I argued that quitting unassisted was a phenomenon in its own right and not simply the default in smokers who failed to use assistance. Instead quitting unassisted was a mode of quitting that had been chosen by smokers for a number of complex reasons that went beyond issues of affordability, accessibility or misinformation about the safety or efficacy of assistance.

Chapter 6

In Chapter 6 ('Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers' perspective', *BMC Public Health*), I drew attention to the importance of context to successful quitting, in particular how timing and social and environmental circumstances can not only influence the success of a quit attempt but also the smokers' experience of the process of quitting, specifically how difficult or easy the smoker perceives quitting to be. I also highlighted the role a trigger can play in quitting, and how much effort appeared to be invested in the quit attempt.

Chapter 7

In Chapter 7 ('Revealing the complexity of quitting smoking: a qualitative grounded theory study of the natural history of quitting in Australian ex-smokers', *Tobacco Control*), I provided an explanation of the process of quitting that took into account the complementary and overlapping contributions assisted and unassisted quitting can make to long-term quit success, the importance of prior experience to final quitting success, and how circumstances and timing (e.g. life stage, age) can impact on use of assistance to quit. This account also offered an explanation for why unassisted quitting remains prevalent and popular among would-be quitters despite the routine

framing of assistance as the gold-standard in quitting and its demonstrated efficacy in RCTs.

Table 4. Contribution of empirical papers to the core concept ‘being serious’

Concept or factor	Chapter/empirical paper	Links between findings presented in paper and core concept ‘being serious’
‘Being serious’ (= core concept)	Chapter 4: The views and experiences of smokers who quit smoking unassisted. A systematic review of the qualitative evidence <i>PLoSOne</i>	The systematic review and synthesis of the qualitative literature identified a gap in our understanding of ex-smokers’ experiences of quitting unassisted, in particular the way in which they talked about what had contributed to their success. Ex-smokers did not talk about quitting in terms of motivation: instead they used the terms commitment and willpower. However, talk of willpower and commitment was frequently circular, and what these terms meant from the ex-smokers’ perspective remained elusive. Preliminary data analysis had identified an <i>in vivo</i> term, ‘being serious’, that appeared central to participants’ accounts of successful quitting and potentially had explanatory power. Understanding what ‘being serious’ meant to participants drove subsequent sampling and data collection decisions.
1. Prior experience of quitting	Chapter 7: The natural history of quitting: a qualitative grounded theory study of Australian ex-smokers’ quitting experiences <i>Tobacco Control</i>	This paper reported that experience gained on earlier quit attempts provided essential insights into what quitting would require of the would-be quitter. Quitting rarely happened without prior quitting experience, often both assisted and unassisted. This experience was needed to provide the participant with the knowledge needed to quit, in particular what a serious quit attempt would require of them in terms of effort and engagement.
2. Identity (or existential) threat	Chapter 6: Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers’ perspective, <i>BMC Public Health</i>	This paper reported that quit attempts were often linked to a particular trigger. The trigger created an identity (or existential) threat, and resulted in a change in behaviour (a quit attempt). Triggers that resulted in an existential threat (e.g. the sudden onset of smoking-related health effects) could generate sudden, unexpected quitting even in participants who had not previously seemed particularly interested in quitting. In contrast, triggers that resulted in an identity threat could be surprisingly minor, for example, comments from a family member or fellow smoker, or a failed attempt using assistance.
	Chapter 5: Why do smokers try to quit without medication or counselling? A qualitative study with ex-smokers <i>BMJ Open</i>	This paper reported that participants, when ready to quit, often reached the point where it became important to the participant that they quit unassisted. This was in part because deep-rooted cultural values such as independence, strength, self-reliance, self-control and autonomy impacted on how participants viewed use of assistance. Consequently, when participants reached the point of ‘being serious’ about quitting, for many the importance of upholding these values led them to believe quitting unassisted was the ‘right’ or ‘better’ way to quit, that they were personally responsible for their quitting, and that quitting unassisted was a prerequisite for ‘being serious’ about quitting.

Concept or factor	Chapter/empirical paper	Links between findings presented in paper and core concept 'being serious'
3. Timing and circumstances	Chapter 6: Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers' perspective <i>BMC Public Health</i>	This paper highlighted how social and environmental context can support quitting; for example how opportunistic quitters took advantage of a specific situation and used it to their advantage to leverage a quit attempt.
	Chapter 7: The natural history of quitting smoking: a qualitative grounded theory study of Australian ex-smokers' quitting experiences <i>Tobacco Control</i>	This paper reported that as participants got older, particular life stages or events (age, impending parenthood, a relationship with a non-smoker) could precipitate quitting.

CHAPTER NINE

The ‘being serious’ framework: a qualitative study exploring how Australian ex-smokers explain their quitting success

Chapter 9 overview

This chapter presents the core concept ‘being serious’. The analysis reported in this chapter brings together findings from all of my empirical papers. It consists of a manuscript entitled: The ‘being serious’ framework: a qualitative study exploring how Australian ex-smokers explain their quitting success.

Publication details

Smith AL. The ‘being serious’ framework: a qualitative study exploring how Australian ex-smokers explain their quitting success. Submitted to *Social Science and Medicine* February 2018.

Abstract

Background

The process of successful long-term quitting, and the conditions required to support it, remain poorly understood. Willpower and motivation are often cited as critical contributors to quitting success. Yet willpower remains poorly defined, and factors that motivate quitting are not necessarily those associated with maintenance of quitting.

Design

Qualitative grounded theory study; in-depth interviews.

Participants

37 Australian adult ex-smokers (24–68 years; 15 men, 22 women) who quit in the past 6–24 months.

Results

This analysis builds on earlier work in this project to provide a framework for understanding the factors important to successful long-term quitting from the participants' perspective. I report a core concept 'being serious' and describe three factors that contributed to 'being serious': (1) prior experiences of quitting; (2) an identity (or existential) threat; and (3) timing and circumstances. I argue that the concept 'being serious', rather than the oft-cited motivation and willpower, better captures how participants talked about and explained their quitting success, how they explained how their final quit attempt differed from earlier less successful quit attempts, and the advice they would offer would-be quitters. I provide an explanation for why some participants battled with quitting for years, while others quit unexpectedly, even effortlessly, and outline factors that made the state of 'being serious' easier or harder for the participant to attain.

Conclusions

‘Being serious’ was a state of being that the participant reached, often when circumstances and timing came together to support and sustain quitting. Participants’ accounts of quitting suggest social and structural influences played a key role in determining how easy or difficult it is to become serious about quitting. Relational theorists’ conceptions of autonomy provide a way of explaining the importance of social and structural circumstances to participants’ quitting success.

Manuscript

The submitted version of the manuscript follows.

The 'being serious' framework: a qualitative study exploring how Australian ex-smokers explain their quitting success

Introduction

The process of long-term quitting, and the conditions required to support it, remain poorly understood. Willpower and motivation are often cited as critical contributors to quitting success regardless of whether or not the smoker uses smoking cessation assistance. Willpower frequently appears in the addiction literature,¹⁻³ yet in the field of smoking cessation it would appear little effort has been made to determine the exact nature of willpower, or how individuals obtain or utilise it,⁴ leaving willpower poorly defined.

Recent research also suggests the factors that motivate quitting are not necessarily the factors associated with maintenance of long-term quitting.⁵ So, although phrases such as 'strength of decision and commitment' are used to set apart successful quit attempts and successful quitters from less successful quit attempts and quitters,⁶ these phrases do little to advance our understanding of the conditions that lead to and support long-term quitting.

One potential driver of long-term behaviour change is identity development. In his classic work on stigma and spoiled identity, Goffman reported how an individual who does not conform to the standards society regards as normal can become stigmatised and their identity spoiled.⁷ In many high-income countries smoking has become a stigmatised activity.^{8,9} Smoking is also closely related to identity, in particular social identity or the way in which individuals identify with others who have characteristics in common.^{10,11} West has argued that identity is central to understanding behaviour.¹² Identity development has previously been proposed as

integral to maintenance of recovery from addictions such as opiate and alcohol.^{3,13} It is possible identity change may also be involved in smoking cessation, with a small number of smoking cessation studies,¹⁴⁻¹⁸ and a review¹⁹ indicating identity change may indeed be important in driving and maintaining abstinence. Another suggested driver of long-term behaviour change in smokers is supportive social and environmental conditions.^{4,20-22}

Earlier analysis from this project produced a typology of four quitting experiences: measured, opportunistic, unexpected and naïve.²³ The typology was based on key characteristics that defined participants' quitting experiences, including the presence of a trigger, the amount of effort invested in quitting, and the apparent speed of onset of quitting. The typology provided a way of accounting for (and classifying) the range of quitting experiences reported by participants. However, I noticed that although participants' individual quitting experiences varied, a unifying concept, 'being serious', cut across these different quitting experiences. This concept, 'being serious', struck me as potentially having explanatory power and was a concept I returned to frequently during subsequent data collection and analysis. The analysis in the current study builds on this earlier work to provide a framework for understanding the factors important to long-term quitting from the participants' perspective.

The aim of a grounded theory study, such as this one, is to produce an overall explanation that brings together all parts of the analysis.²³⁻²⁵ This paper presents this overall explanation. A model is presented explaining how participants came to successfully quit. This model demonstrates that successful long-term quitting involved an interaction between three factors: (1) prior experiences of quitting; (2) an

identity (or existential) threat; and (3) timing and circumstances. Suggestions are made for conditions necessary to promote long-term quitting.

Methods

Design

A constructivist grounded theory methodology underpinned the research questions, study design, data collection, analysis and interpretation.²⁶ A previous paper has described these procedures in detail.²³

Recruitment and participant selection

Participants were recruited from the general community using traditional media (media release, print and online newspaper articles, talk-back radio) and social media. Eligible participants were adult (+18 years) former smokers who had quit in the previous 6–24 months. Risk of relapse to smoking, which reduces with time quit,^{27,28} was balanced against potential for recall bias.²⁹ Participants were classified as having quit unassisted or with the help of pharmacotherapy or professionally mediated behavioural support (see Smith *et al.*³⁰ for full definition of unassisted and assisted; see also Supplementary file 1). Individuals interested in participating were screened (Supplementary file 2) to ensure they met the selection criteria and to ensure a wide variety of smoking and quitting experiences were included (Table 5). Recruitment and screening questions were adjusted several times during the study as data collection and analysis became focused first on understanding what ‘being serious’ meant to participants and then on comparing and contrasting how ‘being serious’ differed depending on the particular quitting experience of the participant. Participants provided written consent prior to enrolment in the study. Pseudonyms were used to ensure anonymity. Participants were offered \$80 reimbursement for their time.

Data collection

In total 37 participants were interviewed (Table 5). Interviews took place between December 2012 and December 2015. A semi-structured interview guide was used for each interview (Supplementary file 3). During the 2 years of data collection and

Table 5. Demographic, smoking and quitting characteristics of participants

Characteristic	Participants (n=37)
Gender	
Male	15
Female	22
Age (years)	
20–29	4
30–39	6
40–49	9
50–59	11
60–69	7
Geographical location*	
Major cities	25
Inner regional Australia	4
Outer regional Australia	7
Remote Australia	1
Total household income (AU\$) ⁺	
≤30K	7
>30K–60K	5
>60K–90K	6
>90K–120K	7
>120K	9
Cigarettes per day (CPD)**	
<10 CPD	11
>10 CPD	26
Use of assistance to quit	
Used assistance	11
Unassisted	26
Previous quit attempts (prior to successful quitting)	
None	3
<3	16
3–10	11
>10	7
Previous experience of assistance ⁺⁺	
Had never tried to quit before	3
Had never used assistance to quit	11
Had previously used assistance to quit	23

* Classified according to the Australian Standard Geographical Classification Remoteness Area system.

⁺ 3 participants did not answer the question on income.

** CPD at time of last quit attempt.

⁺⁺ Experience of smoking cessation assistance included hypnotherapy, acupuncture, Allen Carr seminars, telephone cessation support (quitline), one-on-one behavioural counselling, group behavioural counselling, aversion therapy, nicotine replacement therapy (NRT) gum, NRT patches, NRT inhalers, NRT lozenges, varenicline (Champix®), bupropion (Zyban®), first- and second-generation electronic nicotine delivery systems (ENDS).

analysis, interview questions became progressively more focused on understanding the core concept 'being serious'. Participants were asked to talk about their smoking and quitting from when they first started to smoke. Interviews lasted between 37 minutes and 2 hours 15 minutes. Field notes were made directly after each interview. Data analysis from each interview helped to inform subsequent sampling, allowing me to target who to interview next and what questions to ask of them.

Coding and analysis

NVivo 10 (QSR International) was used for data management and coding. Interview transcripts were read several times before being coded line-by-line (open coding).²⁶ Comparison of the line-by-line codes from within individual interviews and across all interviews led to a consolidation and refinement of codes based on patterns relating to key circumstances surrounding quitting (focused coding). Coding was followed by diagramming and modeling to establish how various elements in the quitting process were related to one another. Analysis involved consolidating and interpreting all findings, reflecting back on previously written papers, and re-visiting interviews, memos, field notes and diagrams used in data analysis.

The analysis was informed by several theoretical frameworks: in particular I was aware of Kearney and O'Sullivan's grounded formal theory of identity shifts as turning points in health behaviour change.¹⁹ The analysis and emerging framework took into consideration what at first appeared to be extreme or atypical cases, i.e. participants who reported quitting surprisingly easily. An explanation was developed that was relevant to both more common experiences and these more atypical experiences. I used these accounts and what I knew from the existing literature on identity shifts as turning points in behaviour change to further develop the analysis and refine my understanding of the process of 'being serious'.

Data analysis: identifying the core concept

‘Being serious’ was an *in vivo* term²⁶ identified early in data analysis as of potential importance to understanding the process of successful quitting. The term ‘being serious’ was first mentioned by a participant in one of the first interviews; it was also the subject of one of my first analytical memos and a concept I returned to repeatedly during data collection and analysis. My interest in ‘being serious’ was reinforced after earlier work in this project resulted in a systematic review of the qualitative literature on experiences of quitting which indicated that the terms motivation and willpower did not fully capture what participants seemed to be referring to when they talked about ‘being serious’. During analysis it became clear that it was not enough to describe the state of ‘being serious’; it was critical to also be able to explain how the state of ‘being serious’ came about, that is, the process of becoming serious and the conditions necessary for this state of ‘being serious’ to exist and, importantly, to persist.

Results

‘Being serious’: an *in vivo* term

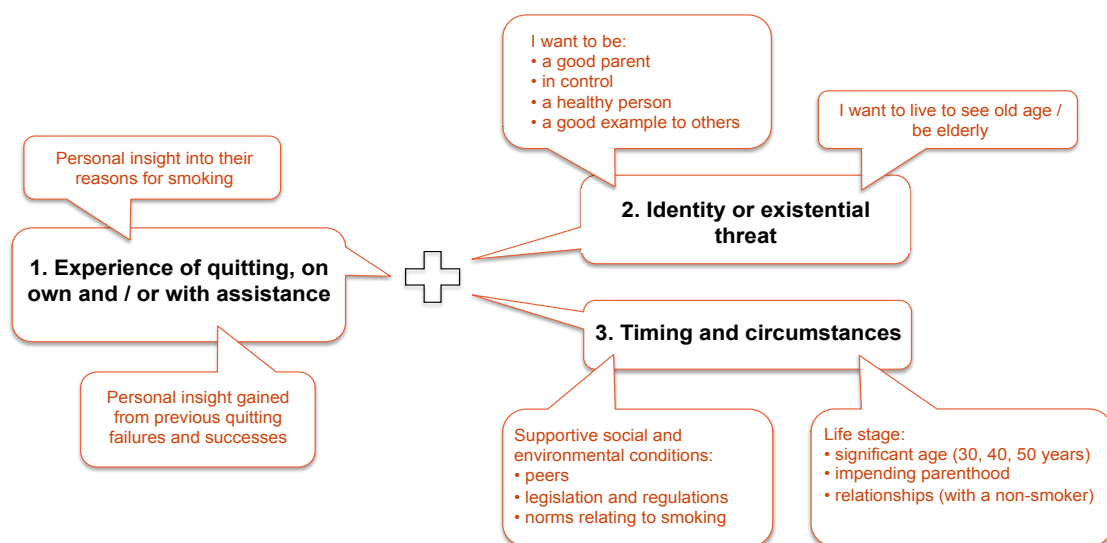
‘Being serious’ was an *in vivo* term used implicitly and explicitly by participants when they talked about successful quitting. ‘Being serious’ was how participants differentiated their final quit attempts from earlier, less successful quit attempts: *‘I tried to quit a couple of times but they weren't really anything serious’* (Eric, 28 years old). ‘Being serious’ was also participants’ take-home message to hypothetical would-be quitters. It encapsulated what participants believed they had done, and what others wanting to quit needed to do: *‘[It’s about] being absolutely dead serious about it and not doing it unless you're ready to do it’* (Alexandra, 50 years old). Although

participants found it difficult to articulate what ‘being serious’ entailed, even when asked directly, their accounts of quitting pointed to a coming together of experience, timing and circumstances, and an identity or existential threat as being key contributing factors. All of these factors are present in Jordan’s account of quitting: *‘I think there’s a cliché that the more times you quit the easier it becomes next time. I think it was just like biting the bullet. I also think I had more control of my life. I had my own apartment, I had a strong sense of space and I was trying to define my life as an adult, symbolically’* (Jordan, 40 years old).

Experience, identity/existential threat, timing and circumstances

This analysis builds on earlier work in this project²³⁻²⁵ to provide a framework for understanding the factors important to successful long-term quitting from the participants’ perspective: (1) prior experiences of quitting; (2) an identity (or existential) threat; and (3) timing and circumstances (Figure 2).

Figure 2. Factors involved in the process of becoming serious



Prior experience of quitting

Prior experience of quitting (Figure 2) was almost always a pre-requisite to ‘being serious’. Participants had to learn about ‘being serious’, in particular, what quitting would require of them. For most participants successful quitting was an iterative process during which they gradually moved towards understanding what long-term quitting would require: *‘Each time [you quit] you're kind of more aware of the pulls and what it's going to be like’* (Juliette, 46 years old). Juliette went on to talk about what she had learnt from prior quit attempts: *‘I think maybe it was about taking responsibility more... it was very much well this is down to me’*. Previous quit experiences got the participant to the point of understanding what they had to invest in the quit attempt, in particular how much effort quitting would require, even with smoking cessation assistance to help, something many had initially underestimated. Certain participants had thought their early quit attempts had been serious, and it was only with relapse to smoking that they began to fully understand what ‘being serious’ about long-term quitting would actually require: *‘I wasn't mature enough to handle [quitting] or to really put my all into it or have the willpower to do it... I would try and then be like give up and be like oh it's fine and I'd just start smoking again. I didn't do it properly’* (Sarah, 24 years old). Prior experience of quitting could also help participants to see smoking in a new light, leading them to further question why they smoked, reinforcing their desire to quit: *‘The first time round [varenicline] reduced the urge to smoke because it made it deeply unpleasurable... It was like you could suddenly see past [the pleasures of smoking]. Cigarettes always taste disgusting but I guess when you're addicted to nicotine you kind of overlook that – so it kind of took away the pleasure and left a horrible taste. So you didn't get a kick out of the nicotine anymore, all you got was the foul taste’* (Jane, 34 years old).

Certain participants suggested they could tell when a smoker was not serious about quitting; in particular asking for help was a sign the would-be quitter had not yet accumulated the necessary store of personal quitting experiences necessary to successfully quit: *'the fact that you're asking me, it's just another cop out. It's just another way to make it seem as though you want to quit and you really don't. When you want to quit, you'll quit and you won't have to talk to me about it'* (Gregory, 68 years old). Although harsh, the message seemed to be that successful quitting was built on prior experience. Seeking advice appeared to signal the smoker had not yet reached the point at which they had the knowledge and skills necessary to quit, and they were therefore not yet in a position to be serious about quitting.

Identity or existential threat

The second factor involved in the process of becoming serious was an identity or existential threat (Figure 2).

Identity threat

An identity threat arose when an event or experience challenged how the participant viewed themselves or how they believed others perceived them. *'I kind of felt that I was cheating myself... some part of myself didn't like myself when I did that [relapse to smoking]'* (Jordan, 40 years old). This event or experience reinforced to the participant that what they were doing (smoking) was not in line with what they valued or believed in, for example, being a good parent or role model, or being there for their children in an imagined shared future: *'I kind of wandered through life going, well I could get hit by a bus tomorrow anyway, so I'll just have the experience thanks.*

Obviously having my daughter changed that. It wasn't about I want to live longer, it was about I want to see more of my daughter's life, if that makes sense' (Arthur, 45 years old). This identity threat could also arise from a desire to be a healthy person, to

be in control or to be a social rather than proper (addicted) smoker. The resulting value conflict created tension, which drove quitting. *'I remember I had this thing about – there's a difference between a social smoker and a smoker – that I was actually a smoker. I didn't go through a lot of 'I'm going to stop because of this, this, this, this and this', I just didn't like this concept of being a smoker'* (Lesley, 58 years old). A quit attempt could go some way to dissipating this tension, even if it failed, as failure was almost to be expected. *'I got to whinge about [quitting and using NRT patches] and I got to tell all my friends I've spent all this money and aren't I a good person and really feel sorry for me and like really, you know, and they'd say oh, take it off and have a cigarette and no, no, no I can't. I've spent the money now'* (Arthur, 45 years old). For the quit attempt to be sustained, the new identity had to be more valued by the participant than their former, now spoilt identity. When this happened, staying quit appeared not to be as big a deal as might have been expected: *'[Smoking] doesn't feel like part of my identity, it doesn't feel like part of the identity of my friends, and it doesn't feel like a big deal not to smoke'* (Ingrid, 32 years old).

Existential threat

An existential threat occurred when an event challenged a participant's very existence, for example, a severe smoking-related adverse health event such as hospital admission or sudden and unexpected health symptoms: *'Something was going wrong with my body... I thought I had cancer. Because my father had cancer, he passed away with cancer... I thought, just literally, the moment, cancer – it was then, it was the big health thing. I wasn't immortal anymore. Whoa'* (Blake, 38 years old). The existential threat forced the participant to confront the now clearly imaginable consequences of smoking, that is, death, illness or disability. Quitting, even for participants previously uninterested in quitting or seemingly unable to quit, became

relevant, urgent and achievable: *'I walked out the hospital and threw the pack in the bin. I haven't touched them since. It just went out of my mind. I didn't think about it'* (Patrick, 60 years old).

Timing and circumstances

The third factor relevant to the process of becoming serious was timing and circumstances (Figure 2). The importance of circumstances was reported explicitly by younger participants, several of whom described actively manipulating their social environments to allow them to be serious about quitting: *'I disappeared from those circles ... I just shifted my entire lifestyle completely'* (Charlie, 31 years old); *'[I changed] everything about my environment, my friends and my lifestyle'* (Ingrid, 32 years old). Other participants reported that they opportunistically leveraged their quit attempt off a particular event or set of circumstances, having sufficient prior quitting experience to know that the timing was right and that they should seize the moment that had presented itself: *'This is what serendipity threw my way. Once I had the circumstances, which were serendipitous, I certainly did make sure I used them... I was saying to myself that day ... it's a really good opportunity and it's really important'* (Lesley, 58 years old). This event could be life-stage related and fairly obvious, such as impending parenthood or turning 40 or 50, or quite minor and mundane and specific to that particular participant's circumstances, such as Lesley taking advantage of having spent a week not smoking while away from home. What seemed critical for certain participants was raising the importance of quitting: *'Make it the focus of your life and make it a big achievement... it needed to be a big thing. There's no good making it – just saying oh it's a small, incidental thing that I'm smoking here, it's not important. What I'm trying to say is I needed to focus on how important it was and how happy I'd be with myself that I achieved things like this...*

Saying this is the thing I do in this six months of my life. This is a good thing and it's a major achievement' (Lesley, 58 years old).

The integral role of timing and circumstances (Figure 2) offers an explanation for why some participants battled with quitting for years, while others quit unexpectedly, even effortlessly. Life events or circumstances such as a change of job, change of social scene, change of norm within their social group, a change of legislation relating to where or when the participant could smoke could in effect lower the 'being serious' bar making quitting seem easier than it had been on earlier quit attempts. Although emotional support is often flagged as being important, this was often not the critical factor. What actually made it easier to be serious about quitting were the social and structural factors that supported the participant's attempt to be serious. Conversely, trying to quit when circumstances were not supportive of quitting, even if smoking cessation assistance was available, meant quitting was unlikely to happen or if it happened, was unlikely to be sustained. Of the three factors that contribute to 'being serious', timing and circumstances often appeared to be critical and to potentially have the greatest impact on successful long-term quitting. This was succinctly captured by how one of the participants described the challenges of quitting: *'Quitting was the easy part; changing my life was the hard part'* (Eric, 28 years).

Accounts of how difficult it had been to quit varied enormously, both within any one participant's account of quitting and between participants. It was not uncommon for participants to report that quitting had been easier than anticipated: *'Then I just did it and I honestly found for me personally it wasn't as hard as what I thought it was going to be'* (Julie, 52 years old). This unexpected ease of quitting was particularly apparent in participants who had previously been uninterested in quitting or who had almost given up on quitting owing to prior quitting failures: *'There was just no way in my head I was ever going to be able to stop smoking. To the point where, as I*

explained to you, I didn't really try. The fact that I did [quit] was huge. I still catch myself thinking, I gave up smoking just like that and it still surprises me that it wasn't as difficult as I thought it would be at that particular time' (Graham, 45 years old). It was in these participants that the importance of timing and context was most apparent.

Participants repeatedly asserted that there was no one recipe for quitting success: *'No [I haven't got any advice about how a smoker should quit] because I think what works for one doesn't work for another. To me giving up smoking is a very individual thing'* (Margaret, 55 years old). Participants acknowledged quitting was the coming together of different factors; what quitting looked like and what worked would be different for every smoker: *'How [smokers] choose [to quit] and how it works and their personality and their contacts and their environment and their socioeconomic status and all these things come to some sort of perfect storm of stopping, and for every individual it's different'* (Arthur, 45 years old).

'Being serious' varied according to prior quitting experience

Table 6 and Figure 3 show how the factors that contributed to 'being serious' varied, and how this related to what quitting looked like and how it was experienced by participants (i.e. measured, opportunistic, unexpected, naïve, as described in earlier

Table 6. The contribution each key factor made to 'being serious'

Type of quitting experience	Key factors involved in the process of 'being serious' about quitting			
Measured	Experience of quitting unassisted and/or with assistance	+	Identity threat	+ Timing and circumstances
Opportunistic	Experience of quitting unassisted and/or with assistance	+	Identity threat	+ Timing and circumstances
Unexpected			Existential threat	(± Timing and circumstances)
Naïve*			(± Identity threat)	Timing and circumstances

The contribution each of the factors made to 'being serious' differed depending on each participant's experience of quitting (i.e. measured, opportunistic, unexpected, naïve).

** As none of the participants were classified as being naïve quitters, this category remained speculative.*

Figure 3. What ‘being serious’ looked like for different participants based on their experience of quitting

MEASURED

*What does ‘being serious’ look like for participants on the **measured** quitting trajectory?*

- Quitting appears to be more gradual: it is possible these participants found it quite difficult to be serious, and to stay serious, about quitting.
- Instead of being ‘upfront’ or ‘in your face’ serious, it is more like ‘being serious’ ebbs and flows, comes and goes. ‘Being serious’ is more nebulous, more fleeting; it has to compete against other more pressing issues in the participant’s life.
- It is possible that the difficulty participants experienced in ‘being serious’ about quitting may have contributed to their frequent relapsing.
- In these participants, quitting struggled to get on (and stay on) the participant’s ‘today’s to-do list’. Quitting kept getting moved down the to-do list. Quitting just was not important enough, for long enough, for the quit attempt to succeed.
- Participants ultimate success may have been because of a coming together of the right contextual situation, e.g. the right social context, the right work environment. In other words, these participants may have had to wait until contextual issues ‘lowered the bar for them’, that is denormalisation of smoking eventually made quitting achievable for someone who was finding it harder to ‘be serious’ about quitting. The right environmental or structural context may have created the ‘invisible’ support that helped the participant to quit, or made quitting seem more important to them getting quitting on to ‘today’s to-do list’.

OPPORTUNISTIC

*What does ‘being serious’ look like for participants on the **opportunistic** quitting trajectory?*

- ‘Being serious’ was easy to ‘understand’ as it was visible, obvious, even ‘measurable’ (in terms of evidence of cognitive effort and practical steps invested in the quit attempt)
- When opportunistic quitters talked about ‘being serious’/quitting they talked about it requiring effort, that they have had to work at it, that willpower was required, quitting was not necessarily easy
- Clear links/connections could be drawn between what the participant was thinking and doing in terms of ensuring their quitting success. There is ‘evidence’ of ‘being serious’ – effort equalled rewards
- ‘Being serious’ centred around an event in the (near or distant) future (e.g. impending parenthood, a change in job, moving to a different city, a significant birthday) on which the quit attempt was hitched
- Like spontaneous quitters, ‘being serious’ in opportunistic quitters could be traced to a clear trigger point. Many of these participants had a strong reason for quitting, and again (like spontaneous quitters), the strength of this WHY modulates how difficult it is to be serious; a strong WHY can make ‘being serious’ easier.
- A key difference between opportunistic and unexpected quitters appeared to be that ‘being serious’ was more likely to be related to an identity threat (as a good parent, as a person in control of their life) than an (immediate) existential threat (fear of dying now).

NAÏVE

*What does ‘being serious’ look like for participants on the **naïve** quitting trajectory?*

- No participants were classified as being naïve quitters, so the description is speculative.
- It is possible naïve quitters would not need to be serious about quitting. They may be the exception to my claim that ‘being serious’ was what unites all successful quitters
- It is possible that naïve quitters would not need to be serious about quitting because they had not been serious about smoking, being instead social or occasional smokers.
- Alternatively, it is possible ‘being serious’ is important, it is just that it emerges slowly and imperceptibly, that naïve quitters might not be as aware of becoming serious about quitting, but one day they just realise they are ‘serious’ about not having the next cigarette, that in fact they are serious about being a non-smoker.

UNEXPECTED

*What does ‘being serious’ look like for participants on the **unexpected** quitting trajectory?*

- ‘Being serious’ happened instantly
- The timing of the decision to quit and their commitment to the quit attempt coincided exactly
- ‘Being serious’ was associated with a clear trigger or motivating event that made quitting important and necessary at that particular time. There was an urgent need for the participant to quit right now.
- ‘Being serious’ was intrinsically linked to what had motivated the quit attempt (the WHY I quit).
- The WHY (the reason or motivation for quitting) was so strong it was if the participant had the decision taken out of their hands. In many ways it was a non-decision; quitting just happened
- Little prior thought or effort appeared to have been invested in the decision to quit or the act of quitting
- The strength of this trigger/motivating event or the the size of their ‘need’ to quit could make ‘being serious’ easier than anticipated; becoming serious happened so suddenly that it seemed to reduce the amount of effort needed to quit
- Participants reported that willpower and effort were almost unnecessary, redundant. This was often in stark contrast to how the participant talked about earlier experiences of attempting to quit, or how difficult they had envisaged quitting would be
- It appeared as if the strength of their WHY (the size of their need to quit) was driving their quit attempt.
- Under these circumstances the method of quitting was rendered unimportant. It is possible a strong WHY was responsible for the participant quitting unassisted as the participant was determined to succeed; failure was not an option and under these circumstances assistance was viewed as redundant

work in this project²³). The table and figure help to reinforce the finding that ‘being serious’ was a state of being that could be reached in different ways. In participants who quit unexpectedly, the key driver of ‘being serious’ was an existential threat, with timing and circumstances playing a smaller part, and prior quitting experience almost irrelevant. In these participants the existential threat made quitting relevant, salient and urgent. Present bias, or the tendency to ‘focus on the short term and sometimes see the future as a kind of foreign country (and their future selves as strangers)’³¹ was instantly circumvented. Participants who had experienced an existential threat also tended to be the participants who reported quitting had been easier than anticipated and that willpower was not needed.

In contrast, in opportunistic and measured quitters, all three factors contributed towards quitting success. What differentiated opportunistic from measured quitters was the contribution of timing and circumstances. Opportunistic quitters actively used their prior quitting experience to identify an event or situation (i.e. timing and circumstances) about which they could leverage a quit attempt. It appeared as if these participants had to wait until contextual issues (e.g. smoke-free policies, tax increases) lowered the ‘being serious bar’ for them, that is denormalisation of smoking eventually made quitting achievable for someone who had found it hard to be serious about quitting.

Discussion

The analysis in the current study builds on earlier work to provide a framework for understanding the factors important to long-term quitting from the participants’ perspective. Earlier work developed a typology of quitting experiences: measured, opportunistic, unexpected and naïve.²³ A subsequent paper provided an account of the natural history of quitting, including that prior experience of quitting was almost

always a prerequisite for successful quitting.²⁵ The current study brings this work together to outline the core concept ‘being serious’ and provides an account of three factors that contributed to ‘being serious’ in participants: (1) prior experiences of quitting; (2) an identity (or existential) threat; and (3) timing and circumstances.

The ‘being serious’ framework, and in particular the role of identity, draws on and adds to what Kearney and O’Sullivan proposed in their grounded formal theory of identity shifts as turning points in health behaviour change in general.¹⁹ Kearney and O’Sullivan suggested that a value conflict in response to distressing accumulated evidence prompts a small step towards behaviour change. If successful, an identity shift begins, and increased self-awareness and self-confidence fuel continued change.¹⁹ Others have also suggested identity, or self-labelling, is important in generating the consistency needed for sustained change from hard-to-change behaviours such as smoking.¹² Similarities also exist between the ‘being serious’ framework and the combination of factors earlier qualitative research identified as contributing to quitting success:³² commitment (defined as the amount of energy an individual was willing to invest in the quit attempt); quitting history (indicating the individual had involved themselves in a learning process); and environmental influences (such as smoke-free policies and norms related to cessation within their social group).

One of the strengths of the ‘being serious’ framework is that it provides an explanation for why certain participants reported quitting was surprisingly easy, both in relation to their own earlier quitting experiences and in relation to how other participants had experienced quitting. This ease of quitting was particularly notable in participants who had previously struggled with quitting or had seemed relatively disinterested in quitting. Having a very strong reason to quit (e.g. brought on by an existential threat in unexpected quitters) made it easier to be serious about quitting,

circumventing the need to have prior quitting experience on which to draw during the quit attempt and rendering timing and circumstances almost irrelevant. In essence, a strong 'why quit' lowered the 'being serious' bar. In these participants it was notable that having a strong 'why quit' made the method of quitting (the 'how to quit') almost unimportant, possibly accounting for why such participants tended to quit without using assistance. This is reminiscent of suggestions others have made in the past about the how and why of quitting: '*He [sic] who has a why will always find a how*'.³³

Another strength of the 'being serious' framework is that it draws attention to the importance of autonomy to long-term quitting, and in particular relational theorists' conception of autonomy.³⁴ In healthcare contexts, autonomy is often understood somewhat simplistically as one's ability to make an informed and uncoerced decision about one's own healthcare; even more simplistically, autonomy is sometimes confused with negative liberty or non-interference.³⁵ On these understandings, autonomy is something that is enhanced by the absence of external influences: the implied ideal autonomous subject is a fully independent and rational thinker unencumbered by others. However, relational conceptions of autonomy hold that it is a 'complex competence, the development and exercise of which requires ongoing interpersonal, social and institutional scaffolding'.³⁵ This conception also acknowledges 'the differences between individuals and the contexts in which they live'.³⁵ When viewed this way it becomes clear that structural (social and political) constraints could undermine or impair individual autonomy,³⁵ and consequently a smoker's capacity to be serious about quitting. For example, smoke-free policies and tax increases can create environments (circumstances) that support quitting by reducing the opportunities that exist to smoke and by making smoking less affordable. Furthermore, such policies can make quitting more urgent (timing), getting it on to the

all-important ‘to-do today list’ rather than simply being something the smoker intends to get round to at some point in the future.³⁶

Population-based policies can also contribute to denormalisation of smoking, thereby increasing the likelihood of a smoker experiencing an identity threat. However, for certain populations, such as socially disadvantaged smokers (e.g. smokers of low socioeconomic status (SES) and smokers who are Aboriginal or Torres Strait Islander (ATSI)) who belong to subcultures in which prevalence of smoking is considerably higher than in the general population, social and structural factors may not be as effective at creating the circumstances that support quitting and denormalise smoking as they are in the general population. This may explain why in the current study certain participants (typically measured quitters) had previously struggled to stay quit, perhaps only managing to successfully quit once changes in social and structural influences lowered the ‘being serious’ bar by providing the circumstances that would support them to be serious about quitting.³⁷ So although participants were attempting to act autonomously with regard to their quitting, for some their ability to act autonomously was compromised by social and structural factors beyond their control. A recent International Tobacco Control (ITC) study into predictors of time to smoking relapse reported social influence (operationalised as ‘number of friends who smoke’) was the only variable predictive of relapse 1–2 years after quitting (hazard ratio (HR) = 1.19, $p=0.01$). The study authors concluded social influence may have a more enduring effect on relapse than other determinants of relapse measured, including use of stop smoking assistance, which was negatively related to relapse in the first 2 weeks of quitting (HR=0.71–0.84) but positively related to relapse in the 1–6 months quit period (HR=1.29–1.54).²²

Mackenzie’s conception of relational autonomy also speaks of the role imagination might play in autonomous reflection, deliberation and action.³⁷ Imaging

oneself otherwise is possibly an important barrier to long-term quitting. Some participants simply could not imagine a life without smoking, could not imagine being a non-smoker, or being able to sustain long-term quitting. However, the turning point for several participants came when in the early days of a quit attempt they caught sight of a different future self, and the realization that this might be achievable appeared to invigorate and drive the quit attempt. Mackenzie suggests that self-definition is 'not purely an introspective activity but also depends on social recognition'.³⁸ She suggests that 'self-reflection and deliberation, our own imaginative activities, our abilities to imagine ourselves otherwise, draw on a cultural repertoire of images and representations'. For smokers from cultural groups in which smoking is the norm, the culturally available images on which such smokers can draw may act to constrain rather than expand their imaginative possibilities and hence their ability to imagine themselves as someone other than a smoker.

Strengths and limitations

One of the strengths of the study was that 'being serious' was an *in vivo* term identified early in data analysis. This allowed subsequent theoretical sampling and data collection decisions to focus on exploring what 'being serious' meant to participants, and on testing the emerging 'being serious' framework. Data collection and analysis spanned several years, allowing ample time and many interviews in which theoretical saturation could be reached.

One of the limitations of this study was that, although participants used the term 'being serious' to describe and differentiate their successful quitting from earlier less successful attempts, it is possible participants only came to classify that quit attempt as being a serious quit attempt once it was successful. This is similar to the issue Webb and colleagues identified in a meta-analysis of cross-sectional studies of behaviour change in which they emphasised that you cannot rule out the possibility

that the behaviour (i.e. in the current study quitting smoking) caused the intention (i.e. to be serious).³⁹ A further limitation is that it was difficult to recruit participants who had used assistance to quit who had used it as directed. One of my hypotheses I wished to test was that ‘being serious’ for certain participants would mean using assistance. However, of the participants I interviewed who used assistance, few had used it as directed. Assuming such people exist, further research is needed to investigate what ‘being serious’ about quitting looks like in participants who use assistance to quit in the prescribed fashion. It would also be important to establish whether the decision to use assistance related to ‘being serious’ about quitting.

Conclusion

‘Being serious’ was a term that resonated with participants. It was both a process and a state of being that the participant reached, often when circumstances and timing came together to support and sustain quitting. Messages that emphasise seriousness, and the processes by which one becomes serious, are likely to make sense to smokers. Participants’ accounts of quitting suggest social and structural influences have a key role in determining how easy or difficult it was to become serious about quitting. Relational theories of autonomy focus attention on the importance of social and structural factors in supporting smokers to quit, in particular the importance of continued denormalisation of smoking especially in minority groups in which smoking is becoming concentrated such as lower SES and ATSI.

Stewart critiqued studies on unassisted cessation for failing ‘to concretely define those individuals who were able to quit without treatment’.²⁰ I would suggest this is not actually possible. The ability to quit with or without assistance is unlikely to be something innate or intrinsic to the individual. Instead, quitting unassisted is something almost all smokers attempt to do at different points in their smoking

careers. Whether they succeed is in part dependent on the influence of many factors, such as timing and circumstances, that might be beyond the immediate control of the individual, thus compromising their ability to act autonomously.

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CHAPTER TEN

Conclusion

I have now presented my grounded theory explaining the process by which smokers come to quit without using pharmaceutical and other forms of assistance. In this last section I will review the analysis I have presented, its effectiveness in answering my research questions, and the originality of its contribution to the literature on smoking cessation.

Research questions

In this thesis I set out to answer two overarching research questions:

- (1) Why do smokers come to quit unassisted in the face of the many suggestions that they use assistance?
- (2) What is the process of quitting unassisted?

Table 7 outlines in detail how each of my four empirical papers contributed to answering these research questions.

Contribution this thesis makes to the existing literature

This thesis contributes in a number of ways to the literature on unassisted quitting. By using a qualitative grounded theory methodology I have responded to the suggestion others have made about the need for a new approach to studying smoking cessation in

general^{1,2} and unassisted cessation in particular.^{3,4} The qualitative methodology I used has allowed me to generate a rich, nuanced account of the process of quitting and the meaning unassisted smoking cessation holds for would-be quitters. Specifically, my research demonstrates that exploring an issue from the perspective of the individual can generate unexpected findings that can challenge how we conceptualise an issue such as unassisted smoking cessation.

My research extends what the (predominantly quantitative) literature has to date reported about reasons for not using smoking cessation assistance. Instead of asking ‘Why did you not use assistance to quit?’ I asked ‘What brought you to the point of quitting unassisted?’ I believe this difference, although subtle, was an important difference. This alternative approach, combined with the open-ended nature of my questioning, meant the data generated and my subsequent analysis went beyond reporting on the well-known barriers to use of assistance and facilitators of use of assistance. Based on this analysis I have been able to make an argument for why unassisted quitting should be viewed as a phenomenon in its own right rather than being relegated to being simply the ‘lack of’ a smoking cessation intervention.

My research has also added to what the current literature reports about planned versus unplanned (spontaneous) quitting. Specifically, I have drawn attention to the complexity that lies behind these terms. In traditional behavioural approaches, quit attempts are dichotomised into planned versus unplanned as though this is a categorical variable with planned and unplanned quitting being completely separate experiences. Instead of viewing preparation for quitting as a simple ‘yes/no’ dichotomy, I reported that quitting typically involved elements of both spontaneity (impulsive behaviour) and preparation (reflective behaviour).

Table 7. Contribution the four empirical papers have made to answering my research questions

Research question	Chapter / empirical paper	The contribution this paper made to answering the research question
(1) Why did smokers come to quit unassisted in the face of the many suggestions that they use assistance?	Chapter 5: Why do smokers try to quit without medication or counselling? A qualitative study with ex-smokers <i>BMJ Open</i>	<p>In this paper I argued that the reasons for smokers not using smoking cessation assistance are complex and go beyond modifiable or correctable problems relating to misperceptions about smoking cessation assistance or barriers to accessing treatment. I reported that participants, when ready to quit, often reached the point where it became important to them that they quit unassisted. In particular, I outlined four reasons why smokers quit unassisted: (1) they prioritise lay knowledge gained directly from personal experiences and indirectly from others over professional or theoretical knowledge; (2) their evaluation of the costs and benefits of quitting unassisted versus those of using assistance favours quitting unassisted; (3) they believe quitting is their personal responsibility; and (4) they perceive quitting unassisted to be the 'right' or 'better' choice in terms of how this relates to their own self-identity or self-image.</p> <p>This was in part because deep-rooted cultural values such as independence, strength, self-reliance, self-control and autonomy impacted on how participants viewed use of assistance. Consequently, when participants reached the point of 'being serious' about quitting, for many the importance of upholding these values led them to believe quitting unassisted was the 'right' or 'better' way to quit, that they were personally responsible for their quitting, and if they were 'being serious' about quitting, they would quit unassisted .</p>
	Chapter 7: The natural history of quitting: a qualitative grounded theory study of Australian ex-smokers' quitting experiences <i>Tobacco Control</i>	<p>In this paper I reported almost no one successfully quit on their first quit attempt and almost everyone started out quitting unassisted. I highlighted how distinct patterns existed in the timing and use of assistance, in particular the age at which assistance was first used and how some participants were resolutely uninterested in assistance. In particular, I identified three patterns in use of assistance: (1) only ever tried to quit unassisted; (2) started unassisted, tried assistance but reverted back to unassisted; (3) started unassisted, tried assistance and quit with assistance. For a number of participants, interest in assistance was at its lowest when the participant was most ready to quit, perhaps accounting for why a significant proportion of smokers continue to quit unassisted rather than use assistance.</p>
(2) What was the process of quitting unassisted?	Chapter 6: Measured, opportunistic, unexpected and naïve quitting: a qualitative grounded theory study of the process of quitting from the ex-smokers' perspective <i>BMC Public Health</i>	<p>In this paper I reported a typology that accounts for the experience of quitting as reported by participants. The typology is based on a number of characteristics seen across the different accounts of quitting. These characteristics interact to create a typology of quitting experiences: measured, opportunistic, unexpected or naïve. The typology provides a new conceptual framework for understanding the process of</p>

Research question	Chapter / empirical paper	The contribution this paper made to answering the research question
		<p>successful quitting that accounts for: (1) how quit attempts and quitting success can be driven by rational plans and impulsive behaviour, and (2) how the concept of planning should not necessarily be limited to the period immediately prior to the quit attempt but could be expanded to include planning learnt, left-over or carried forward from an earlier quit attempt.</p> <p>In this paper I also reported that quit attempts were often linked to a particular trigger. The trigger created an identity (or existential) threat, and resulted in a change in behaviour (a quit attempt). Triggers that resulted in an existential threat (e.g. the sudden onset of smoking-related health effects) could generate sudden, unexpected quitting even in participants who had not previously seemed particularly interested in quitting. In contrast, triggers that resulted in an identity threat could be surprisingly minor, for example, comments from a family member or fellow smoker, a failed attempt using assistance. I also reported how social and environmental context can support quitting; for example how opportunistic quitters took advantage of a specific situation and used it to their advantage to leverage a quit attempt.</p>
	<p>Chapter 7: The natural history of quitting: a qualitative grounded theory study of Australian ex-smokers' quitting experiences <i>Tobacco Control</i></p>	<p>In this paper I reported that experience gained on earlier quit attempts provided essential insights into what quitting would require of the would-be quitter. Quitting rarely happened without prior quitting experience, often both assisted and unassisted. This experience was needed to provide the participant with the knowledge needed to quit, in particular what a serious quit attempt would require of them in terms of effort and engagement. I also reported that as participants got older, particular life stages or events (age, impending parenthood, a relationship with a non-smoker) could precipitate quitting.</p>
	<p>Chapters 8 and 9: The 'being serious' framework: a qualitative study exploring how Australian ex-smokers explain their quitting success <i>Social Science and Medicine (under consideration)</i></p>	<p>This chapter and the associated paper bring together what I have reported in my earlier empirical papers. In particular, I presented a framework (the 'being serious' framework) for understanding the factors important to long-term successful quitting. These factors included (1) prior experiences of quitting; (2) an identity (or existential) threat; and (3) timing and circumstances. In this paper I argued that the concept 'being serious', rather than the oft-cited motivation and willpower, better captured how participants talked about and explained their quitting success, how they explained how their final quit attempt differed from earlier less successful quit attempts, and the advice they would offer would-be quitters. Finally, in this paper I provided an explanation for why some participants battled with quitting for years, while others quit unexpectedly, even effortlessly, and outline factors that made the state of 'being serious' easier or harder for the participant to attain.</p>

Furthermore, I reported that planning left over or carried forward from earlier attempts can contribute to the success of what might at first appear to be an unplanned quit attempt. Consequently, in contrast to what many earlier studies found, I concluded quitting was rarely completely unplanned and unexpected. Based on these findings, I went on to challenge the validity of claims relating to planned versus unplanned quitting in studies from the US, Canada, UK and Sweden.⁵⁻⁹ I surmised that the difference between my results and those reported in earlier studies may be due to methodological differences. In contrast to the in-depth data collection and analysis that my grounded theory methodology afforded me, the earlier survey-based studies relied on data from the same single, closed-choice question.

I have also made a contribution to the debate relating to the relevance of various theories of behaviour change to smoking cessation. Specifically, I have argued that rationality-based cognitive theories (e.g. the transtheoretical model of behaviour change, also known as stages of change or SOC)¹⁰ only go so far in explaining hard-to-maintain behaviour change such as quitting smoking. I demonstrated how my data support West's 2005 critique of the SOC model, notably the suggestion that transition through pre-action stages is not always the norm or even necessary for successful change, that the change process is much more dynamic, heterogeneous and stimulus-driven than is implied by the SOC model, and that the SOC model places too much emphasis on conscious decision-making.¹¹ I also argued that the SOC model does not take into account the strong situational determinants of behaviour, and the fact that behaviour change can arise from a response to a trigger even in apparently unmotivated individuals. I went on to demonstrate instead that my typology of quitting experiences supported comprehensive theories of addiction such as West's PRIME theory of motivation¹² and theories of hard-to-maintain behaviour change

such as Borland's CEOS dual process theory¹³ that integrate both spontaneity and planning into the process of smoking cessation.

And finally, I have contributed to the self-change literature, in particular to the work of Jan Blomqvist,^{14,15} Jim Orford,¹⁶ James Stewart,³ and Harald Klingemann and Linda Sobell¹⁷. Until now, relatively little has been reported about unassisted cessation, with many dismissing it as being simply the comparator in RCTs of smoking cessation interventions. This thesis demonstrates that unassisted cessation is a phenomenon in its own right. More importantly, I have demonstrated that it is not only valued by many would-be quitters, but for some it is almost an inevitable endpoint after previous experiences with and without smoking cessation assistance. However, as Blomqvist argued in 1996, "spontaneous recovery is no more a unitary phenomenon than is addiction itself".¹⁴ On this I agree entirely, and believe there is still much to understand about the complex process of unassisted smoking cessation.

Further research that might now be done as a result of this work

Further research is still urgently needed if we are to fully understand the complex web of interacting biological, psychological, social and cultural forces that are involved in recovery from hard-to-change behaviours such as smoking. As a result of my study, further research could replicate parts of this study in different cultural contexts and in countries with different tobacco control policies to determine whether study findings are applicable across countries, cultural dimensions and stages of the tobacco epidemic. Further research in Australia could target smokers who quit using assistance in order to more fully understand how assistance is used on successful quit attempts, in particular how smokers tailor use of assistance to their own needs and what it is about assistance that they value. Leading on from this, further research could investigate what 'being serious' about quitting looks like in participants who

use assistance to quit in the prescribed fashion. And finally, given the widespread interest in ENDS, it would be worthwhile taking a qualitative approach to investigating how ENDS might contribute to the process of quitting and to staying quit.

Implications of this new knowledge

In choosing a qualitative methodology I traded a large sample size, representativeness and generalisability for richness and depth of data collection and analysis, flexibility of study design, and the opportunity to explore what was of interest to participants rather than testing a pre-defined hypothesis or a set of variables. As a result I have produced a detailed account of the process and meaning of unassisted quitting from the ex-smokers' perspective. Having said that, there are limitations as to the transferability of my findings.

One of the key issues this thesis has drawn attention to is how cultural, social and structural conditions impact on an individual's experience of quitting, and importantly, how serious they can actually be about quitting. However, Australia is a country with an advanced tobacco control policy that is experiencing the tail end of the smoking 'epidemic'. The norms around smoking (and quitting), the restrictions that exist on where one can smoke, the high price of cigarettes, and the pharmaceutical and behavioural support that is freely available to smokers who want to quit are contextual factors that are specific to Australia. My findings are therefore, likely to be transferable to countries with similar tobacco control policies such as US, Canada, New Zealand and the UK, but care should be taken when making comparisons with countries with quite different contextual issues.

As this thesis reports on the quitting experiences of a relatively small number of ex-smokers, of whom only a few had used assistance on their final quit attempt, it is

as yet unclear how widely these experiences reflect those of ex-smokers in general, in particular ex-smokers who quit before they reach 40 years of age or those who use assistance when they quit.

These findings are likely to be of interest to health practitioners tasked with helping smokers to quit, policymakers making decisions about tobacco control policies, and social marketers involved in designing population-wide quit campaigns. My findings suggest that health practitioners, researchers and policymakers may benefit from adopting a more consumer-orientated approach to quitting. There may still be much to be gained from switching our thinking from ‘What is wrong with these smokers, why don’t they use assistance?’ to ‘What’s wrong with our beliefs about assistance and smokers?’

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APPENDICES

Appendix A: Invited commentaries

VIEWPOINT

Quitting Smoking Unassisted

The 50-Year Research Neglect of a Major Public Health Phenomenon

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Smoking cessation research today is dominated by the development and evaluation of interventions to improve the odds of quitting successfully. Yet little attention has been paid to the large majority of ex-smokers who quit without recourse to any formal assistance. To many, these unassisted quitters are of little interest other than as a comparator population against which to test the efficacy or effectiveness of pharmaceutical or behavioral interventions. The effect of this neglect is compounded by the preference for reporting intervention success as *rates* rather than as the *numbers* of ex-smokers generated across populations through such interventions. In so doing, researchers have insulated those in policy and practice from the importance of unassisted smoking cessation and the unparalleled contribution it has made and will continue to make to reducing smoking prevalence.

In 1955, 5 years after Wynder and Graham's historic study of smokers and lung cancer was published in *JAMA*,¹ 7.7 million Americans (6.4% of the population) were former smokers. Ten years later, following widespread publicity surrounding the 1964 US surgeon general's report, the number of ex-smokers had increased substantially to 19.2 million (13.5%). By 1975, 32.6 million Americans (19.4%) had stopped smoking.² In 1979, the then director of the US Office on Smoking and Health noted in a National Institute on Drug Abuse monograph, "In the past 15 years, 30 million smokers have quit the habit, almost all of them on their own."³ Many of these quitters had been very heavy smokers.

The same monograph also stated that "longitudinal studies should be designed to investigate the natural history of spontaneous quitters. ... We know virtually nothing about such people or their success at achieving and maintaining abstinence."³ Thirty-five years later, very little has changed about that ignorance: knowledge of mass smoking cessation across 50 years reflects the "inverse impact law of smoking cessation."⁴ Far more is known about the "tail" of people who quit smoking via pharmacological and professionally mediated interventions than about the mass "dog" of ex-smokers who continue to quit unassisted.

Yet smoking cessation research has its roots in unassisted cessation. In the 1970s and 1980s, those grappling with why success rates for therapy seekers were no better than those for self-quitters turned their attention to studying those who quit on their own.⁵ As a population, self-quitters were thought to hold the answers to the problem of smoking cessation. Studies throughout the 1970s and 1980s led to the identification of strategies that successful self-

quitters used, and these approaches occasionally informed the design of both individual and mass-reach interventions.

In 1988, understanding of the effects of nicotine on the central nervous system and on the ability of nicotine replacement therapy (NRT) to mitigate withdrawal prompted the belief that moderating withdrawal reactions would facilitate widespread quitting. Four years later, a review of smoking cessation concluded that in light of this new knowledge, "what is required is a broader perspective and greater respect for the limited role of individual and even small group interventions. Over the past decade we have witnessed a sometimes grudging acknowledgement of and interest in the pharmacological aspects and addictive properties of tobacco."⁶ Psychologists wedded to clinical models were making way for what they saw as the first potentially mass-reach effective approach to cessation.

Twenty-five years after tobacco use was officially labeled as an addiction and NRT heralded as the first major hope for smoking cessation, it is time to take stock of cessation pharmacotherapy. It appears that this "treatable condition" is not responding as hoped either to NRT or to the prescription smoking cessation medications bupropion or varenicline that followed.⁷ Sadly, it remains the case that by far the most common outcome at 6 to 12 months after using such medication in real-world settings is continuing smoking. Undoubtedly, much smoker resistance to using cessation medication is due to many smokers learning from other smokers that the real-world experience of using these drugs does not produce outcomes that remotely compare with benchmarks for other drugs they use for other purposes. Few, if any, other drugs for any purpose with such records would ever be prescribed.

Despite massive publicity and (in some nations) subsidies given to NRT, bupropion, and varenicline during these decades, the additional tens of millions of persons (or hundreds of millions globally) who quit smoking in this time continued to dominantly include those who quit without pharmacological or professional assistance.^{8,9} For the congenitally optimistic, this is perennially explained as suboptimal reach or dissemination, with the solution being to facilitate greater access to assistance, improve smoker knowledge about the benefits of assistance, or further individualize treatment. However, after nearly 3 decades of the pharmaceutical industry's turbocharged effort to increase physician engagement and erode population resistance to pharmaceutical-based cessation, can there be any more serious rabbits left in that hat?

Corresponding

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It has been argued that NRT and smoking cessation medications are less effective under real-world conditions than in research trials.⁷ In Australia, data on real-world experiences with varenicline indicate stark differences from experiences under research conditions.⁷ For example, adherence is far lower; in Australia, 44% to 50% of patients who received subsidized prescriptions for varenicline failed to commence the last 8 weeks of treatment (no data were available to indicate what proportion of the remainder completed the last 8 weeks of treatment) in contrast to 12-week completion rates of 68% to 76% in clinical trials. Yet between January 2008 and October 2009, the Australian government spent \$93 million on varenicline prescriptions. This compares with \$59 million allocated over 4 years to social marketing campaigns designed to promote quit attempts in Australia. Given this relatively high spending on pharmacotherapy, it is essential to be realistic about its potential effects on population smoking prevalence and whether attention would be better focused on boosting the campaigns known to stimulate mass cessation.¹⁰

It may be time to place greater value on the lived experiences of the millions of ex-smokers who have successfully quit smoking, particularly in recent years. A 2013 national Gallup poll reported that only 8% of ex-smokers attributed their success to NRT patches, gum, or prescribed drugs.¹¹ In contrast, 48% attributed their success to

quitting "cold turkey" and 8% to willpower, commitment, or "mind over matter." Nearly 40 years earlier, a 1974 Gallup survey reported that most smokers would not attend formal cessation programs and preferred to quit on their own.⁶ Unassisted cessation has always been both the most preferred way of quitting and the method used by most ex-smokers on their final, successful quit attempt, yet quitting unassisted is routinely denigrated as being not "evidence based."

The 1964 US surgeon general's report kick-started the first significant and sustained period of antismoking activity and public consciousness of smoking and health issues. Compared with today's plethora of comprehensive tobacco control policies, the subsequent smoking exodus was driven by only a handful of antismoking policies. For many smokers, having a reason to quit (a *why*) was more important than having a method to quit (a *how*). The key may therefore be to focus on motivating more smokers to try to quit and to try to quit more frequently, regardless of whether these quit attempts are assisted or unassisted.

A recent review attempting to shed light on the apparent failure of contemporary obesity prevention policy and practice concluded that the fundamental flaw in obesity research is that "medicine today is taught untethered from its history."¹² Smoking cessation, in looking to its future, should not forget the ever-repeated important lessons from its past.

ARTICLE INFORMATION

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Despite help on offer, many smokers prefer to quit on their own – here's why

November 6, 2015 2.17pm AEDT

Authors



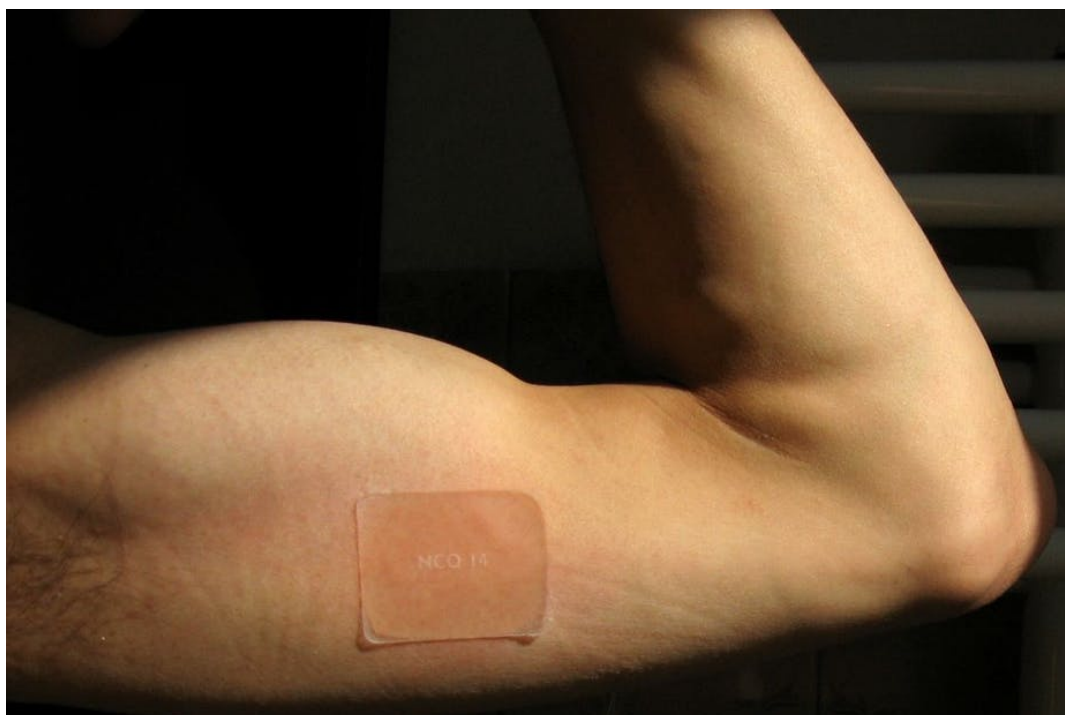
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Quitting on their own can help some smokers feel autonomous, independent and in control.

Skywalker++/Flickr, CC BY-SA

If you smoke more than ten cigarettes a day or have experienced cravings while trying to quit, your doctor has probably recommended a cigarette substitute such as nicotine patches or gum to help you.

But our research suggests most Australians don't want to quit smoking this way, and continuing to make these substitutes (pharmacotherapy) more affordable and readily available is not necessarily going to persuade smokers to quit.

Pharmacotherapies are government-subsidised and widely available to all Australian smokers. Nicotine-replacement therapy (such as gum) has been available from pharmacies since 1997.

Zyban®, an oral prescription drug to reduce cravings and other withdrawal symptoms, has been subsidised via the Pharmaceutical Benefits Scheme (PBS) since 2001. Champix®, a drug that reduces the pleasure from smoking, has been available since 2008. Patches have been subsidised on the PBS since 2011.

Even supermarkets and convenience stores have sold nicotine-replacement therapies since 2006.

This is all based on the assumption by researchers and health-care practitioners that if we provide smokers with effective interventions they will seek them out to quit smoking.

Turns out, they often don't. The majority of smokers in Australia still choose not to use assistance to quit. Approximately half to two-thirds quit unassisted and about half who attempt to quit do so unassisted.

The importance of experience

Our research tried to understand why this is the case. We found the knowledge of other smokers and ex-smokers was far more influential for people trying to quit than expert or research-based knowledge.

Smokers trade off the pros and cons of quitting with or without assistance. Unassisted quitting often wins as it is seen as a more convenient way to quit.

Smokers and ex-smokers trade stories about their experience of quitting, and have their own personal experience to draw on. This often conflicts with what they have been told about assistance by their doctor, pharmacist or through marketing by pharmaceutical companies.

Experts tell smokers that assistance will work. But when smokers try it, it often doesn't, or at least not in the way they expected. This is unsurprising, as the likelihood of succeeding in any single quit attempt is quite low, whether or not you use assistance. Most smokers will quit eventually, but only after a number of failed attempts.

If you quit without assistance, you have a **one-in-20 chance** of success. If you try quitting with assistance, your chance of success doubles, but that is still only a **one-in-ten chance**.

When the official message about quit assistance conflicts with their personal experience, smokers unsur-

prisingly give preference to their prior knowledge and that of other smokers.

The right way?

Researchers and experts tend to see **unassisted quitting** as the poor cousin to assisted quitting. But from a smoker’s perspective it has real advantages. It allows you to define yourself as a non-smoker straight away, instead of having a messy “treatment” period when you are neither a smoker nor a non-smoker.



Using assistance requires the adoption of new — but temporary — routines and habits. This feels like a waste of energy and attention for people who want to get on with establishing the habits and routines of being a non-smoker. For many, spending money on nicotine-replacement therapies, which would keep you addicted to nicotine, just did not make sense.

Smokers often talk about quitting unassisted as being “the right way” or “a better way” to quit. This contrasts with the dominant **health promotion** and medical discourse in **Australia** and the **United Kingdom**, which tends to frame quitting with assistance as being the better or more logical choice for smokers who want to quit. Some even frame quitting unassisted as being foolhardy or unwise.

Underlying these beliefs may be a set of values that certain smokers and perhaps society as a whole endorse. These include independence, strength, autonomy, self-control and self-reliance. Our research showed many smokers believe they have achieved something of value by quitting unassisted. They appear to take this achievement as an indicator of the strength of their moral character, or evidence of personal virtue.

Quitting smoking offers enormous health benefits. Some people need help to do it and it should be easy for them to access it. But it is not the be all and end all of quitting. Benefits of getting help vary and many smokers who try assistance will go on to successfully quit unassisted.

Our research shows that if health professionals want smokers to trust their advice, they would do well to do two things. First, avoid overselling smoking cessation assistance. And second, be careful not to buy into the idea that people who quit unassisted are “better people”.

 Smoking nicotine replacement therapy 

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Appendix B: Participant information sheet

Andrea Smith
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NSW 2006

How and why some smokers give up smoking without help

PARTICIPANT INFORMATION STATEMENT – INTERVIEW

(1) What is the study about?

You are invited to participate in a study exploring how and why some smokers successfully quit without any formal assistance. The results of this study will be used to develop a better understanding of how and why some smokers give up unassisted. It is anticipated that this study will help health promotion campaign planners understand how these people give up smoking. This information will be used to motivate and assist people who wish to give up smoking to do so successfully.

(2) Who is carrying out the study?

The study is being conducted by the Sydney School of Public Health, University of Sydney. Funding has been provided by the National Health and Medical Research Council (Project Grant Application APP1024459). Study investigators include Professor Simon Chapman, Dr Sally Dunlop, Associate Professor Stacy Carter, Dr Becky Freeman and Ms Andrea Smith.

(3) What does the study involve?

Participants will be asked to:

- take part in an interview that will explore any previous unsuccessful attempts at giving up smoking and their last, successful quit attempt.
- Interviews will take place by telephone or face-to-face, and will be recorded and transcribed. The data will then be analysed and common themes identified.

(4) How much time will the study take?

The interview will take between 1 and 2 hours.

(5) Can I withdraw from the study?

Being in this study is completely voluntary – you are not under any obligation to consent and – if you do consent – you can withdraw at any time without affecting your relationship with The University of Sydney.

You may stop the interview at any time if you do not wish to continue, the audio file will be erased and the information provided will not be included in the study.

(6) Will anyone else know the results?

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. Confidentiality of participants will be maintained by de-identifying all data collected and storing all identifying information separately in password protected files accessible only by the named researchers.

A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

Data will be stored for 7 years after completion of the study, after which electronic files will be deleted, audio files erased and paper files shredded.

(7) Will the study benefit me?

We cannot and do not guarantee or promise that you will receive any benefits from the study.

(8) Can I tell other people about the study?

Yes.

(9) What if I require further information about the study or my involvement in it?

When you have read this information, Andrea Smith can discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact her on 0405 622 525 (mobile) or andrea.smith@sydney.edu.au (email).

(10) What if I have a complaint or any concerns?

This research study has been approved by the Human Ethics Research Committee at the University of Sydney (reference number ID 15019).

Any person with concerns or complaints about the conduct of the study can contact:

- Manager, Human Ethics Administration, University of Sydney on +61 2 8627 8176 (telephone) or +61 2 8627 8177 (facsimile) or ro.humanethics@sydney.edu.au (email)

This information sheet is for you to keep

Appendix C: Participant consent form



Andrea Smith
Research Associate
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How and why some smokers give up smoking without help

PARTICIPANT CONSENT FORM – INTERVIEWS

I,[PRINT NAME], give consent to my participation in the research project

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, including any inconvenience and any questions I have about the project have been answered to my satisfaction.
2. I have read the Participant Information Statement and have been given the opportunity to discuss the information and my involvement in the project with the researcher/s.
3. I understand that being in this study is completely voluntary – I am not under any obligation to consent.
4. I understand that my involvement is strictly confidential. I understand that any research data gathered from the results of the study may be published however no information about me will be used in any way that is identifiable.
5. I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher(s) or the University of Sydney now or in the future.
6. I understand that I can stop the interview at any time if I do not wish to continue, the audio recording will be erased and the information provided will not be included in the study.

7. I consent to:
- Audio-recording YES NO
 - Receiving feedback YES NO

If you answered YES to the “Receiving feedback” question, please provide your details i.e. mailing address, email address.

Feedback option

Address: _____

Email: _____

.....
Signature

.....
Please PRINT name

.....
Date

Appendix D: Screening questions

Date	Excel <input type="checkbox"/>	Email / post / both: PCF <input type="checkbox"/>	PIS <input type="checkbox"/>
		Email / post / both: Interview conf. <input type="checkbox"/>	Etter <input type="checkbox"/>

Participant's contact details

Name

Address Postcode

Tel Mobile Email.....

Recruitment strategy

Where did you hear about the study?

- [1] Facebook (status update)
- [2] Twitter
- [3] Facebook ad
- [4] Flyer or word of mouth
- [5] Media – talkback radio
- [6] Media – print
- [7] Other

Personal information and demographics

Q1 Gender

- [1] Male
- [2] Female

Q2 What's your date of birth?

Q3 What is the highest level of education you have attained?

- [1] No formal schooling
- [2] Primary school
- [3] Junior high school (Years 7-10)
- [4] Senior high school (Years 11-12)
- [5] TAFE/Technical college
- [6] University OR
- [7] Another tertiary institution
- [8] Other (please specify)

Q4 Which of the following best describes your employment status?

- [1] Working full time
- [2] Working part-time or casual
- [3] Retired
- [4] Student
- [5] Home duties
- [6] Unemployed or looking for work
- [7] Other (please specify)

Q5 Roughly speaking, is your annual household income (before tax) more or less than \$60,000?

- [1] Less than \$60,000
- [2] More than \$60,000

Q6 And into which of the following ranges would your annual household income fall?

- [1] Up to \$15,000 (\$290 per week)
- [2] \$15,001-\$30,000 (\$290-\$580 per week)
- [3] \$30,001-\$45,000 (\$580-\$860 per week)
- [4] \$45,001-\$60,000 (\$860-\$1,150 per week)
- [5] \$60,001-\$75,000 (\$1,150-\$1,440 per week)
- [6] \$75,001-\$90,000 (\$1,440-\$1,730 per week)
- [7] \$90,001-\$105,000 (\$1,730-\$2,020 per week)
- [8] \$105,001-\$120,000 (\$2,020-\$2,300 per week)
- [9] Over \$120,000 (\$2,300 per week)

Screening questions – smoking status

Q1 Do you currently smoke cigarettes, cigars or pipes?

- No, not at all – go to Q2
- [1] Yes – IF YES, how often?
- [1] Daily – go to Q9
- [1] At least weekly (if not daily) – go to Q9
- [1] Less often than weekly – go to Q9

Q2 Over your lifetime would you have smoked at least 100 cigarettes or a similar amount of tobacco?

- [2] No – EXCLUDE, THANK THEM FOR TAKING THE TIME TO ANSWER THE QUESTIONS
- [3] Yes – go to Q3

Q3 How frequently were you smoking?

- [1] Daily – go to Q4
- [2] At least weekly (if not daily) – go to Q4
- [3] Less often than weekly - go to Q4

Q4 How many cigarettes per day / per week (or packs per day/ per week) were you smoking?

- [1] Fewer than 10 CPD (1/2 pack per day) - go to Q5
- [2] More than 10 CPD (1/2 pack per day) – go to Q5

Screening questions – time since quit and difficulty quitting

Q5a When did you give up smoking?

Date Number of years/months ago

- [1] Less than 6 months ago – EXCLUDE, THANK THEM FOR TAKING THE TIME TO ANSWER THE QUESTIONS
- [2] More than 6 months ago but less than 2 years ago – go to Q6
- [3] More than 2 years ago – EXCLUDE, THANK THEM FOR TAKING THE TIME TO ANSWER THE QUESTIONS

Previous quit attempts

Q6 Was this the first time you tried to quit?

- [1] Yes – go to Q7
- No – IF NO, how many times have you tried to quit before?
- [2] Less than 3 – go to Q6b
- [3] Between 3 and 10 – go to 6b
- [4] More than 10 – go to Q6b

Q6b On a scale of 1 to 10, if 1 is very easy and 10 is extremely difficult, how would you describe your last quit attempt?

- [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] – go to Q6c

Q6c Would you say that on your *last* quit attempt, quitting was:

- [1] Easier than you'd expected – go to Q7
- [2] Harder than you'd expected – go to Q7

[3] Pretty much as you'd expected – go to Q7

Screening questions – method of quitting

Q7 Thinking about [the LAST time you quit] OR [when you quit], would you say that you 'gave up on your own' or did anyone or anything help you to give up?

[1] On my own – go to Q8

[2] With help – go to Q8

Q8 We're interested in what people define as 'giving up on their own'. I'd like to find out if you used any of the following strategies [the LAST time you quit] OR [when you quit].

8a Complementary or alternative therapies, such as hypnotherapy or acupuncture?

[1] Yes – EXCLUDE, but go to Q8b

No – go to Q8b

8b Incentive schemes that encourage people to give up smoking, such as a quit smoking competition or an incentive scheme at work?

[1] Yes – EXCLUDE, but go to Q8c

No – go to Q8c

8c Self-help materials such as brochures, books, CDs, DVDs, internet sites, apps for mobile devices, or the Quitline?

No – go to Q8d

Yes – IF YES, did you use these self-help materials with the help or guidance of a health professional or counsellor? [DO NOT INCLUDE 'BRIEF ADVICE', i.e. VERBAL MESSAGE TO QUIT FROM DOCTOR OR NURSE]

[1] Aided by health professional or trained counsellor (includes using QuitCoach or follow-up support from Quitline) – EXCLUDE, but go to Q8d

Unaided by health professional or trained counsellor (includes calling Quitline or receiving Quitkit) – go to Q8d

8d Counselling sessions, either one-on-one or in a group?

[1] Yes – EXCLUDE, but go to Q8e

No – go to Q8e

8e Nicotine replacement products that you can buy from chemists or supermarkets, such as gum, lozenges, tablets, inhalers or patches [Nicobate, Nicotinell, QuitX, Nicorette], or that you can buy online, such as e-cigarettes?

[1] Yes – EXCLUDE, but go to Q8f

No – go to Q8f

8f Prescription medications such as Champix [varenicline] or Zyban [bupropion], or nicotine replacement therapy patches [Nicobate, Nicotinell, QuitX, Nicorette]?

[1] Yes – EXCLUDE, but go to Q8g

[2] No – INCLUDE, go to Q8g

8g Are there any other forms of help that you used that I haven't mentioned?

.....

FOR THOSE THAT MET THE SELECTION CRITERIA, ASK IF THEY'D BE INTERESTED IN FINDING OUT MORE ABOUT THE STUDY

Additional questions to screen for 'being serious'

Q9 What was it about the tweet or our website that made you decide to register your interest in the study?

.....
.....
.....
.....

Q10 Is there anything in particular about the study that interests you?

.....
.....
.....
.....

Q11 Do you believe 'being serious' is essential to quitting success?

Yes

No

.....
.....
.....
.....

Appendix E: Interview questions

Natural history of unassisted smoking cessation – Interview questions

Questions	Prompts
<p>1. Smoking history</p> <p>Tell me about when you first started smoking.</p> <p><i>[Interviewee will be asked to draw on a piece of paper a timeline beginning with when they started smoking]</i></p>	<ul style="list-style-type: none"> • Age when first took up smoking • Reasons for starting to smoke • Amount smoked • Situations in which they smoked
<p>2. Quitting history</p> <p>Have you ever tried to quit before?</p> <p>Show me on this timeline when you had a go at giving up smoking, no matter how short.</p> <p><i>[Indicate year/age when interviewee stopped and for how long; ask participant to include significant milestones on timeline, such as leaving home, getting married, having children as an aid to prompt recall of quit attempts].</i></p> <p>Tell me a bit about each of the times you quit.</p> <p><i>[For each quit attempt use prompts in next column as appropriate.]</i></p>	<p>For each quit attempt:</p> <p>Deciding to quit</p> <ul style="list-style-type: none"> • Describe the events that led up to you quitting • Tell me about anything that might have had an influence on your decision to quit • Had you been planning on quitting? <p>Deciding how to quit</p> <ul style="list-style-type: none"> • Tell me about how you quit – did you quit on your own, did someone help you or did you use anything to help you quit? What help did you use? • Tell me about why you decided to quit on your own/use [insert type of assistance] • Tell me about the attitudes or reactions of others to your decision to quit on your own/using [insert type of assistance]. Did anything anyone say or do affect your decision to quit or your quit attempt? <p>The quitting experience</p> <ul style="list-style-type: none"> • Tell me about your experience of quitting on your own/using [insert type of help]. Was it harder or easier than you had expected? • How did this quit attempt compare with your experience of previous quit attempts? • Tell me about anything that helped your quit attempt or hindered your quit attempt • How did your attempts to quit differ when you used [insert type of help] and when you tried to quit on your own? • Tell me about when you started smoking again. Why do you think you started smoking again? <p>For assisted quit attempts</p> <ul style="list-style-type: none"> • How did you think the [insert type of assistance] would help? How did this compare with your experience with it?
<p>3. Unassisted quitter's toolbox</p> <p>Imagine I'm about to stop smoking today. What advice would you give me about how I should quit?</p> <p>If I decided to quit on my own, what advice would you give me?</p>	<p>Strategies/techniques used to help quit unassisted</p> <ul style="list-style-type: none"> • Tell me about any situations or experiences that made quitting difficult? Or any situations that helped you to quit? • Who was most helpful to you during this time? How was he/she helpful? <p>Barriers to quitting</p> <ul style="list-style-type: none"> • social (e.g. friends who smoke) • psychological (e.g. stress relief) <p>Facilitators of quitting</p> <ul style="list-style-type: none"> • environmental (e.g. workplace smoking bans) • structural (e.g. tax increases) • personal (e.g. health, pressure from family, image) <p>Strategies/techniques to prevent relapse</p> <ul style="list-style-type: none"> • Tell me about any situations or experiences that make staying quit difficult? Or any situations that have helped you to stay quit? • Do you have any strategies/tricks to help out when you feel tempted to smoke? • Did your previous quitting experience affect how you handled your final successful quit attempt? • Do you think you will ever start smoking again? Tell me about that.

Questions, August 2015: UA or A quitters w previous quitting experience/attempts

Background: warm-up questions

1. Tell me briefly about your smoking – you've been smoking for about ... years

Broad questions: quitting (encourage telling a story/describing a person)

1. You've already mentioned this wasn't your first quit attempt. When did you first have thoughts about quitting?
2. Tell me about your next quit attempt?
3. On your final quit attempt, what did you want to achieve by quitting?
4. How did your last quit attempt differ from earlier quit attempts?
5. Tell me about quitting, how your thoughts about quitting changed (over the years)?
6. Could you have quit without the patches/e-cig?
7. Do you know anyone who's been serious about quitting? Can you tell me about them and how they quit?
8. Do you know anyone who's tried to quit but didn't succeed because they weren't serious/committed/determined enough? Can you tell me about them and why they failed?

Focussed questions: being serious, committed, willpower

1. Would you describe your last quit attempt as serious?
2. Were you serious from the start? Committed? How / when did you know you were serious?
3. When did you think, 'I'm going to succeed'?
4. How much of your success was due to you?
5. How much was due to internal factors and how much to external factors?
6. Was timing important? Was there anything about your life in mid/late 2013 that contributed to your success? Made it easier to quit?
7. What role, if any, did willpower play in your quit attempt? Did this differ from earlier quit attempts?
8. Is willpower enough to succeed? What else do you need to succeed?

Big picture questions

1. Imagine a friend or family member has asked you for advice on quitting, what would you tell them? How would you explain your success?

Is there anything else?

1. We've covered a lot, is there anything else you'd like to add or anything we haven't talked about that you'd like to talk about?

Original questions - have these been covered elsewhere?

1. Do they believe being serious is essential to quitting success?
2. Do they believe they were/weren't serious about quitting on this last successful quit attempt (and maybe compare to previous quit attempts)?

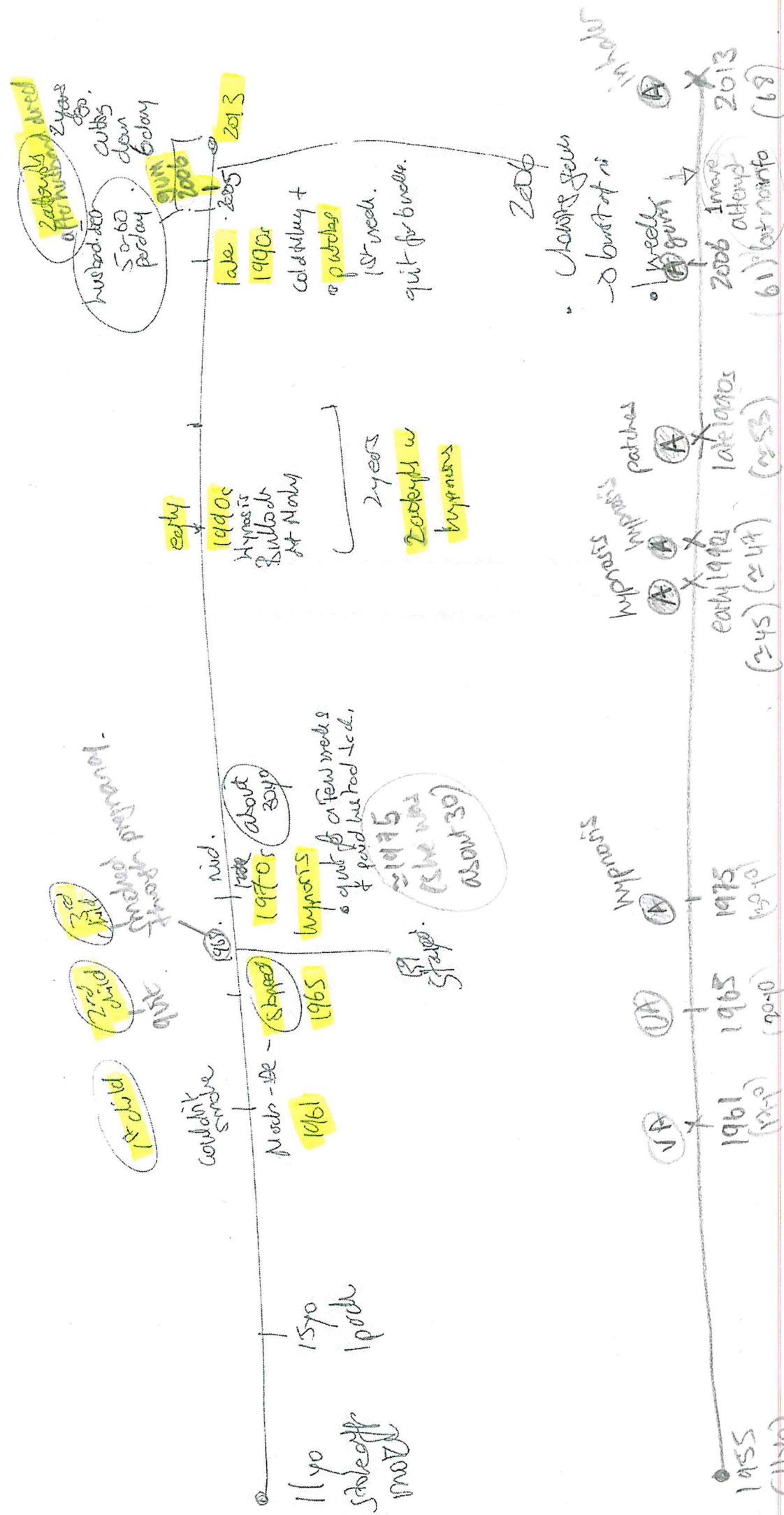
Appendix F: Sample smoking and quitting timeline from interview

Plan

DOB: Oct '44

Interview: 16 May 2013

- 68 yo
- quit 6 months ago
- Has quit previously
- found quitting v. hard



Appendix G: Etter's self-change questions

Instructions to study participants

1. Here's a list of things that you might do or things you might think about now that you've given up smoking.
2. Read the statements out loud, and then 'think out loud' as you choose the answer that best fits your situation AT THE MOMENT.

	Never	Sometimes	Fairly often	Very often	All the time
The thought of the diseases caused by smoking scares me					
I am afraid that smoking will give me lung cancer					
I think about the disadvantages of smoking					
The information on the risks of smoking gives me something to think about					
To deal with my craving for cigarettes, I concentrate on other things					
I keep busy to overcome the urge to smoke					
I take deep breaths to fight off the desire to smoke					
To avoid the temptation to smoke, I stay away from places where people smoke					
In public places, I sit in the no-smoking sections					
I ask other people not to smoke in my home					
I avoid situations which make me want to smoke					
I am proud to have quit smoking					
I feel a sense of accomplishment in having stopped smoking					
I feel stronger than those who continue to smoke					
I promise myself not to smoke ever again					
I tell others about my effort to quit smoking					
I think about ways of overcoming the urge to smoke					

Appendix H: Example of line-by-line coding of interview transcript

Facilitator: Can you tell me about why you didn't smoke in certain situations?

Interviewee: That's just something I imposed on myself. I imposed on myself not smoking in the office because that was a rule, not fair on others. I imposed the rule on my daughter, on my wife, not fair on others. So those were the...

Author
Comment: Imposing smoking rules on self

Author
Comment: Imposing rules about smoking at work

Author
Comment: Respecting right to be smoke-free

Author
Comment: Imposing rules about smoking around family

Author
Comment: Respecting right to be smoke-free

Facilitator: It was fairly clear-cut?

Interviewee: Yeah, absolutely. In my mind it was, yeah that's just not right. That kind of moral – I was brought up with a family of smokers. My mum and my father smoked around us all the time.

Author
Comment: Believing smoking around non-smokers is wrong

Author
Comment: Growing up with smoking parents

Author
Comment: Being exposed to cigarettes/smoke as child

Facilitator: Yeah how things change. So then how did you then finally get to the point when you decided to quit?

Interviewee: Yeah so it was that kind of 2012 where I was at uni, I was halfway through the uni and something in my body – something was going wrong with my body and I had – I was – I thought I had cancer. Because my father had cancer, he passed away with cancer. My – I've got [cancer] in my family and obviously I kept it to myself. I thought just literally, the moment cancer – it was then, it was the big health thing. I wasn't immortal anymore. Whoa.

Author
Comment: Feeling suddenly unwell

Author
Comment: Suspecting cancer

Author
Comment: Losing a parent to cancer

Author
Comment: Linking symptoms to family history of cancer

Author
Comment: Staying silent about health fears; protecting family from his fears

Author
Comment: Fearing the worst;

Author
Comment: Facing his mortality;

Author
Comment: Experiencing existential threat;

Then it was just right out and stop, no communication, no talk about

Author
Comment: Stopping smoking instantly [STOP vs QUIT: subtle difference]

it. It was just, stop. Didn't talk to anybody, didn't commit it to anybody

Author
Comment: Needing no encouragement/support;

except for myself.

Author
Comment: Acting alone;

Facilitator: Except for yourself?

Interviewee: It wasn't a commitment to me. It was just – again, just had to stop for

my wife and daughters, not immortal anymore, I've got responsibilities

Author
Comment: Quitting for his family's sake

and it wasn't a question of I've got to do this. It has to be done and

Author
Comment: Having responsibilities; realising smoking impacts on others

that kind of – the thinking of that, the cancer has kind of – it was

Author
Comment: Quitting is only option

definitely the trigger so yeah. Then kind of went to the doctor's and

Author
Comment: Reacting instantly to cancer scare;

had all the bloods and everything done and I told him my fears and

Author
Comment: Getting medical help

blah, blah. He says, well what are you doing at the moment, what are

Author
Comment: Sharing health fears with Dr

you doing outside of what you normally do? Blah, blah, blah,

Author
Comment: Getting diagnosed

studying. He goes, you're just stressing, it's stress related.

Author
Comment: Being told it's just stress

I remember that kind of – I was trying to get through a difficult exam

and I was really stressing about it and then once that was over,

Author
Comment: Studying; feeling stressed

everything just kind of – everything was normal again. But after that, I

Author
Comment: Returning to normality;

already said stop because of the cancer potentially...

Author
Comment: Sticking by decision to stop smoking

Facilitator: So who said stop?

Interviewee: Me.

Facilitator: So you said that.

Interviewee: I said stop. So it was a commitment to myself, it was not to others

Author
Comment: Telling himself to stop;

and there was no yearning or kind of use the word, craving. You

know when you're craving for a cigarette? No nothing. It was just cut

down on the social drinking or at home but I just didn't associate it

with having a cigarette. I think I broke that connection. Again, it wasn't

Author
Comment: Uncoupling drinking & smoking

– I wasn't aiming to do it, I wasn't planning to do it. It was just trigger

Author
Comment: Stopping unexpectedly; stopping without planning or preparation

was thought that something was going on, just literally stopped in its

Author
Comment: Existential threat triggers action;

tracks that day. That – the day.

Author
Comment: Stopping instantly

Facilitator: So one day you sort of thought I fear...

Interviewee: Body's – something in my body, something's wrong.

Author
Comment: Knowing instinctively something was wrong

Facilitator: Yeah, something's wrong and you immediately...

Interviewee: I went – because of my family background and then [unclear].

Author
Comment: Feeling at risk of cancer

Facilitator: You just didn't smoke from then on?

Interviewee: Just didn't smoke. Didn't even... can't remember the last cigarette.

Author
Comment: Quitting unremarkable

Facilitator: ...it wasn't as if you were saying this is it...

Interviewee: No.

Facilitator: ...pack's going in the bin?

Interviewee: No. It was just stopped. I didn't do any of that. I think I've still got a packet of cigarettes sitting in the drawer. It just stopped.

Author
Comment: Stopping suddenly

Author
Comment: Stopping mid pack

Author
Comment: Stopping rather than quitting

Facilitator: I know when you spoke to me on the phone you said it was surprisingly easy.

Interviewee: Yeah, really easy. Surprisingly easy. I didn't even think about how difficult it was going to be. Didn't even – didn't enter – I didn't plan for it, said what am I going to do. So back in the day, oh go to cinemas where you can't smoke, the exhibitions where you can't smoke.

Author
Comment: Quitting easily

Author
Comment: Unconcerned about challenges of quitting

Author
Comment: Quitting without preparation

Facilitator: So you didn't need to do any of those strategies.

Interviewee: Didn't need any of that. It was – mine was a big event, big trigger, was the...

Author
Comment: Leveraging quitting off significant event

Facilitator: All right. So once you found out that it wasn't cancer, that it was just stress related, did you think about revisiting that decision to quit?

Interviewee: I've done it.

Facilitator: You've done it and...

Interviewee: I've literally done it so probably between the time when I went oh, cancer, that day to when I kind of found out it was kind of stress

related, probably about a week, maybe a week and a half. Haven't

Author

Comment: Stopping instantly; standing by decision to stop

even told my wife about how I was feeling in terms of that trigger, that

cancer. Yeah only told my wife about going to the doctor's, I'll deal

Author

Comment: Keeping cancer fear from wife

Author

Comment: Telling wife about seeing Dr

with that appointment when it comes to going to the doctor's. I

Author

Comment: Coping on own

remember kind of walking home from the doctor's and then I told my

wife about what I'd done, about going to the doctor's and thought I

had this. Yeah so I hadn't literally talked to anybody about the cancer

Author

Comment: Telling wife about cancer fear

fear.

Author

Comment: Keeping quiet

Facilitator: Did you tell your wife you'd stopped smoking?

Interviewee: No.

Facilitator: No.

Interviewee: She - I think it was about – because again I wouldn't smoke in front of

her. It was only when she'd gone to bed, I'd go out for a cigarette,

wash my hands and do everything. So she actually didn't notice

Author

Comment: Smoking under controlled conditions

anything. If we were out socially and the daughter wasn't there, she –

Author

Comment: Wife unaware of quitting

that's right. She was also pregnant at the time with – yeah that was right, she was pregnant so I wasn't smoking around her anyway.

Author
Comment: Wife pregnant; abstaining around wife

Then she said something about smoking, and I said well I haven't smoked for about three months. She went, what? I haven't smoked for three months. She was like, oh. She didn't know. I didn't feel I

Author
Comment: Finding out he'd quit

needed to communicate – I don't think she knew how much I smoked previously so yeah, it was – as before, I communicated, I felt I had to

Author
Comment: Telling irrelevant as didn't smoke round wife

deliver – to succeed for others. It wasn't about that. It was me, that I

Author
Comment: Telling would increase pressure

had to – me and my family, that I had to have, you know,

Author
Comment: Quitting for my family

responsibility to me and my family. I'm not immortal. I've got

Author
Comment: Quitting my responsibility

dependencies.

Author
Comment: Recognising vulnerability; recognising responsibility to family, quitting assumes new meaning; quitting becomes relevant

Appendix I: Example of coding tree from NVivo

Natural history of unassisted

File Home Create External Data Analyze Query Explore Layout View

Go Refresh Open Properties Edit Paste Copy Merge B I U A Paragraph Sty

Workspace Item Clipboard Format Paragraph Sty

Nodes

Look for: Search In Coding - the proc Find Now

Coding - the process of quitting

Name

- Reasons for quitting unassisted
 - Internal
 - Perceiving smoking-quitting to be a personal problem
 - Believing in ability to do it themselves (self change)
 - Believing assistance is for weaker, more addicted, less committed smoker
 - Using help is cheating
 - Equating quitting unassisted with being serious
 - Taking pride in doing it the hard (proper) way
 - Wanting to be nicotine free, drug free or 'prop' free
 - Believing using assistance won't bring long-term success
 - Drawing on or building on previous experience quitting UA
 - Seizing the moment
 - Dismissing or foregoing assistance owing to past personal experiences
 - Quitting isn't a medical condition
 - Quitting requires an investment in personal effort - quitting without help is of less value
 - Being scared of seeing GP - knowing what they'll say OR fearing what they'll tell them
 - External
 - Seeing others fail when using assistance
 - Receiving advice to quit on own
 - Not knowing about assisted options
 - Not wanting to spend time or money to quit
 - Fearing or experiencing potential side-effects of NRT or SSM
 - Hearing or reading negative information about assistance
 - Seeing or hearing about others succeeding cold turkey

Sources

Nodes

Appendix J: Sample participant memo

Alexandra

Age	50
Education	University
Household income (before tax)	\$60-75K
Location	Lovett Bay, NSW
Years as smoker	35 (quit for 3 years after 3 rd pregnancy)
CPD	<10 CPD
No. of previous quit attempts	1 major (lasting 3 years); several short
Previous attempts A or UA?	A (Champix prescribed for smoking and also for depression; NRT gum)
Ease of quitting	Easier than expected
Reasons for quitting	Previous quit attempt: falling pregnant with third child Last quit attempt: wanting to be non-smoker/tired of being smoker; didn't want to be 50 and smoking

Alexandra had been a smoker for 35 years. She smoked through two pregnancies, giving up owing to social pressure during her third pregnancy and staying quit for 3 years, before 'falling back' into smoking unintentionally. She had tried quitting numerous times, mainly unassisted, but with one major assisted quit attempt that lasted 3 months using Champix. The quit attempts had all been inconsequential, and never lasted more than a few days or weeks (she was vague about this) – almost as if she was constantly drifting in and out of being a smoker. Although she used Champix she did so in the hope that it would compensate for her lack of commitment to quitting. She hoped that it would somehow transform her into a non-smoker – it would replace the need for any effort on her part.

Alexandra had been planning to quit for over a year – and had set a date, her 50th birthday. Despite years of unsuccessful quit attempts (both UA and A) she had reached the point where she was looking forward to being a non-smoker. She was tired of being a smoker, she didn't want to be '50 and still smoking'. Health didn't seem a major concern or driver for quitting – she has a chronic autoimmune condition, and had regular lung function tests, but didn't feel her decision to quit had been driven by fears for her health. She did acknowledge being affected by the anti-smoking adverts. She had been actively seeking information about quitting, had been conscious of information about the harms of smoking – she was in a heightened sense of awareness for the year before quitting. She appeared to be sensitising herself to all the negatives about smoking and the positive about quitting. Lots of self-talk, reinforcing that this was a serious quit attempt, that she would not let herself back-out, fail, give in. She had consulted a friend who was a smoking cessation counsellor for advice, and had been given lots of useful info on planning strategies, imagining how she would deal with stressful situations, and about key points in the quit attempt (that the nicotine will have left her body at xx days, that xx weeks and xx months are difficult points etc. She was clearly receptive to information about smoking and quitting – unlike other quitters, the anti-smoking ads had had a positive impact on her (few other quitters have said that they were useful or relevant – most claimed that they annoyed them). She had moved from being a happy smoker to wishing to rid herself of what she now regarded as a disgusting habit. She had rephrased it as an addiction – she told her family that she was addicted to smoking.

Once quit she found that she barely needed to use the strategies that she had in place. The process of visualising herself in these situations, planning what she would do in these situations had been enough to take the edge off them. Quitting wasn't as difficult as she had believed it would be; craving (which she couldn't recall having difficulty with) were manageable or almost non-existent.

What is interesting to me?	Why is this interesting to me?	Why is this of interest to the project? What does it tell us about unassisted cessation?
A serious quit attempt could only be quitting on her own	The method of quitting was important to her – it added significance/weight/gravity to the quit attempt, and in her mind this was a serious quit attempt (and not just because it succeeded – she had been psyching herself up to this for over a year.	Few differences are emerging between quitting UA or A, but for some quitting UA is important – it's not ad hoc, a random choice. It is deliberate, intentional, planned. Will we hear smokers who quit on their own voicing similar (but opposite) sentiments? That when they were serious they knew that it was time to get all the help they could, ie to take NRT or SSM?
Quitting was important to her – failure simply wasn't an option	The power of motivation, commitment and willpower to make a quit attempt succeed. Many interviewees talk in these terms – Gregory, Jane, Mel, Patrick	The method is almost immaterial – it's about what got you to the point of quitting.
Previous attempt with Champix wasn't regarded as serious because she wasn't committed to being a non-smoker	She tried Champix because she thought it might compensate for her lack of commitment or motivation to being a non-smoker.	Prior assisted quit attempts had been half-hearted and the use of Champix/NRT gum had been tokenistic – she had gone through the motions hoping that it would rid her of her desire to smoke (and not just control her immediate cravings to smoke). Use of NRT/SSM may be related to a belief that the medication might perform some magic – that it might have the ability rid her not just of the craving to smoke of the desire to be a smoker. [NB are they being honest? Did they really believe NRT/SSM would work this way or were they merely grasping at straws]. See Emma Beard's thesis for refs on how smokers over-estimate the effectiveness of NRT: 'Many smokers also appeared to be overly optimistic about what NRT could achieve. This resulted in an underestimation of the willpower required on their part.' {Beard 2012} [NB I would say the word Beard should have used is 'effort' rather than willpower] 'A significant number of smokers hold strong expectations about the use of NRT for smoking cessation, such as its ability to completely eliminate all urges to smoke' {Bansal 2004}{Vogt 2008}{Juliano 2002} Beard also claims that in the health literature, pts tend to overestimate efficacy of treatment – she cites 2 cancer studies). Interesting point – I'd argue that this 'overestimate of efficacy' is due to pharma and SSS clinics direct-to-patient advertising/promotion of their services, especially when they promote their effectiveness by disparaging UA quitting ('double your chances').

Andrea Smith 14/1/18 4:53 PM

Comment:
Comment added 13 Jan 2016
 It is only in hindsight, looking back that a smoker can say that these earlier attempts weren't 'serious'. It is only when you successfully quit that you become fully aware of what is required of you. It's hard to be serious if you haven't had that experience. So maybe it's not about being serious, but being in a position that allows you 'to be serious', and you only get there with prior experience of UA and sometimes A quitting, and reflection about why you smoke/want to quit. Does 'being serious' actually mean 'being adequately prepared, experienced'? [the obvious exceptions are the spontaneous quitters, those who have such a strong WHY that the HOW becomes immaterial (i.e. they don't need to have done any prep work, they don't need to think about how to quit, they just do it.) It's only looking back that you can see how much effort is actually required to quit; those who quit more easily than anticipated may have a fortuitous set of circumstances, the right social and environmental conditions to support their quit attempt, to make the HOW easier so that even a less dramatic WHY might succeed (when previously it hasn't).

She re-framed her smoking as an addiction	Did this add to her resistance to use NRT? She believed viewing herself as an addict had helped her focus on the importance of quitting – in which case maybe this precluded using NRT/SSM. She not only wanted to be a non-smoker but she also didn't want to be an addict.	
Talk about quitting to other smokers	Smokers who use assistance appear to use it as a means of garnering sympathy – 'look at me, what a bad time I'm having'. Quitting is so hard; look at the pain I'm going through	Again, smokers don't seem to have constructive conversations about quitting. If they do talk about quitting, it's more along the lines of 'you've tried' now give it away and let yourself have a cigarette.

References

Beard EV. Smokers' attempts at 'harm reduction'; their effectiveness and associations with cessation. 2012;
 Bansal MA, Cummings KM, Hyland A, *et al.* Stop-smoking medications: Who uses them, who misuses them, and who is misinformed about them?. *Nicotine & Tobacco Research* 2004; 6:S303-10.
 Juliano LM, Brandon TH Effects of nicotine dose, instructional set, and outcome expectancies on the subjective effects of smoking in the presence of a stressor. *Journal of Abnormal Psychology* 2002; 111:88.
 Vogt F, Hall S, Marteau TM Understanding why smokers do not want to use nicotine dependence medications to stop smoking: Qualitative and quantitative studies. *Nicotine & Tobacco Research* 2008; 10:1405-13.

Appendix K: Sample from PhD journal

July 2015

Toftgard: Is spontaneous quitting underrated? Sweden

6 July 2015

Toftgard concludes similar rates of unplanned quitting in Sweden to UK, Canada and US. But Toftgard uses West and Sohal's questionnaire, so not surprising. Provides useful angle as to why this research is important, in that it challenges what TTM claims, ie that preparation and contemplation are stages a smoker passes through before quitting.

Toftgård M, Gilljam H, Tomson T. Pathways to Smoking and Snus Use Cessation--Is Spontaneous Quitting Underrated? Open Epidemiology Journal 2010;3:20-3

'Our **knowledge about the process of stopping smoking** is extensive but it stems mostly from **clinical trials involving pharmaceuticals** [1]. Most smokers do not seek formal cessation help and **knowledge about factors that impact smoking cessation among self-quitters is limited** [2, 3]. In particular, the **occurrence and significance of planning quit attempts has not been thoroughly made clear**, being more or less **implied** in aided smoking cessation.

Since the 1980's the dominating behavioural change theory in the field of smoking cessation has been the Transtheoretical model [7]. According to this model an intention to quit will progress to complete cessation through a number of defined stages: Precontemplation (not considering change), Contemplation (considering change), Preparation (planning change), Action (first six months after change) and Maintenance (more than six months after change). However, the relevance of the Transtheoretical model has been challenged on several grounds, both as to descriptive purposes and as a guide for aided smoking cessation [8]. In surveys from Canada, the United Kingdom and the United States, **37-52% of the smokers and ex-smokers reported to having quit spontaneously without any preplanning** [9-12]. In other words, these **smokers quit without passing the Preparation stage** of the model. Furthermore, these unplanned quit attempts appeared to be significantly more likely to be successful than those that were planned in advance. **The Contemplation stage has to our knowledge not been challenged in the same manner previously.**

The aim of this study was to investigate to what extent smokers and snus users in Sweden consider and plan their quit attempts in advance, and to assess if the presence or absence of prior consideration and planning is associated with long-term success.'

'In other words, these attempts could be described as if the smoker or snus user **suddenly got an impulse to quit and immediately went into action**. According to other studies this impulse would typically be a health related event such as an asthma attack, but even quite trivial events such as a temporary shortage of cigarettes can be triggers for successful spontaneous quitting [9, 12].'

I'd say this was opportunistic rather than spontaneous (no preparation, no contemplation):

- In one sense this is correct; the smoker does **suddenly** get an **impulse to quit and puts it into action**; but to say that it is totally out of the blue is inaccurate. Closer examination reveals many smokers have undergone a protracted period in which they are contemplating quitting. So Toftgard's claim that smokers bypass the TTM's contemplation stage is not necessarily correct. Similarly, many have actually engaged in preparation: it might not be clearly measurable physical signs of preparation as much of it is actually mental preparation, but we clearly saw evidence of preparation in our data analysis.
- We only identified a minority of smokers who you could truly classify as having bypassed contemplation and preparation. What our data analysis shows is that these stages can be very long and there is considerable variation between smokers. The issue with the TTM is that it tries to quantify how long each of these stages is, and in so doing tries to force a highly variable process into a set of stages.

Balmford: Use of NRT can make smokers believe being a non-smoker is a reality

6 July 2015

Prior quitting experiences (in this case A) can open up possibility of becoming a non-smoker.

Balmford J, Borland R, Burney S. Exploring discontinuity in prediction of smoking cessation within the precontemplation stage of change. *Int J Behav Med* 2008;15:133-4

This ties in our suggestion that assisted quit attempts help smokers to become aware of what is possible; it shows smokers how urges can be controlled, and that it opens up the possibility that quitting might be possible for them, that being a non-smokers could be a reality (something they may have never previously have believed in).

*'Research is needed to discover what factors are predictive of progress among those who are notionally engaged with the idea of quitting. We did not ask about barriers to quitting and self-efficacy, which are plausible predictors. While the TTM does not posit a predictive relationship for self-efficacy among pre-contemplators (DiClemente, Prochaska, & Gilbertini, 1985), Segan et al. (2006) found self-efficacy to be predictive of stage progression among a group of pre-contemplators who had been in a more advanced stage of change three months earlier. **Intervention strategies that provide a renewed sense of the possibility of quitting** are likely to be most effective among this group. One option could be to encourage experimentation with nicotine replacement therapy to experience how urges to smoke can be controlled.'*

WHO summary of what a smoker needs to do before they can quit

8 July 2015

<http://www.who.int/tobacco/quitting/background/en/index1.html>

'Quitting tobacco is the best thing that tobacco users can do to protect the health of themselves and others. Tobacco users need to absorb two beliefs to make themselves ready to quit. They are:

- 1 Quitting is important to me and I want to be a non-tobacco user.
- 2 I have a chance of quitting successfully.'

These pretty much reflect what our **take-home message is about how successful UA quitters succeed**: they have reached the point where quitting is important to them, they want to be a non-smoke and, importantly, they believe they have a chance to quit successfully.

Segmentation of smokers: different messages / support for different smokers

16 July 2015

Cheong Y, Yong H-H, Borland R. Does how you quit affect success? A comparison between abrupt and gradual methods using data from the International Tobacco Control Policy Evaluation Study. *Nicotine & Tobacco Research* 2007;9:801-10.

*'We conclude that **cold turkey** is the **preferred** method of quitting and that with caution it should be the **recommended method for initiating quitting for smokers who intend to do so on their own**, as it leads to better outcome in terms of quit rate and relapse prevention. This **conclusion should not be extrapolated to specific structured programs**, for which evidence indicates that in some cases structured cut-down strategies can be at least as effective.'*

Different messages are necessary for different smokers/types of quitter

Cheong's conclusion also provides support for the proposition that we may need to tailor smoking cessation advice to meet the needs of different smoking populations. By this I don't mean the 'usual' smoking populations. Traditionally have thought only in terms of segmenting smokers according to gender, SES, youth, pregnant, ATSI, CALD, but one of the major unacknowledged segmentations relates to how the smoker wishes to quit. Progress may be hampered unless we acknowledge that smokers often have an inherent preference for quitting one way or the other, and that it may actually be more difficult to change this perspective than has previously been suggested. Even after delivering effective, affordable smoking cessation interventions, many smokers will choose to quit on their own, for multiple, complex reasons that are likely to be difficult to influence.

Possible take-home message for end of 'Decision to quit UA paper'

Could also be set up for a social marketing paper: making an argument for segmentation

****Hughes: quant support for our data showing complexity of quitting** 28 July 2015

Hughes JR, Solomon LJ, Naud S, Fingar JR, Helzer JE, Callas PW. Natural history of attempts to stop smoking. *Nicotine Tob Res* 2014;16:1190-8.

'This study provides a prospective, fine-grain description of the incidence and pattern of intentions to quit, quit attempts, abstinence, and reduction in order to address several clinical questions about self-quitting.'

'Cessation is a more chronic, complex, dynamic process than many theories or treatments assume.'

'Our results also suggest many quit attempts are unplanned and of very brief duration, and thus, treatment systems that allow treatments to be applied very quickly (e.g., by mobile phone) need to be developed.'

Introduction

*'Despite the implementation of many public health and tobacco control interventions, **the incidence of quit attempts** in the United States has **not reliably increased in the last 20 years** (Malarcher, Dube, Shaw, Babb, & Kaufmann, 2011). Clearly, **we need new interventions**. One factor impeding the development of new interventions is a **paucity of understanding of the natural history of quit attempts** (Klingemann et al., 2001).*

*Some models of quit attempts assume that smokers make **a clear decision to quit and set a future quit date** (Prochaska, DiClemente, & Norcross, 1992). Other descriptions suggest **quit attempts are sudden and spontaneous, largely devoid of anticipatory planning** (Larabie, 2005).*

*Although there are descriptions of the postquit attempt process (Hughes, Keely, & Naud, 2004), these typically use **abstinence initiation and lapse/or relapse as the outcomes and do not examine the processes leading to a quit attempt** or occurring after a lapse/relapse. Most also measure smoking, intentions, and so forth only weekly or monthly and **typically examine treatment seekers**.*

*To our knowledge, the only **prospective, day-by-day descriptions of quit attempts in a real-world setting** are two small, brief studies we conducted (Hughes et al., 2013; Peters & Hughes, 2009). These two studies found **intentions to quit smoking often change on a daily basis**, and many smokers repeatedly and rapidly transitioned among smoking as usual, abstinence, and reduction states, even within a month. This study adds to these studies by using a larger sample size, a longer duration of monitoring and including new measures. This analysis focuses on several **specific questions about self-quitting**, which are outlined in Table 1.'*

Results (see Table 4 below for full list of findings)

2. Intentions to not smoke the next day often did not result in a quit attempt (16%), but most intentions to quit in the next week or month did so (60% and 62%). Intentions were strong prospective predictors of quit attempts and abstinence (odds ration 3.3–35.0). Setting a quit date was rare (21%) and showed a nonsignificant trend to predict greater abstinence.

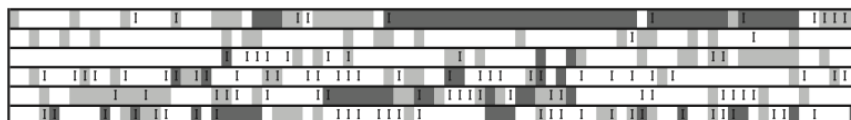


Figure 2. Examples of multiple transitions across intention, smoking, reduction, and abstinence states for six participants. Columns represent days of the study. Rows represent individual participants. Black boxes represent a day of intentional abstinence. Gray boxes represent a day of reduction in cigarettes/day by $\geq 50\%$. An "I" represents a day in which, on the night before, smokers reported they planned not to smoke that day.

Table 4. Major Findings

1. Most smokers had multiple, and often rapid, attempts to stop or reduce during the 12 weeks.
2. Intentions to not smoke the next day often did not result in a quit attempt (16%), but most intentions to quit in the next week or month did so (60% and 62%). Intentions were strong prospective predictors of quit attempts and abstinence (odds ratio 3.3–35.0). Setting a quit date was rare (21%) and showed a nonsignificant trend to predict greater abstinence.
3. Most smokers (60%) attempted to quit or reduce multiple times during the study.
4. The longest quit attempt lasted less than a day on 48% of quit attempts. Few (18%) were abstinent at the end of the study.
5. Three fourths of quit attempts (72%) were unplanned (i.e. were not preceded by an intention not to smoke the next day). Planned quit attempts lasted longer (25 days vs. 1 day) than unplanned quit attempts.
6. Use of treatments was common, and treatment was nonsignificantly associated with greater abstinence (14 days vs. 3 days).
7. Quitting and failing early on predicted increased, not decreased, quit attempts later (86% vs. 67%). Repeat quit attempts were not less successful than the initial quit attempt.
8. On a retrospective survey, smokers often (17%) failed to report brief quit attempts.

Discussion (see my comments in review pane)

'In this prospective study, the large majority (72%) of quit attempts were preceded by an intention to smoke the next day. In most prior retrospective studies, the proportion of quit attempts that were not preceded by an intention to quit was smaller (37%–52%) than in our study (Cooper et al., 2010; Larabie, 2005; Sendzik, McDonald, Brown, Hammond, & Ferrence, 2011; West & Sohal, 2006). This discrepancy may be due to recall bias (i.e., smokers forget many quit attempts) and perhaps this is especially true for quit attempts not preceded by planning (Berg et al., 2010; Borland, Partos, & Cummings, 2012; Borland, Partos, Yong et al., 2012; Gilpin & Pierce, 1994). Another possibility is our use of a different intention question. Prior retrospective studies have used either open-ended questions (Larabie, 2005; Murray, McNeill, Lewis, Britton, & Coleman, 2010), asked about "planned" quit attempts (Ferguson, Shiffman, Gitchell, Sembower, & West, 2009; Sendzik et al., 2011; West & Sohal, 2006) or asked how long before the attempt smokers chose a quit day (Cooper et al., 2010).'

'This prospective study found quit attempts preceded by an intention not to smoke (i.e., similar to planned quit attempts) were much more likely to be successful than those preceded by an intention to smoke (i.e., similar to unplanned quit attempts). In contrast, retrospective studies have found that unplanned quit attempts were as successful, and, in several cases, more successful, than planned quit attempts (Cooper et al., 2010; Ferguson et al., 2009; Larabie, 2005; Sendzik et al., 2011; West & Sohal, 2006). One possible reason for this discrepancy is, again, recall bias in the retrospective studies such that many brief quit attempts were forgotten, or our question wording. Clearly, further "prospective" tests of the outcomes of planned versus unplanned quit attempts are needed (Hughes & Callas, 2011).'

Quitting is a process not a state

29 July 2015

Understanding quitting: so how much quitting is going on and what does it look like?

Compared with quitting, measuring smoking (which is a state, you are either a smoker or non-smoker) is relatively easy (point prevalence, prolonged abstinence, biochemical assay measuring conitine); in comparison measuring 'the process' of quitting is more complicated. Exactly because it is a process, that takes place over time, often years, yet can happen suddenly, unexpectedly. It doesn't appear to follow a specific trajectory; it is different in every smoker. Yet popular behaviour change models depict quitting, as a linear, fairly rationale process with defined stages and steps (SOC, theory of planned behaviour change). In reality it is messy and difficult to understand, both from the smoker's perspective and from the researchers' perspective. It presents considerable challenges as to how it is measured and quantified, and consequently, as to how we interpret the findings of such research and the conclusions we draw. For example, take the dilemma over spontaneous vs planned quitting and that spontaneous appears to be more common and more effective; goes against current guidelines. So do we recommend smokers stop planning their quit attempts? Stop setting quit dates? Or, given our focus on providing pharmacotherapy (which we are very keen on as we know it 'works') do we put in place a system whereby pharmacotherapy is available almost instantly, at the point at which a smoker decides to quit - that they can get 'emergency' access to smoking cessation pharmacotherapy. This unfortunately overlooks the emotions and desires that might be driving these spontaneous, out of the blue quit attempts, that they may arise as a result of a particular set of emotions in the smoker, increased self-efficacy, a momentary spike in motivation to quit. These very emotions are the ones that might make the smoker more determined, more set on quitting on their own. By removing the

Andrea 14/1/18 5:16 PM

Comment:

Comment added 28 July 2015

In other word 72% were unplanned; Hughes notes this is higher than for Larabie and West etc who report 37-52% of quit attempts were unplanned.

Andrea 14/1/18 5:16 PM

Comment:

Comment added 28 July 2015

Retrospective studies reporting prevalence of quit attempts

Andrea 14/1/18 5:16 PM

Comment:

Comment added 28 July 2015

Hughes compares type of question re planning: open-ended in Larabie 2005 and Murray 2010; 'planned' in BMRB question (West 2006; Ferguson 2009; Sendzik 2011)

Andrea 14/1/18 5:16 PM

Comment:

Comment added 28 July 2015

Hughes found planned quit attempts were more likely to be successful than unplanned quit attempts; this is different from what West 2006 reported

Andrea 14/1/18 5:16 PM

Comment:

Comment added 28 July 2015

Studies reporting on EFFECTIVENESS of unplanned; Cooper 2010; Ferguson 2009; Larabie 2005; Sendzik 2011; West 2006 all reported unplanned was more successful

Andrea 14/1/18 5:16 PM

Comment:

Comment added 28 July 2015

Says recall bias might account for difference in effectiveness reported in retrospective vs prospective studies; no mention of possible role attribution bias might play.

'on your own' component you may actually be robbing the quit attempt of its energy, of its momentum and drive, you may even risk putting smokers 'off' quitting if they felt that they had to use assistance. We are failing to understand the smokers' perspective and how they view their quit attempt and how they see assistance fitting in with their quit attempt. Many, many successful smokers have used assistance on previous quit attempts, but many opt to quit on their own after having tried assistance. Why? Our BMJ Open paper shows how complex this issue is - that it is tied up with identity, with how a smoker wants to see themselves (and how they want others to perceive them), with distrust over medications, with the inconvenience associated with using assistance. So how do we reconcile ourselves to the fact that what we know works might be of little interest to the smoker at that very point in time they feel most motivated to act on their intentions to quit? Current research highlights how complex this issue is, and suggests that we have a lot still to understand, and that we are going to have to get more sophisticated in how we think about quitting, how we research quitting, and consequently how we go about encouraging and supporting quitting.

And even though smoking status is clearer, it has the disadvantage of needing to wait a long-time before you can measure (minimum of 6 months), so many evaluation campaigns assess their impact by measuring:

- Quit intentions;
- Quit attempts;
- Progression through stages of change (pre-contemplation to contemplation; contemplation to action; action to maintenance)

Guidelines that encourage planning: MPOWER

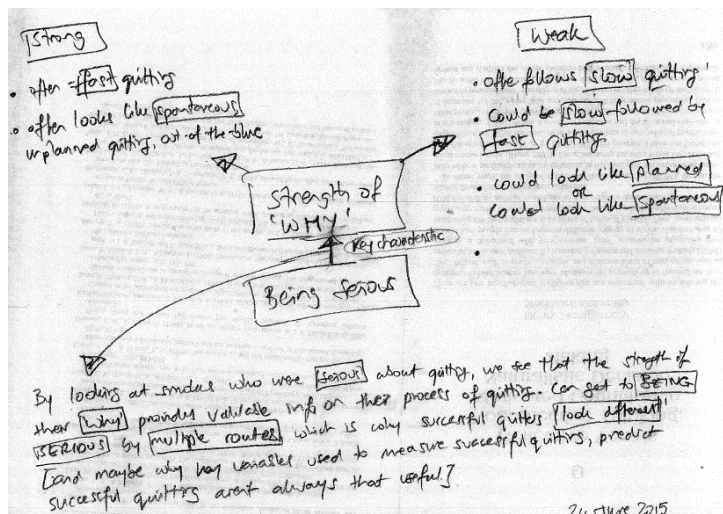
30 July 2015

Policy in UK and to a lesser extent in US and Australia, encourage all smokers to use assistance. Clinical practice guidelines; stop smoking clinics in UK; WHO MPOWER = Offer support to quit, and they promote STAY (set quit date; tell friends) and use of SOC-based 5As by GPs (3rd A is 'assess' patient's SOC).

Do all three quitting typologies involve being serious?

31 July 2015

After meeting with Stacy and Sally 31 July; Stacy was asking if we could say anything about being serious. I thought not (too hard, too muddled) but then found this diagram I'd sketched on 24 June while working on quitting trajectories paper.



I think being serious is a key characteristic of the quit attempt. I think it is related to the strength of the smoker's reason for quitting (their WHY quit). A strong WHY makes being serious easier (which is

what we are seeing in fast quitters). Slow quitters don't have such a strong WHY, making being serious more difficult, more effortful (or more variable? Is it something that comes and goes? This seems to tie in with what we were saying about how 'being serious' might be a better way of talking about quitting than 'willpower'; it is less personal and judgemental because it is a characteristic of the quit attempt rather than the smoker).

Simon has always claimed it is the WHY (the reason for quitting) rather than the HOW (the method, i.e. use or non-use of smoking cessation assistance) that is driving a successful quit attempt. Although I think this is sort of true, it is not the whole story as many quitters successfully quit when their situation seems at face value to be very similar to when they previously tried and failed (especially the slow quitters). It is probably fair to say that it is true for fast quitters (in particular 'spontaneous' quitters and many of the 'opportunistic' quitters).

Slow quitters don't have as strong a 'WHY' as fast quitters. Having a good WHY isn't always enough. Or maybe it is when it is a good WHY, but if you have a WHY that comes and goes, that it is important to you one day but not the next, it has dropped down your list of priorities, and so it isn't enough to quit. This is sort of reflected in 'being serious' about quitting (rather than having enough willpower to quit). [NB: does this tie in with agenda setting theory and 'getting quitting onto today's to do list? Ref?]

So what is it that is making this quit attempt different? It's not just the WHY because for many quitters (especially the slow moving, effortful 'measured' quitters) nothing really appears to have changed. For these quitters the WHY isn't enough and they have to invest effort and energy (often mental energy) into the quit attempt, and this can be exhausting because it requires consistent effort over a long period of time.

I think this is where being serious comes in. The strength of your WHY determines how serious you are. If you have a strong WHY it's easier to be serious about quitting. Otherwise you have to work at it, put in more effort, make quitting personally important and relevant, elevate it to being something that is worth aspiring to, worth achieving.

From diagram:

By looking at smokers who were serious about quitting, we see that the strength of their WHY provides valuable info on their process of quitting. You can get to BEING SERIOUS by multiple routes, which is why successful quitters LOOK DIFFERENT (or at least their trajectory does) from each other (and maybe why key variables used to measure successful quitting predict successful quitting but aren't always that useful).

Appendix L: Sample page from Memo journal

Ingrid had always been confident in her ability to quit and stated that she had always believed that “I won’t become a smoker” which she quickly clarified by saying “I never thought of myself as someone who was going to be a long-term adult smoker”. She finally quit when she was 31, having smoked for 18 years, at times up to a pack a day.

Ingrid

It was arrogance, in the sense that I always thought, it's easy to quit, so - and I won't become a smoker, I never - you know, I never thought of myself as someone who was going to be a long-term adult smoker.

*I always thought, it's easy to quit, I don't smoke that much, I **don't get that addicted physically anyway, so it's all right for me. Like, I'm not like one of those other people who is a proper smoker.***

Q: Do you only become a ‘real’ smoker when you can’t quit? If you believe you can quit then you’re still a ‘social smoker’ or ‘occasional smoker’. Does the balance of power lie with you – if you can quit you’re not yet a real smoker. A real smoker is an addicted smoker.

There is a clear demarcation between what she views as experimental smoking, (social smoking) in which the balance of power lies with the ‘social smoker’ and those who have crossed a line and become permanent or ‘real’ smokers. Being a ‘real’ smoker has negative connotations; it’s not something she wants to be – real smokers are pitied, the real smoker has lost control and is in the grip of cigarettes, where as Ingrid (and her friends) are still in charge and confident in their ability to quit. They are smoking, but under their terms – it is something that is adding value to their lives (to their image, as a means of meeting interesting people. The disadvantages of smoking are distant and irrelevant to Ingrid and her friends as they are not yet real smokers.

Arrogance, confidence, trust or belief in their abilities to quit – are they overconfident? Or are they realistic? Do these smokers really stay in control? Is smoking for them only a rite of passage – something that they have adopted but will as quickly dispatch with once they move onto the next phase in their life?

It appears that being young and smoking is OK – no negative stigma attached to this; but being middle-aged and smoking is not cool – it’s a sign of being weak, of being a lesser person. Is this more so with woman as opposed to men? At what point does being a smoker flip from being cool to uncool? This is discussed in McDermott’s articles on women and smoking. {Mcdermott 2006}{Mcdermott 2007}{Lennon 2005}{Mcdermott 2009}

References

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- Lennon A, Gallois C, Owen N, McDermott L. Young women as smokers and nonsmokers: a qualitative social identity approach. *Qual Health Res* 2005;15:1345-59.
- McDermott L, Dobson A, Owen N. Determinants of continuity and change over 10 years in young women's smoking. *Addiction* 2009;104:478-87.

How does this tie in with self-exempting beliefs and intention to quit? {Oakes 2004} Ingrid holds self-exempting beliefs about being classified as a smoker. She doesn’t smoke enough; she doesn’t ‘feel’ addicted; she has on plans to be a long-term smoker; she views her smoking as something she DOES not something she IS (ie a smoker). She is a non-smoker who chooses to smoke when it suits her. Therefore quitting will be easy as she is not yet a full-blown smoker?

I always thought, it's easy to quit, I don't smoke that much, I don't get that addicted physically anyway, so it's all right for me. Like, I'm not like one of those other people who is a proper smoker.

Reference

Oakes W, Chapman S, Borland R, et al. *Bulletproof skeptics in life's jungle: which self-exempting beliefs about smoking most predict lack of progression towards quitting?* *Prev Med* 2004;39:776-82.

Q: What does the literature say about this? How do smokers' perceive their smoking status? At what point do you become a real smoker? How do they define 'real smokers'? Is this anomalous viewpoint only held by the young, the experimental smokers? Is it the quantity you smoke? How addicted you feel? If you've seriously tried to give up but can't? What are the characteristics of a real smoker? Why is one status desirable but the other something no-one wants to aspire to? When do you cross this line? Is it easy to classify other people as real or experimental/temporary/social smokers?

What constitutes being a 'real smoker'?

Ingrid

'That's probably the only time I would have considered myself, like a decent proper smoker.'

She is referring to two 1-year periods in her life when she was dating a smoker, her CPD increased and her smoking was heavily influenced by the partner's smoking. She was smoking 1 pack per day. Was it the quantity smoked (1 pack per day as opposed to 5 CPD) that determined how she viewed herself, or the fact that she felt more addicted (smoking throughout the day rather than just socially; not being in control of her smoking – ie adopting her partner's patterns of smoking).

What does a smoker define as being a 'proper' or 'real' smoker?

Jordan

"A big thing for me was I only used to smoke cigarettes of an evening and I remembered earlier on as a smoker waking up the first thing I'd do was have a coffee and a cigarette and the early morning cigarettes started kicking in for - combining with wine hangovers so I started to kick it and went cold turkey".

It appears that the 'young' smoker can cope with the thought that they are a social smoker; for some, once they can no longer deny that they are simply a social smoker they become alarmed, uncomfortable, and some then re-evaluate their smoking and their identity (social smoker vs 'proper' smoker; social smoker is almost a non-smoker – a proper smoker)

What counts as a 'proper smoker':

- Smoking a pack a day?
- Smoking in the morning?
- Feeling that you've lost control of the smoking (compared with feeling that they controlled the smoking they now feel that the smoking controls them)?

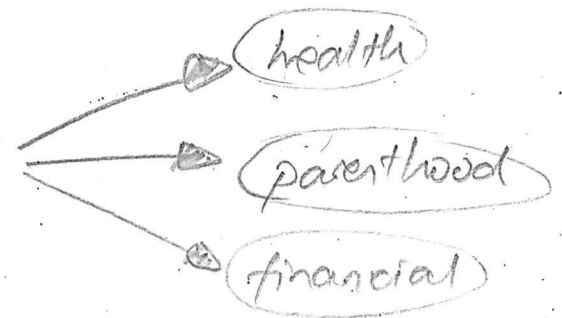
See also 'Ingrid's smoking identity' 14 March 2013

See also 'Holding a dual smoking status' 8 April 2013

Appendix M: Sample working model/diagram

Scenario 1A: Catastrophic quitting

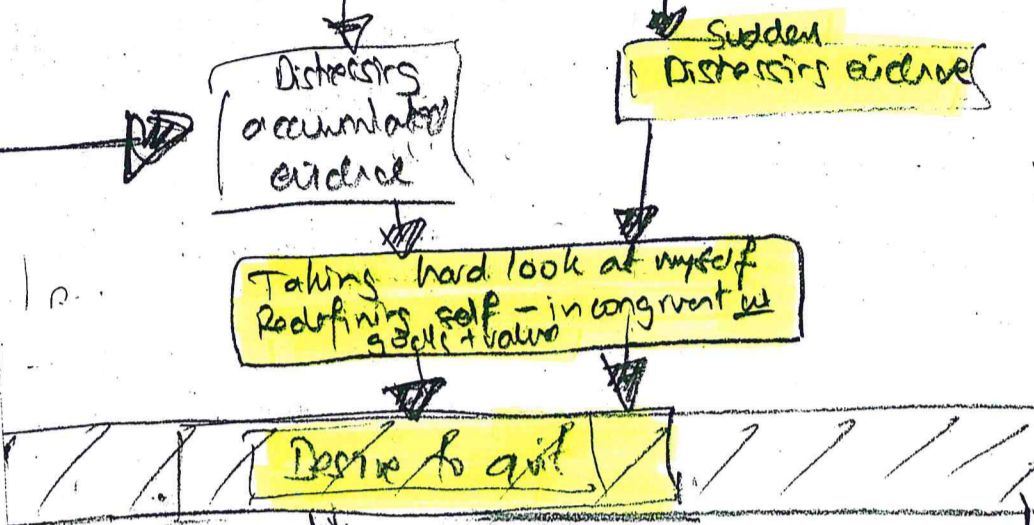
① Sudden/explainable/'easy' or 'easier' than expected



17/3/14

Series small events OR one major catastrophic event

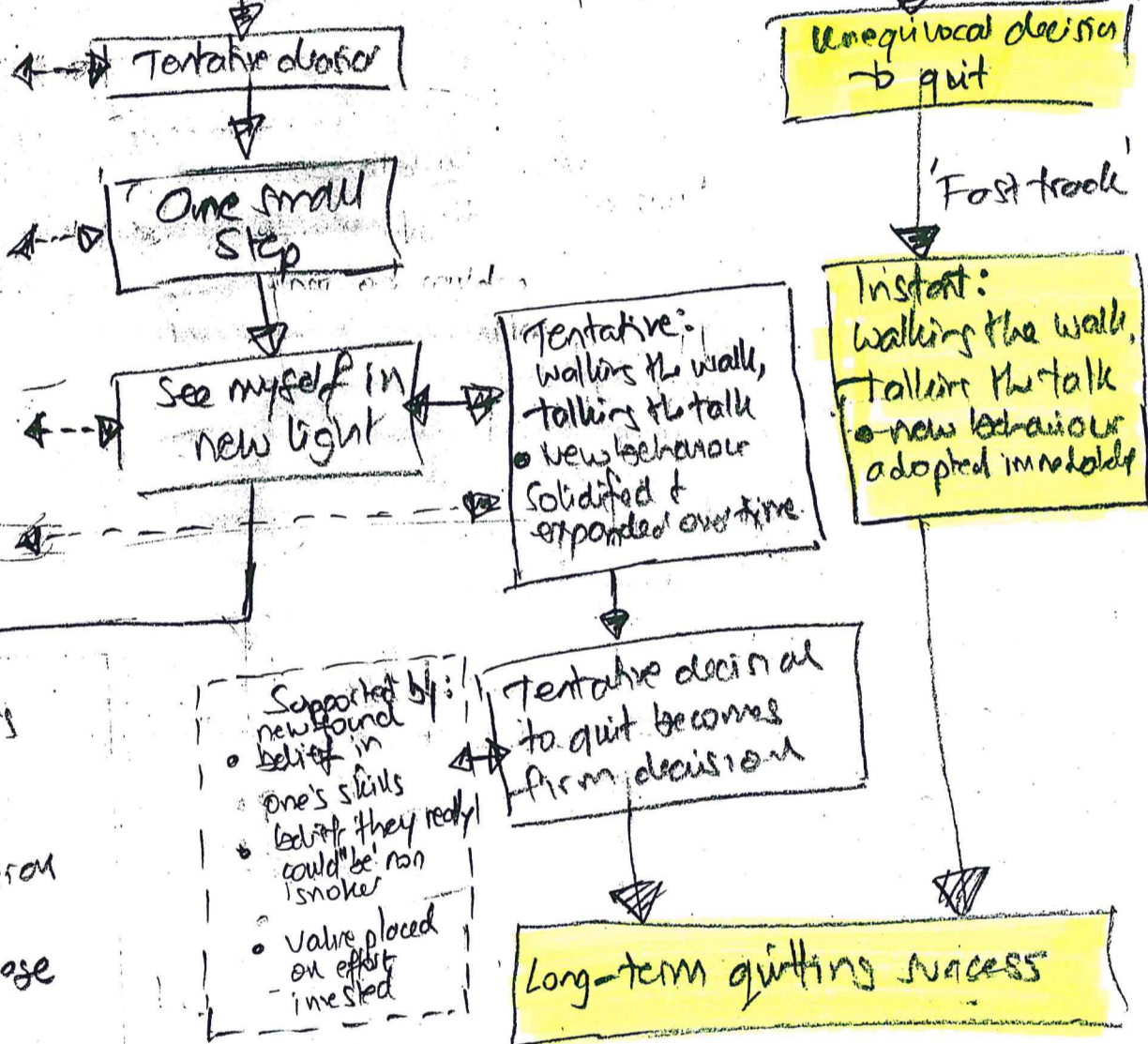
• identity shift helps overcome ambivalence by:
 ↑ (faith in ability)
 ↑ (belief in the 'possibility' the 'reality' of being a non-smoker).



Ambivalence associated w
 • Desire to quit
 • Belief in ability to quit
 • Belief in being able to imagine oneself as a non-smoker

creates tension that can be detrimental to successful quitting

Constrained by ambivalence & tension due to:
 • disbelief that they could ever be a non-smoker
 • belief in ability to quit



Positive accumulating evidence reduces/moderates the ambivalence & tension due to disbelief in abilities/new image

Supported by:
 • new found belief in one's skills
 • belief they really could be non-smoker
 • value placed on effort invested

→ Firming up of decision to quit

ambivalence & tension are avoided.

NB: 'lost reasons' - 'new power' → decision takers out of their hands - may have 'quit' but ambivalence & tension remains - placing 'long term quitting success' in jeopardy.

* Drawing on Kearney & O'Sullivan, 2003.

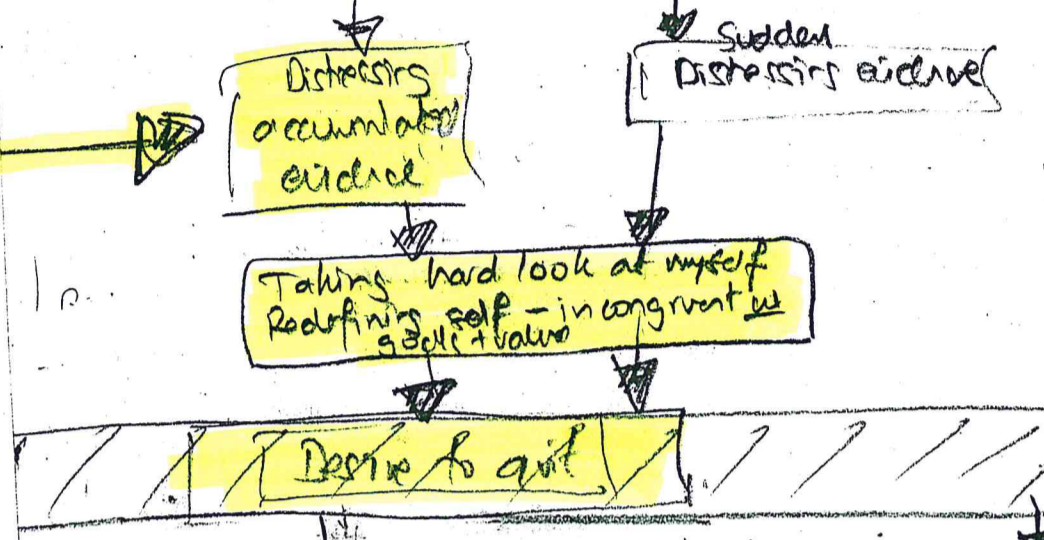
Scenario 1B: Catastrophic quitting

(B) Sudden/apparently inconsequential reason/may or may not be 'easy' → identity shift due to internal/external prompts?

17/3/14

• identity shift helps overcome ambivalence by:
 ↑ (faith in ability)
 ↑ (belief in the 'possibility' the 'reality' of being a non-smoker).

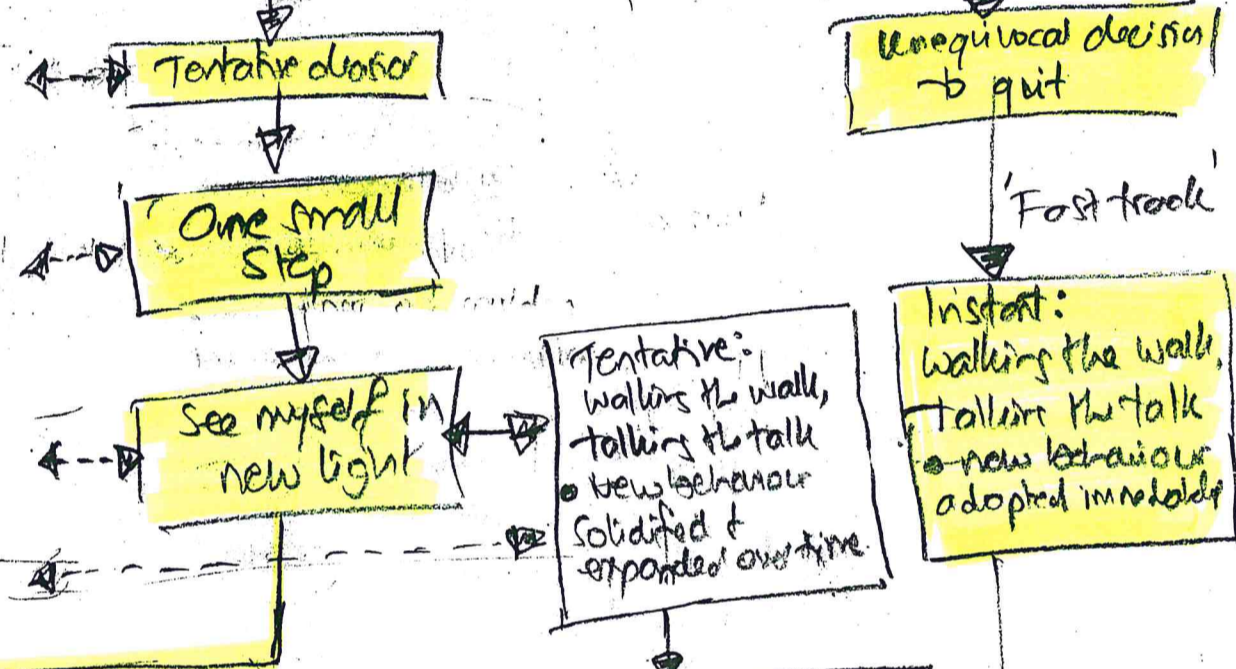
Series small events OR one major catastrophic event /



Ambivalence associated w
 • Desire to quit
 • Belief in ability to quit
 • Belief in being able to imagine oneself as a non-smoker

creates tension that can be detrimental to successful quitting

Constrained by ambivalence & tension due to:
 • disbelief that they could ever be a non-smoker
 • belief in ability to quit



Positive accumulating evidence reduces/moderates the ambivalence & tension due to disbelief in abilities/new image
 → Firming up of decision to quit

Supported by:
 • new found belief in one's skills
 • belief they really could be non-smoker
 • value placed on effort invested

ambivalence & tension are avoided.

NB: 'lost reasons' / 'new points' → decision tapers out of their hands - may have 'quit' but ambivalence & tension remains - placing 'long term quitting success' in jeopardy.

→ identity change not formalised
 • need to have the threat or have more on faulty change if you are to quit long term.

Last para of Ambivalence

Scenario 2: slow burn - IDENTITY SHIFT

'easy'

Gradual,

17/3/14

- Identity shift helps overcome ambivalence by:
 - ↑ (faith in ability)
 - ↑ (belief in the 'possibility' the 'reality' of being a non-smoker).

Series small events OR one major catastrophic event /

Distressing accumulated evidence

Sudden Distressing evidence

Taking hard look at myself
Redefining self - incongruent w
goals + values

- Ambivalence associated w
- Desire to quit
 - Belief in ability to quit
 - Belief in being able to imagine oneself as a non-smoker

Desire to quit

creates tension that can be detrimental to successful quitting

Constrained by ambivalence + tension due to:

- disbelief that they could ever be a non-smoker
- belief in ability to quit

Tentative decision

Unequivocal decision to quit

One small step

'Fast track'

See myself in new light

Tentative: walking the walk, talking the talk
• new behaviour solidified + expanded over time

Instant: walking the walk, talking the talk
• new behaviour adopted immediately

Positive accumulating evidence reduces/moderates the ambivalence + tension due to disbelief in abilities / new image

- Supported by:
- new found belief in one's skills
 - belief they really could be non-smoker
 - value placed on effort invested

Tentative decision to quit becomes firm decision

Long-term quitting success

→ Firming up of decision to quit

ambivalence + tension are avoided.

NB: 'lost reasons' / 'new points' → decision tapers out of their hands - may have 'quit' but ambivalence + tension remains - placing 'long term quitting success' in jeopardy.

Appendix N: Sample page from Research log

Natural history of unassisted cessation research log

Aim: to record and document the events that take place during the study, including any key decisions, the reasons they were taken, alternatives that were considered and expected outcomes.

What happened	Why it happened	What were the alternatives	What are the likely results of this shift/step/change?
<p>May 2012</p> <p>Ethics approval sought from the University of Sydney HREC and the NSW Population & Health Services Research Ethics Committee</p> <ul style="list-style-type: none"> University of Sydney HREC approval granted 19 July 2012 NSW Population & Health Services Research Ethics Committee approval granted 2 August 2012 	<p>Needed to ethics approval from CI NSW as we planned to contact participants from the Smoking and Health Survey Database.</p>	<p>No alternatives – we would not be able to access the database without ethics approval from the NSW Population & Health Services Research Ethics Committee</p>	<p>None</p>
<p>Sept 2012</p> <p>Changed the recruitment strategy. Had originally planned to recruit majority of participants from the 2009 SHS database</p>	<p>After contacting half of the cohort (ex-smokers who quit on own) it became apparent that we were not going to get the number of participants we needed who met the selection criteria. Having already spent considerable time contacting and screening half of the cohort (and only having had 2 who both met the inclusion criteria and agreed to be interviewed) a decision was made not to expend further resources in contacting the remaining half of the cohort.</p>	<p>Choice of recruitment strategy was limited by budget (the budget did not cover placing paid ads in newspapers) and also by the teams' belief that paid ads would not be the most effective way of contacting potential participants.</p> <p>Recruiting through social media was explored as an option. CID had experience in social media and believed that it would provide a fast and free way of recruiting. Paid social media ads were explored, but rejected as being unsuitable for attracting suitable participants owing to the limitations of ads being accurately displayed to the target group (it was accepted that this would work better if / when we recruit smokers to the diary study).</p>	<p>Bias in who is recruited - possibly towards those with higher income, education, in metropolitan areas, younger, male/female.</p> <p>In order to monitor this, questions were added to the screening tool (gathering info on postcode, education attained, income, age, gender).</p> <p>A modification to the ethics application was made (in two stages - first for recruitment and then for screening questions).</p>
<p>Sept 2012</p> <p>A modification to the ethics application was made (in two stages - first for recruitment and then for screening questions)</p> <ul style="list-style-type: none"> HREC approval for request for modification of recruitment strategy (social media) 19 November 2012 HREC approval for request for modification of screening questions 4 February 2013 	<p>Recruitment couldn't commence without ethics approval</p>	<p>None</p>	<p>None</p>