Smoking Cessation Among Emerging Adults: Integrating and Expanding on Social Norms as Barriers and Facilitators of Behaviour Change

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A thesis submitted for the degree of Doctor of Philosophy

April 2020

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THESIS ABSTRACT

Existing evidence-based smoking cessation strategies, which are efficacious for longer-term smokers, have low uptake among less experienced young adult smokers (Suls et al., 2012). Emerging adults (i.e., 18 to 25 year olds who are transitioning from adolescence into adulthood; Arnett, 2000) value social relationships highly, and social groups provide acceptance and belonging during a time of identity formation (Arnett, 2000; Erikson, 1968). Research confirms that having friends who smoke in early adulthood is linked to consolidation of smoking behaviour and can be a barrier to quitting (Hammond, 2005; Kobus, 2003; Tucker, Ellickson, & Klein, 2003). Moreover, young adult smokers living in countries with advanced tobacco control environments have evaded smoking prevention interventions and continue to smoke despite societal beliefs that smoking is culturally unacceptable. Therefore, it is important to understand how smoking cessation in emerging adulthood may be influenced by the attitudes and behaviours of others.

The research reported in this dissertation aims to integrate and expand on the current understanding of the relationship between social norms and smoking cessation among emerging adults and to apply that knowledge to two contrasting smoking cessation strategies: e-cigarettes and anti-smoking mass media campaigns. Study 1 (focus groups) explored how social identity and normative group behaviours in social situations could be obstacles for quitting among emerging adults. The results showed that emerging adults were concerned with, and had difficulty managing, potential changes in social situations that could arise from quitting smoking. Moreover, the absence of quitting norms made it difficult to transition to a non-smoking identity.

Study 2 (focus groups) explored perceptions of e-cigarettes as a potential smoking cessation strategy using a social norm perspective. The results showed that, beyond some initial curiosity, e-cigarettes held little appeal for the participants in this study. Furthermore, participants expressed concern that they would be negatively perceived by others when using an e-cigarette. Consequently, e-cigarettes were potentially more likely to undermine than to facilitate the development of smoking cessation norms.

Study 3 (systematic scoping review) explored the role of social norms in the context of anti-smoking mass media campaigns. The results showed that the likelihood of smoking cessation increased following exposure to messages that conveyed disapproval of smoking by others. However, the role of *quitting/non-smoking* descriptive norms (i.e., what is commonly done when quitting) was rarely examined. Study 4 (cross-sectional online questionnaire) hypothesised that descriptive non-smoking norms would increase self-efficacy to resist smoking in social settings through its relationship with smoking-related social identities. The hypothesis was partially supported; the relationship between descriptive non-smoking norms and self-efficacy was mediated by 'ex-smoker' but not 'attempting quitter' social identity. Testing an alternative hypothesis revealed that 'attempting quitter' social identity was indirectly related to self-efficacy through higher descriptive non-smoking norms, especially when descriptive smoking norms were also high.

The results described in this dissertation highlight the complexity of managing social environments when quitting smoking and that the transition from smoker to non-smoker is not straightforward and is context dependent. Acknowledging the importance of others in the smoking cessation process may enhance existing intervention strategies.

THESIS DECLARATION

I, Joanne Dono, certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

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I acknowledge the support I have received for my research through the provision of an Australian Government Research Training Program Scholarship.

Published works

Chapter 2: Study 1

Dono, J., Miller, C., Ettridge, K., & Wilson, C. (2019) "I'm not the anti-smoker now. I just don't smoke anymore": social obstacles to quitting smoking among emerging

adults. *Addiction Research & Theory.* Advance online publication. https://doi.org/10.1080/16066359.2019.1623205

Chapter 3: Study 2

Dono, J., Wilson, C., Ettridge, K., & Miller, C. (2019). "I don't think I'd feel good about myself if I was to give up smoking and go to one of these": perceptions of e-cigarettes among South Australian young adult smokers and ex-smokers. *Addiction Research & Theory*, 27(3), 258–268. https://doi.org/10.1080/16066359.2018.1501032

Chapter 4: Study 3

Dono, J., Miller, C., Ettridge, K., & Wilson, C. (2020). The Role of Social Norms in the Relationship between Anti-smoking Advertising Campaigns and Smoking Cessation: A Scoping Review. *Health Education Research.* Advanced online publication. https://doi.org/10.1093/her/cyaa008

Joanne Dono

29 April 2020

ACKNOWLEDGEMENTS

I am incredibly grateful for the support and guidance that I have received from my supervisors Professor Carlene Wilson, Professor Caroline Miller and Dr Kerry Ettridge. Thank you for providing wisdom, inspiration and encouragement throughout my candidature. The many insightful discussions that we have shared, and the mentoring that I have received from each of you, has deeply influenced my development as a researcher.

I would like to acknowledge and thank the Health Policy Centre at the South Australian Health and Medical Research Institute (SAHMRI), led by Professor Caroline Miller, for the financial support that was provided to facilitate recruitment, and for the generous study leave arrangements which enabled me to complete this dissertation. I would also like to acknowledge and thank the Beat Cancer Project for the travel grant that provided me with the opportunity to present my work at an international conference.

I would like to express my gratitude to friends and colleagues, especially my team at SAHMRI, who have been an endless source of inspiration, motivation and moral support over the years. A special thank you to Kat, for all the work that you do to help us all shine. I am forever grateful to everyone who took the time to participate in these studies, including those who provided feedback on the moderator guide and questionnaire during pilot testing.

Thank you to my family, Mum, Dad, Rachel and Robert, for providing unconditional love and support along the way. A special thank you to Rachel, for always listening, understanding and providing sound advice. Finally, thank you Trav, your resilience and perseverance has often inspired me to keep going and I am grateful for your willingness to workshop ideas and to offer help. I could not ask for a more supportive partner and I could not have done this without you.

CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW

Preamble

Tobacco control is an interdisciplinary field of science, policy and practice dedicated to reducing the burden of disease caused by tobacco use. This introductory chapter contextualises the burden of tobacco in Australia and efforts to reduce smoking across the population. It then describes the challenges of increasing the rates of smoking cessation among emerging adults (i.e., those aged 18 to 25 years who are transitioning from adolescence into adulthood; Arnett, 2000), and the unique challenges of emerging adulthood that may hinder smoking cessation. A key challenge is understanding social influence and its impact on attitudes and behaviour; this thesis draws upon various social influence theories and frameworks to conceptualise barriers and facilitators of smoking cessation in this age group. It is argued that a better understanding of social norms in relation to smoking cessation is needed. To this end, a social norm lens is applied to two types of smoking cessation strategies relevant to emerging adults: mass media campaigns and e-cigarettes. The chapter ends with a brief overview of the problem that the research addresses and concludes with the aims of the thesis.

Tobacco: burden and prevalence

Tobacco use is recognised as a century long global epidemic that has contributed to the burden of death and disease (US Department of Health and Human Services, 2014). Tobacco smoke is highly toxic; it contains more than 7000 chemicals of which at least 69 are known carcinogens (Winstanley & Greenhalgh, 2019). The list of diseases and adverse health effects caused by smoking is long and continues to expand, ranging from many types of cancers to stroke, diabetes, heart disease and impaired immune function (US Department

of Health and Human Services, 2014). It is estimated that smoking kills half of all long-term users (Doll, Peto, Boreham, & Sutherland, 2004), and that a lifelong smoker, on average, loses about a decade of life (Banks et al., 2015; Jha et al., 2013).

Smoking has been the leading preventable cause of death and disease in Australia for many years. In 2015, 9.3% of the total burden of disease and injury was attributable to tobacco smoking (Australian Institute of Health and Welfare, 2019). Specifically, tobacco use contributes to the burden of 41% of respiratory diseases, 22% of cancers and 12% of cardiovascular diseases (Australian Institute of Health and Welfare, 2019).

Quitting smoking reduces the risk of developing a smoking-related disease, both in the immediate and long-term (US Department of Health and Human Services, 2004). It is important to note that quitting smoking at a younger age confers the greatest reductions in risk. One study showed that the risk of premature death was similar for those who quit smoking before age 45 to those who had never smoked (Banks et al., 2015). Another study showed that virtually all long-term health risk is eliminated by quitting smoking prior to age 30 (Doll et al., 2004). These findings show that promoting early cessation among younger smokers helps to reduce the burden of disease caused by tobacco smoking.

The most recent report on smoking prevalence in Australia showed that, among those aged 14 years and older, the proportion of daily smokers halved from 24% in 1991 to 12% in 2016 (Australian Institute of Health and Welfare, 2017). During the same period, the rate of ex-smokers remained relatively steady (21% in 1991, 23% in 2016), whereas the proportion of never smokers increased substantially (49% in 1991, 62% in 2016). Encouragingly, in 2016, young adults aged 18-24 years had the highest rate of any age group of ‘never smoking’ (79%). These results indicate that the long-term decline in

smoking in this age group is largely attributable to people never taking up smoking rather than due to smokers quitting (Australian Institute of Health and Welfare, 2017).

The decline in smoking prevalence in Australia is a great success story that reflects the long-term, comprehensive public health approach taken to supporting population level behaviour change (Greenhalgh, Stillman, & Ford, 2016). Nevertheless, in 2016, 15.9% of people aged 18 to 24 years were smokers (11.6% smoked daily, 4.3% smoked weekly or less) and only 5% were ex-smokers (i.e., had smoked at least 100 cigarettes and reported no longer smoking; Australian Institute of Health and Welfare, 2017). This gives a quit proportion of 24% (proportion of ex-smokers divided by the proportion of ever smokers), well below the average across all age groups (61%). Indeed, the average age of quitting in Australia is 35 years (Australian Institute of Health and Welfare, 2016). Furthermore, it appears that daily smoking becomes consolidated in young adulthood, increasing from 6.9% of those aged 18 to 20 years, to 13.8% of those aged 21 to 23 years, to 18% of those aged 24 to 26 years (Australian Institute of Health and Welfare, 2017). As discussed in more detail below, the unique developmental phase of emerging adulthood increases the risk of consolidation of daily tobacco use, which can increase nicotine dependence and make quitting smoking more difficult. Conversely, as described earlier, smoking cessation in this age group provides the potential for eliminating all long-term health risk arising from tobacco use.

Young adulthood is recognised as a critical time in which to target resources for encouraging smoking cessation, but it can be an overlooked stage of life for smoking interventions (Bader, Travis, & Skinner, 2007; Ling & Glantz, 2004). Smokers in this age group have evaded interventions to prevent uptake and generally have a different smoking

profile to more established smokers, who are the focus of most smoking cessation strategies. This is problematic because it coincides with an intensification of effort from the tobacco industry to solidify smoking among the next generation of people to reach the legal smoking age (Ling & Glantz, 2004; Ling & Glantz, 2002). A review of industry documents revealed that tobacco marketers intentionally cultivate and reinforce smoking among young adults (Ling & Glantz, 2002). The tobacco industry capitalises on young adult life transitions, such as starting a new job or study program and starting to socialise in bars, to promote smoking. The industry marketing also evolves with its audience, with social media platforms an increasingly popular vehicle for the promotion of tobacco and associated products (Freeman, 2012; Liang et al., 2015). Consequently, smokers in this age group are vulnerable to consolidating smoking habits, which will persist into adulthood.

Evidence-based strategies to support smoking cessation

Considerable effort has been devoted to developing strategies to help smokers quit. The public health approach focuses on changing the environmental context in a way that motivates non-smoking behaviour and makes it easier for smokers to quit. The public health approach is evidence-based, comprehensive, and multi-faceted, and uses policy and regulation to achieve wide-spread change. The approach is formalised through the World Health Organization's Framework Convention on Tobacco Control (FCTC), a treaty signed by 181 countries to implement a broad range of policies to reduce the burden of tobacco use (World Health Organization, 2003). Australia was a signatory in 2003 and has since been a world leader in implementing tobacco control policies (Greenhalgh et al., 2016).

The cumulative effect of an advanced tobacco control environment is the 'denormalisation' of smoking (Chapman & Freeman, 2008). This involves supporting the

erosion of tolerance and acceptance of smoking. California was the first jurisdiction to formally integrate a 'social norm approach' as a core strategy within its tobacco control program (Zhang, Cowling, & Tang, 2010). Key strategies within this approach were 1) state-wide anti-smoking mass media campaigns and 2) implementation of legislation to reduce exposure to tobacco use and promotion (e.g., ban tobacco advertising, ban indoor smoking in bars and restaurants). A similar denormalisation strategy has been used in Australia; this has reduced the uptake of smoking, encouraged quit attempts and reduced the likelihood of relapse (Greenhalgh et al., 2016). Indeed, it has been argued that population-level behaviour change is impossible without the modification of existing social norms (Chung & Rimal, 2016; Tankard & Paluck, 2016).

Australia's tobacco control strategy also incorporates access to evidence-based cessation services to support individual smokers wanting to quit (Greenhalgh et al., 2016). Examples of evidence-based cessation strategies include: self-help and telephone and web-based services offered through the Quitline; individual and group-based therapy; and pharmacotherapy (i.e. nicotine replacement therapy [patches, gum], bupropion, varenicline). Although these strategies can improve the likelihood of successful cessation, research suggests most people quit without assistance (Edwards, Bondy, Callaghan, & Mann, 2014). Studies generally show that using cessation aids is more common among those who are older and more nicotine dependent (Hung, Dunlop, Perez, & Cotter, 2011; McCarthy, Siahpush, Shaikh, Sikora Kessler, & Tibbits, 2016; Shiffman, Brockwell, Pillitteri, & Gitchell, 2008a, 2008b).

Unassisted cessation is the most common strategy used by Australian smokers attempting to quit smoking (Smith, Chapman, & Dunlop, 2015). While unassisted cessation

has contributed to the overall decline in smoking rates over many years (Chapman & Wakefield, 2013), the success rates for long-term abstinence are low, estimated at about 3-5% (Hughes, Keely, & Naud, 2004). Quitting unassisted is a two-step process: deciding to stop smoking and then maintaining abstinence. Smoking relapse, or resumption of smoking at the rate prior to cessation, can occur at any point following the decision to stop smoking and is often the result of one or more lapses (i.e., a smoking event; Marlatt, Curry, & Gordon, 1988; Marlatt & Gordon, 1985; Shiffman et al., 2007).

Individual factors such as tobacco dependence, low self-efficacy to remain abstinent, and stress have been identified as triggers for smoking lapses in adult samples (Roberts, Bidwell, Colby, & Gwaltney, 2015). However, social situations are also implicated, especially among younger smokers (Deiches, Baker, Lanza, & Piper, 2013; Roberts et al., 2015). For example, Roberts et al. (2015) found that 73% of lapses recorded by adolescents were in the presence of other people. In a study of adult smokers, Deiches et al. (2013) found that 65% of lapses occurred in the presence of others. However, latent class analysis showed that more smokers were classified as “Alone lapsers” (35%) than “Social lapsers” (28%), and those classified as social lapsers more likely to be younger and out socialising with friends. Therefore, understanding the social factors associated with smoking lapses among young people is critical to improving smoking cessation rates among those who are trying to quit unassisted.

Challenges of smoking cessation among emerging adult smokers

Research investigating smoking cessation among young adults has demonstrated that existing evidence-based strategies, which are efficacious for longer-term smokers, have low uptake among young adults (Suls et al., 2012). A Cochrane review of formal cessation

assistance programs found that pharmacotherapy treatments were not successful with young adults, whereas interventions that combined a variety of approaches such as help with preparation, behaviour change and motivation showed more promise (Fanshawe et al., 2017). Nevertheless, review studies indicate that smoking cessation interventions targeting young adult smokers have limited efficacy (Villanti, McKay, Abrams, Holtgrave, & Bowie, 2010) or low uptake (Suls et al., 2012).

Less established smokers differ from more established smokers in many ways. Nicotine dependence can develop in young adulthood (Van De Ven, Greenwood, Engels, Olsson, & Patton, 2010) and become a barrier to quitting for some (Diemert, Bondy, Brown, & Manske, 2013; O'Loughlin et al., 2003; Villanti, Bover Manderski, Gundersen, Steinberg, & Delnevo, 2016; Walker & Loprinzi, 2014). Nonetheless, less established smokers are more likley to see themselves as not addicted, or less addicted to nicotine, than more established smokers, making nicotine treatment replacement approaches unnecessary (Amos, Wiltshire, Haw, & McNeill, 2005; Berg et al., 2010; Berg et al., 2013). Less established smokers tend to have lower concern about the long-term health impacts of smoking; are less likely to admit to being ‘real smokers’; and envision that quitting smoking will be relatively easy, and therefore, not urgent (Berg et al., 2010; Weinstein, Slovic, & Gibson, 2004). Social smoking is also more common in this age group, and is often tied to positive associations with smoking, which can reduce motivation and intention to quit (Song & Ling, 2011; Tombor, Shahab, Herbec, et al., 2015).

Despite the appeal of smoking to some young adults, many are interested in quitting (Cengelli, O'Loughlin, Lauzon, & Cornuz, 2012). Relative to other smokers, younger smokers tend to have high relapse rates (Solberg, Boyle, McCarty, Asche, & Thoele, 2007)

but also higher rates of spontaneous quit attempts (West et al., 2019), possibly reflecting their under-utilisation of evidence-based cessation treatments and services (Suls et al., 2012). Nevertheless, recent longitudinal studies have shown that, after making a quit attempt, young adults are similar to older adults in their success at quitting despite being less likely to use evidence-based cessation aids (Watkins, Thrul, Max, & Ling, 2018; Watkins, Thrul, Max, & Ling, 2019). Indeed, a review on the prevalence of unassisted cessation showed that younger smokers were often more likely than older smokers to quit 'unassisted'; this is commonly referred to as 'cold turkey' (Smith, Chapman, et al., 2015). Importantly, qualitative research indicates that emerging adult smokers frame quitting smoking as having the right mindset (i.e., no longer wanting to smoke) and having the willpower to overcome situational barriers, rendering cessation aids unnecessary (Amos et al., 2005; Berg et al., 2013).

As discussed earlier, the public health approach utilising population-based strategies has been effective at reducing smoking rates, including among young adults (Greenhalgh et al., 2016). Such policies include those that disincentivise smoking through taxation, and denormalisation strategies that characterise smoking as uncommon and unpopular. These most frequently take the form of mass media anti-smoking campaigns, implementation of smoke-free areas, and controls on the packaging of cigarette packs. Evaluations of the effectiveness of these approaches generally focus on the reduction in smoking prevalence for the adult population (Wilson et al., 2012). In studies of youth, the focus is more often on the effect of policies on preventing initiation (e.g., Palali & van Ours, 2019), or reducing smoking prevalence, without differentiating between preventing initiation and promoting cessation (e.g., Hawkins, Bach, & Baum, 2016; Kang & Cho, 2020). Indeed, in a

systematic review of studies testing the independent effects of tobacco control policies on smoking behaviour, only 4 out of 88 studies assessed smoking cessation among youths (Wilson et al., 2012). A recent review of smoking cessation programs relevant to adolescents and young adults confirmed that both tobacco excise taxes and anti-smoking mass media campaigns were associated with smoking cessation (Jarlstrup et al., 2018).

The unique circumstances of emerging adulthood that may hinder smoking cessation

A recent Cochrane review of smoking cessation interventions among young people suggested that differences in smoking patterns, lifestyle and attitudes towards cessation aids need to be better integrated into smoking cessation strategies to increase efficacy for this age group (Fanshawe et al., 2017). Emerging adulthood typically refers to the period between the ages of 18 to 25 years, at which time people are undergoing significant life transitions as they develop from adolescents into adults (Arnett, 2000). This life stage is associated with increasing independence and often encompasses changes in living arrangements, education, work, friendships, and family circumstances. Young adults who experience these transitions as stressful may turn to cigarettes to cope (Green, Leyland, Sweeting, & Benzeval, 2017). Simultaneously, access and vulnerability to health risk behaviours, including smoking, increase due to the legal availability of cigarettes and participation in associated behaviours including alcohol consumption in social settings. In Australia, the age at which alcohol and cigarettes are legally available is 18 years. Consequently, emerging adulthood is a time when smoking habits can become entrenched and can continue well into adulthood (Cho & Park, 2017; Daw, Margolis, & Wright, 2017; Hammond, 2005).

A key challenge in the emerging adulthood phase is identity exploration and consolidation (Arnett, 2000). Smoking identity of emerging adults can be multi-faceted and context dependent and may not align with smoking behaviour (Tombor, Shahab, Herbec, et al., 2015). Emerging adults who smoke and reside in countries with strong anti-smoking public health programs, such as Australia, are often aware that smoking is deemed 'unacceptable' by many in the wider population. In response, emerging adults may be called upon to manage multiple, smoking-related social identities, including 'social smoker' or 'non-smoker'. Choice of identity can change, depending on the context, with different smoking-related identities providing the capacity for emerging adults to differentiate themselves from 'smokers' who may evoke negative perceptions in some contexts (Hoek, Maubach, Stevenson, Gendall, & Edwards, 2013; Scheffels & Tokle, 2017; Scott, Mason, & Mason, 2015; Tombor, Shahab, Herbec, et al., 2015). In other words, adopting the identities 'social smoker' or 'non-smoker' helps these occasional smokers to distance themselves from the negative perceptions of 'regular smokers', while simultaneously maintaining membership in social groups where smoking is accepted. Therefore, although social smokers may reject being labelled a 'smoker', smoking facilitates social connections with others who smoke, and it can be normative group behaviour in certain circumstances (Hoek et al., 2013; Scott et al., 2015). Some emerging adults may also willingly identify as smokers and use smoking to maintain connections with others (Amos et al., 2005; Haines-Saah, Oliffe, White, & Bottorff, 2013; Hefler & Chapman, 2015; McVea, Miller, Creswell, McEntarrfer, & Coleman, 2009). A review of the qualitative literature on smoking among disadvantaged youth suggests that this is even more likely to occur for those who are

socially marginalised in advanced tobacco denormalisation contexts (Hefler & Chapman, 2015).

As highlighted above, emerging adults value social relationships highly; they are instrumental in identity development and provide acceptance and belonging during an uncertain time (Arnett, 2000; Erikson, 1968). It is well established that having smoking friends is linked to consolidation of smoking behaviour into adulthood and can be a barrier to quitting (Hammond, 2005; Kobus, 2003; Tucker et al., 2003). Moreover, there are social processes, including socialisation and selection, which can result in friendship groups becoming more homogenous in their smoking behaviour (Simons-Morton & Farhat, 2010). As a result, a division between smokers and non-smokers can develop and become reinforced by denormalisation campaigns that promote negative perceptions of smokers (McCool, Hoek, Edwards, Thomson, & Gifford, 2013).

These social influences are likely to make quitting smoking more difficult. Qualitative research shows that, in some studies, smoking helped to strengthen bonds with others (Amos et al., 2005; Haines-Saah et al., 2013; Hefler & Chapman, 2015; McVea et al., 2009). Consequently, quitting was perceived as potential rejection thereby leading to the need to seek out new, non-smoking friends. Indeed, there are numerous quantitative studies demonstrating that social and contextual factors are barriers to quitting among emerging adults (Bowes, Chollet, Fombonne, & Melchior, 2015; Cengelli et al., 2012; Diemert et al., 2013; Guiney, Li, & Walton, 2015; Jiang, Lee, & Ling, 2014; Klein, Forster, & Erickson, 2013; McClure, Arheart, Lee, Sly, & Dietz, 2013; Tucker et al., 2003; Tworek et al., 2014; Walker & Loprinzi, 2014).

Nevertheless, research has shown that pressure to quit from family and friends is a commonly stated reason for quitting smoking for young adults (Kobus, 2003). Furthermore, there is some evidence to suggest that changes in social relationships can facilitate smoking cessation in some circumstances. One study that examined life transitions in relation to quitting found that people who stopped smoking were more likely to become married to a non-smoker and experienced a decline in the number of friends who smoked, whereas parenthood, college graduation and becoming employed full-time were not significantly associated with quitting (Chen, White, & Pandina, 2001). Another study demonstrated that a transition to cohabitating with a non-smoking partner, rather than marriage, had a stronger impact on quitting behaviour, perhaps due to the increased exposure to a non-smoking role model (Tucker, Ellickson, Orlando, & Klein, 2005). A social network study of adult smokers showed that whole clusters of connected smokers become non-smokers at approximately the same time rather than people gradually stopping smoking at the fringes of clusters of smokers (Christakis & Fowler, 2008). This suggests that decisions to quit smoking are not made solely by one person in isolation, but reflect choices made by groups of people connected to each other. Together, the research on smoking cessation among emerging adults suggests that there are powerful social influences that warrant further attention.

Theories of social influence relevant to tobacco use among emerging adults

The number of variables influencing tobacco use is vast. One framework that is useful for contextualising the volume and complexity of influences is the Theory of Triadic Influence (TTI; Flay, 1999; Flay, Snyder, & Petraitis, 2009), which is an intervention-focussed, ecological model of health behaviour that has evolved from earlier ecological

models designed to explain human behaviour (e.g., Bronfrenbrenner, 1979). The TTI intentionally specifies ‘levels of (probabilistic) causation’ and ‘streams of influence’ along two dimensions to provide a set of testable guiding principles on how and where to intervene to change health behaviour (see Figure 1). Along one dimension, the TTI posits that health behaviour can be explained by three interconnected but separate spheres of influence: intra-personal (i.e., characteristics within the person that contribute to self-efficacy to behave in a certain way), interpersonal (i.e., social situations and contexts that contribute to social normative beliefs about behaviour) and cultural-environmental (i.e., wider contextual (societal) influences that contribute towards attitudes about a behaviour). Along the other dimension, the TTI posits that there are multiple levels of causation, moving from proximal or immediate effects on behaviour (i.e., cognitions and affect), to distal variables that are mediated through proximal effects, to ultimate or underlying variables that are generally beyond the control of any individual but nevertheless influence behaviour via their impact on distal and proximal variables. The resulting conceptual model is comprised of many variables linked together through mediating pathways and feedback loops. Evidence of mediated pathways provides support for the interconnectedness of the three streams of proximal and distal influences and is therefore highly applicable to research on tobacco use (Flay, 1999; Flay et al., 2009). While the framework is useful for demonstrating multiple and dynamic pathways of influence on health behaviour, and the model provided a starting point to investigate social influence, it was deemed too broad and complex to test as a whole. Moreover, the social norms element of the model lacked the nuance of other theoretical models that specifically focus on normative influence.

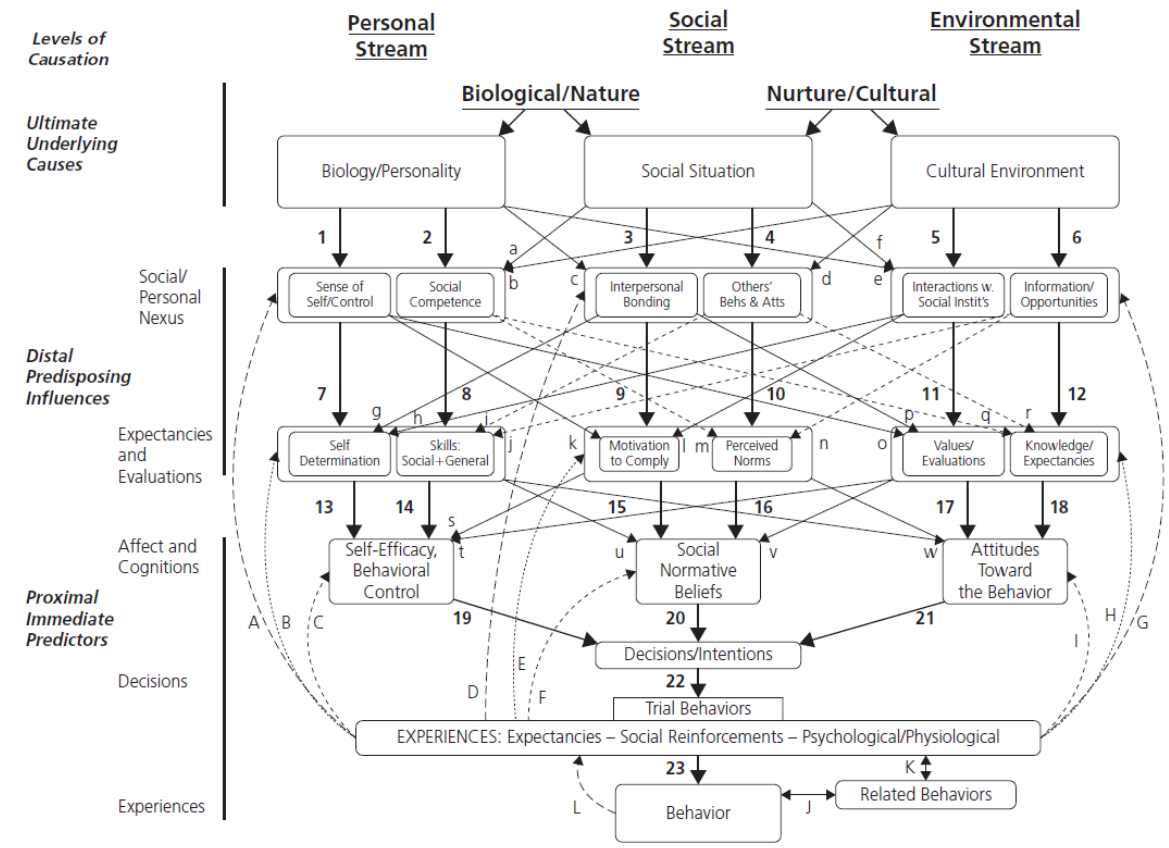

Figure 1. The Theory of Triadic Influence (Flay et al., 2009)

This thesis was initially guided by TTI and the flow of influence within the social stream, specifically, the influence of others' behaviours and attitudes on perceived norms and social normative beliefs. However, TTI offered little explanation of the role of social identity and social group dynamics in the flow of social influence and so was superseded by theoretical frameworks that offered greater insight into social normative processes. The literature on social normative influence is extensive, spanning multiple fields of study (Shulman et al., 2017). Broadly, normative influence is defined as they way in which people are guided to act or think, consciously or unconsciously, by looking to referent

others and what they say and do. Specifically, social norms are “rules and standards that are understood by members of a group, and that guide and/or constrain human behaviour without the force of laws” (Cialdini & Trost, 1998, p. 152). Social norms are generally perceived as adaptive and are negotiated through social interaction and reciprocal expectations to determine what is approved and what requires social sanction (Chung & Rimal, 2016).

The broadness in scope of social norms, as applied across many disciplines, has resulted in a construct that varies considerably in terminology, definition and operationalisation (Chung & Rimal, 2016; Reynolds, Subašić, & Tindall, 2015; Shulman et al., 2017). For instance, norms can be described as formal, informal, collective, moral, personal or perceived. Shulman et al. (2017) reviewed the quantitative social science literature, using various types of norms as search terms (i.e., social norms, injunctive norms, descriptive norms, personal norms, moral norms, subjective norms and provincial norms), to identify the most commonly used norms and theoretical approaches in social norms research. They found that the most widely used theories included: The Theory of Reasoned Action (Fishbein & Ajzen, 1975), the Theory of Planned Behaviour (Ajzen, 1991), The Focus Theory of Normative Conduct (Cialdini, Kallgren, & Reno, 1991), the Social Norms Approach (Perkins, 2003) and the Theory of Normative Social Behaviour (Lapinski & Rimal, 2005). Of these theories, the Theory of Planned Behaviour (TPB) was the most widely used (35.4% of studies), and accordingly, the three most common norm types were those derived from the TPB; ‘subjective norm’ (40.8%), ‘descriptive norm’ (28.9%) and ‘injunctive norm’ (18.4%).

The Theory of Planned Behaviour (TPB; Ajzen, 1991) posits that behaviour is predicted by behavioural intentions, which in turn are predicted by attitudes, norms and perceived behavioural control. Norms within this framework were originally conceptualised as ‘subjective norms’, defined as the perception of what ‘important others’ think that one should (or should not) do. Subjective norm is typically measured by asking respondents whether important others would approve or disapprove of the behaviour. The application of TPB to a range of health-related behaviours found subjective norms to be the weakest predictor (McEachan, Conner, Taylor, & Lawton, 2011). The social norm component of the TPB has since been expanded to include multiple norm types, including injunctive and descriptive norms, derived from Focus Theory of Normative Conduct (Cialdini et al., 1991).

Focus Theory of Normative Conduct distinguishes injunctive from descriptive norms to represent two different sources of human motivation. An injunctive norm represents what is commonly approved, or ‘ought’ to be done, which motivates action by offering social rewards or attracting social sanctions. Conversely, a descriptive norm represents what ‘is’ commonly done and is motivating as it efficiently provides evidence of what is effective and adaptive for that situation. Importantly, Focus Theory suggests that each norm type only becomes motivating when it is salient, which is context dependent.

Norms can be further distinguished based on whether they originate internally (within person) or externally (from outside the person). This is an important distinction because internal drivers are often more persistent and sustained than external drivers (Reynolds et al., 2015), and more direct in their influence on behaviour and behaviour change (Hogg & Reid, 2006). Hogg and Reid (2006) and Reynolds et al. (2015) argue that

subjective, injunctive and descriptive norms originate externally through mechanisms such as peer pressure to conform, whereas ‘in-group norms’ are socially constructed internalised norms defining how one ‘ought’ to behave as a group member. A consequence of in-group norms is that strongly identifying with a group can result in conforming to group norms at the expense of one’s own personal interests (Jetten & Hornsey, 2014). Therefore, the defining feature of an in-group norm is that it incorporates the psychology of connecting the self-concept to being a member of a social group. Furthermore, in-group norms are established according to the characteristics of a group that distinguishes it from other groups. This occurs through social interaction among people who identify and self-categorise as group members.

The in-group norm perspective is derived from Social Identity Theory (SIT; Tajfel & Turner, 1979) and Self-Categorisation Theory (SCT; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). SIT posits that people derive their sense of self from their social group memberships. Moreover, the process of identifying with others who belong to the same in-group corresponds with internalising the values, norms and goals of the group. When a person identifies with an in-group, their personal beliefs and desires become less influential. SCT, which is an extension of SIT, focusses on the social-cognitive processes that explain how people view themselves and others in terms of groups. According to SCT social categories are cognitively represented as prototypes that define a group based on similarities among people within the same group (the in-group) and differences to other groups (out-groups). Intergroup comparisons that maximise the differences between the in-group and a relevant out-group are fundamental to how in-groups are represented. As a consequence, in-groups are always context dependent because the relevant out-group varies

across situations (Hogg & Reid, 2006). Terry and Hogg (1996) argued that the link between norms, intentions and behaviour could be strengthened by redefining subjective norms as in-group norms, which emphasise the differentiation of relevant reference groups based on the strength of group identity.

Understanding smoking cessation through the lens of social norms

Social norms are implicated in smoking cessation in a variety of ways. The current tobacco control strategy targets denormalisation of tobacco use at its core (Greenhalgh et al., 2016). It is well established that smoking, especially for young people, has a large social element: it is highly visible, repetitive and easily monitored by others. Moreover, many studies have established that having friends who smoke is a barrier to quitting, typically through measures asking about the number of friends who smoke (e.g., Cengelli et al., 2012; Diemert et al., 2013; Klein et al., 2013; Tucker et al., 2005; Walker & Loprinzi, 2014). Smoking is also becoming increasingly regulated (Greenhalgh et al., 2016), therefore, smokers and non-smokers are more aware of when and where smoking is accepted.

The conceptualisation of perceived social norms in tobacco control draws from the fields of social psychology, public health and communication. These fields offer different perspectives on social norms, which overlap, but emphasise different functions. These include how social norms relate to group approval, how interventions can correct normative misperceptions, and how norms are built through communication (Chung & Rimal, 2016). Importantly, these different perspectives are dispersed, and not necessarily well articulated, throughout the tobacco control literature, meaning that the relationship between social

norms and smoking cessation is not well understood. Additionally, the term ‘social norm’ is often used without providing a definition or theoretical background for its inclusion.

An empirical example of challenges to the conceptualisation of social norms in tobacco control is Van Den Putte, Yzer, and Brunsting’s (2005) key paper which highlighted the scarcity of research on social influence associated with smoking cessation. The authors explained that theories and frameworks typically applied to smoking cessation, for example, the trans-theoretical model of change, did not include social influence variables (Prochaska & Velicer, 1997; Velicer, Hughes, Fava, Prochaska, & Diclemente, 1995). Moreover, the TPB, which does include subjective norms, was rarely applied to smoking cessation. Where social influence was measured, it was usually limited to measuring the proportion of smokers in the social environment. The authors sought to rectify the deficit by first identifying the relevant variables from the existing literature and then comparing the influence of various social influence variables on intentions to quit smoking. Six social influence variables were identified: 1) explicit verbal norm (i.e., verbal stimulation to quit smoking); 2) explicit behavioural norm (i.e., offering help); 3) descriptive smoking norm (i.e., perception of the prevalence of smoking in the social environment); 4) descriptive quitting norm (i.e., perception of the prevalence of people who had quit smoking; 5) injunctive smoking norm (i.e., perception of the acceptability of smoking in society) and 6) subjective norm (i.e., perception of whether other people thought the respondent should quit smoking). Of these variables, subjective norms, followed by injunctive norms, had the strongest association with intentions to quit in a sample of current smokers.

The research on social norms has since expanded, but inconsistent definitions and measurement strategies are still evident, making it difficult to synthesise the findings. The main points of variation are the number of norm types measured, the reference group used (i.e., important others or societal), and how smoking behaviour is framed (i.e., whether the behaviour refers to smoking or quitting). The measurement of subjective norm, framed as 'important others' disapproval of smoking', was the most consistently measured norm (Hosking et al., 2009; Rennen et al., 2014; Schoenaker, Brennan, Wakefield, & Durkin, 2018; Swayampakala et al., 2018), although some studies referred to this as an injunctive norm (Li, Gao, Chen, Cao, & Sun, 2018; Phua, 2013), and one study merged questions relating to important others and society into one measure (Hammond, Fong, Zanna, Thrasher, & Borland, 2006). Injunctive norms, framed as 'societal disapproval of smoking', was also measured in some of these studies (Hosking et al., 2009; Rennen et al., 2014; Swayampakala et al., 2018). However, injunctive norm was also measured as 'feeling embarrassed to tell people I'm a smoker' (Schoenaker et al., 2018). One study measured injunctive but not subjective norms (Casado, Thrasher, Perez, Thuler, & Fong, 2018). Five of the eight studies measured descriptive norms, with measurement varying from identifying important others who smoked (Li et al., 2018; Phua, 2013; Swayampakala et al., 2018), counting the number of others who smoked in the home (Casado et al., 2018), and counting the number of household members who had quit (Schoenaker et al., 2018).

The studies testing social norms in relation to smoking cessation were undertaken with adult smokers and most showed that subjective, injunctive and descriptive norms, when measured, were associated with quit outcomes (Hammond et al., 2006; Hosking et al., 2009; Li et al., 2018; Phua, 2013; Schoenaker et al., 2018; Swayampakala et al., 2018). One

study found no relationship (Casado et al., 2018), and the remaining study found that subjective norms were associated with quit outcomes in The Netherlands but not in France or Germany (Rennen et al., 2014). There was evidence that the 'disapproval of important others' was a stronger predictor of quit outcomes than 'societal disapproval' (Hosking et al., 2009) or the 'smoking behaviour of important others' (Phua, 2013). Conversely, Shoenaker et al.'s (2018) conceptualisation of injunctive norm as 'embarrassed to be a smoker' was a stronger predictor than 'important people's disapproval of smoking'. Norm types were not compared in the other studies.

Another set of social norm studies measured subjective norms framed as 'important others' acceptance of *quitting* smoking (Dohnke, Weiss-Gerlach, & Spies, 2011; Høie, Moan, & Rise, 2010; Lazuras, Chatzipolychroni, Rodafinos, & Eiser, 2012; Moan & Rise, 2007; Nagelhout et al., 2012; Rise, Kovac, Kraft, & Moan, 2008). A small subset of these studies also measured descriptive norms framed as 'prevalence of smokers wanting to quit' (Lazuras et al., 2012) or 'number of important others who have quit' (Dohnke et al., 2011; Rise et al., 2008). The studies investigating subjective quitting norms found that it was not a predictor of quitting outcomes (Nagelhout et al., 2012) or was the weakest predictor when measured alongside other TBP variables (Høie et al., 2010; Moan & Rise, 2007). The three studies measuring both subjective and descriptive quitting norms found that, compared to descriptive quitting norms, subjective quitting norms were either equivalent to (Dohnke et al., 2011), weaker than (Rise et al., 2008), or the only predictor of (Lazuras et al., 2012) of quitting outcomes.

A 'group norm' construct was measured in three studies: two of the studies were with the same sample of young adults (Schofield, Pattison, Hill, & Borland, 2001;

Schofield, Pattison, Hill, & Borland, 2003), and the third study was with a sample of adolescents (Moan & Rise, 2006). The 'group norm' measure used in these studies included items measuring both subjective and descriptive norms, although this was not specified in the studies themselves. Schofield and colleagues (2001; 2003) used a combined measure comprised of a range of scenarios relating to both descriptive (e.g., 'how would you describe the smoking habits of each person?') and subjective/injunctive norms (e.g., 'My friends think that smoking cigarettes is…'). Conversely, Moan and Rise (2006) measured group norm with a 2-item scale asking how many of their friends would 1) approve of reducing smoking (i.e., subjective) and 2) will smoke less (i.e., descriptive) in the following year. All studies found that the subjective smoking norm was a predictor of quit outcomes, and that the group norm improved the variance accounted for by the model. Also noteworthy in the studies conducted by Schofield and colleagues (2001; 2003) was the observation that strongly identifying with their main peer group corresponded with a greater association between smoking and group norms.

Only four studies (Høie et al., 2010; Moan & Rise, 2007; Moan & Rise, 2006; Schofield et al., 2001) among those discussed in this section were specifically focussed on quit outcomes in young people. Nevertheless, even among adult samples, the results suggest that smokers care about what others think about their smoking and this can motivate them to quit in some circumstances. However, the research offers limited insight into when the behaviours and attitudes of others matter most. For instance, those who are trying to quit must navigate a range of scenarios, some of which may involve managing the expectations of other smokers who are motivated to maintain the status quo to protect their own smoking behaviour. Alternatively, those attempting to quit may have to manage the

expectations of non-smokers who may be critical of a temporary smoking lapse. Therefore, context is very important in determining how the perceptions of others are interpreted and managed by smokers who are thinking about quitting.

This is especially important for emerging adult smokers who have commenced smoking in an era of smoking denormalisation where societal level disapproval of smoking has never been stronger. The research also shows that there may be different processes underlying the perceptions of prevalence and disapproval of *smoking* compared to the prevalence and approval of *quitting*, although the investigation of quitting norms has been far less common. The inclusion of group norms has been even less common, and although the measures were potentially confounded, the results suggest further investigation is warranted.

Applying a social norm lens to two types of smoking cessation strategies relevant to emerging adults

The literature discussed so far suggests that it is worthwhile investigating how, rather than if, social norms relate to smoking cessation among emerging adults. Moreover, understanding how social norms operate within existing smoking cessation strategies will help to generate insight into how social norms may be reinforced or modified. Two smoking cessation strategies were identified as having high relevance to social norm processes: e-cigarettes and anti-smoking mass media campaigns. Neither approach is specifically aimed at emerging adults, however they are intended to capture this audience. Each approach is discussed in detail below.

E-cigarettes

A new for-profit industry has developed around a product called ‘electronic cigarettes’ or ‘e-cigarettes’. This is a battery-operated device that converts liquid into vapour through a heated element. The liquid may contain nicotine and other flavourings. Early versions of e-cigarettes looked like traditional cigarettes, but technological advances have produced later models that resemble tobacco pipes, pens and USB memory sticks (Greenhalgh & Scollo, 2016). The action of using an e-cigarette, from bringing the hand to mouth to inhale and exhale smoke-like vapour, mimics conventional cigarette smoking. E-cigarettes have increased in popularity due to the perception that they may help people to quit smoking tobacco (Pepper, Ribisl, Emery, & Brewer, 2014). The similarity to smoking in terms of sensory and proprioceptive feedback (i.e., sensations derived from movements of the body) is perceived to provide an advantage over other types of cessation aids.

The potential for e-cigarettes to serve as a cessation aid is strongly debated in the tobacco control community (Greenhalgh & Scollo, 2016). The popularity of e-cigarettes has out-paced the development of an evidence base that confirms their efficacy as a cessation aid, and establishes that there is no potential for harm from long term use. Some argue that e-cigarettes are likely to be safer than tobacco cigarettes and therefore have harm reduction potential (e.g., Hajek, Etter, Benowitz, Eissenberg, & McRobbie, 2014). Others argue that the ‘precuationary principle’ (van Asselt & Vos, 2006) should apply and e-cigarettes should not be allowed onto the market until there is sufficient evidence of their efficacy as a non-health compromising smoking alternative (e.g., The Lancet, 2014).

Australia has a conservative e-cigarette policy position that does not allow for nicotine in e-cigarettes because of the classification of nicotine as a poison (National Health

and Medical Research Council, 2017). Non-nicotine e-cigarette regulations vary across states but they are sold legally to adults in Australia if they are **not** marketed as cessation aids (Greenhalgh & Scollo, 2016). Countries including the United States (US) and the United Kingdom (UK) have less restrictive policies, allowing the legal sale of nicotine-containing e-cigarettes (Rose, Filion, Eisenberg, & Franck, 2015). E-cigarette marketing in the US and the UK often features harm reduction and smoking cessation messaging (Zhu et al., 2014).

A study comparing e-cigarette use between the UK and Australia (Yong et al., 2015) found that current e-cigarette use (i.e., those using e-cigarettes 'daily', 'less than daily', 'less then weekly' or 'less than monthly' rather than 'not at all') lagged in Australia compared to the UK, but prevalence among smokers and ex-smokers increased rapidly between 2010 and 2013 (Australia: 0.6% to 6.6%; UK: 4.5% to 18.8%). Data from the Australian population shows that 'ever use' (i.e., past but not current use) is most common among emerging adult smokers and decreases linearly with age (Australian Institute of Health and Welfare, 2017; Dunlop, Lyons, Dessaix, & Currow, 2016; Yong et al., 2015). In 2016, lifetime use of e-cigarettes among 18 to 24 year old smokers was 49.1%, but only 6.8% of smokers were current e-cigarette users, 9.3% were former users and 33.1% only used them once or twice (Australian Institute of Health and Welfare, 2017).

Given that e-cigarettes are appealing to young adults, and more appealing than other forms of potential cessation assistance, it raises the question of whether the Australian Government should relax its position on e-cigarettes. This question requires understanding whether emerging adults want to use e-cigarettes as a cessation aid. Data from the AIHW shows that for 18-24 year olds, the most common reason for trying e-cigarettes was 'out of

curiosity' (70.7%) and only 13.1% endorsed its use 'to help me quit smoking' (Australian Institute of Health and Welfare, 2017). Studies from the US show that emerging adults, who have the highest rates of having 'ever used' e-cigarettes (Delnevo et al., 2016), are more likely to use e-cigarettes out of curiosity, or because it is something that their friends are doing, than to quit smoking (Kong, Morean, Cavallo, Camenga, & Krishnan-Sarin, 2015; Pepper, Ribisl, et al., 2014). Furthermore, e-cigarettes are marketed in some countries as lifestyle accessories, which has appeal to non-smokers as well as smokers (de Andrade, Hastings, Angus, Dixon, & Purves, 2013). This type of promotion may have helped to establish the acceptability of e-cgiarette use and encouraged rapid uptake in countries such as the UK, where this type of advertising is allowed via the mass media (Hajek et al., 2014).

Mass media advertising of e-cigarettes is not permitted in Australia, therefore, perceptions are likely to have developed from conversations with friends or through exposure on the internet (Greenhalgh & Scollo, 2016). Moreover, the likelihood of e-cigarette uptake is likely to be dependent on the development of pro-e-cigarette social norms. Studies from the US have shown that that e-cigarette uptake among emerging adults is associated with perceived social benefits (Pokhrel, Herzog, Muranaka, & Fagan, 2015; Simmons et al., 2016), but negative social consequences can detract from their use (Case, Crook, Lazard, & Mackert, 2016; McDonald & Ling, 2015; Noland et al., 2016). Studies in other jurisdictions have also demonstrated an association between social acceptability and e-cigarette use (e.g., Clarke & Lusher, 2017; Robertson et al., 2019; Sherratt, Newson, Marcus, Field, & Robinson, 2016).

Anti-smoking mass media campaigns

A core strategy for denormalising tobacco use is anti-smoking mass media campaigns (World Health Organization, 2003; Zhang et al., 2010). Mass media is any communication channel that reaches large numbers of people without relying on person-to-person interaction. Examples include television, radio, newspapers and, more recently, social media platforms such as YouTube. Anti-smoking messages conveyed through mass media have the capacity to produce population-level change and this channel is relatively low cost per person (Wakefield, Loken, & Hornik, 2010). Through mass media campaigns, the population is exposed to messages about the harms of tobacco use and the benefits of quitting. However, by using social marketing principles, these campaigns also have the effect of reminding smokers that smoking is unacceptable and there is a societal expectation that smokers will quit (Bala, Strzeszynski, Topor-Madry, & Cahill, 2013). Both direct and indirect pathways are implicated in social norm-related behaviour change: direct influence occurs through education and modelling where existing norms are challenged and replaced, whereas indirect influence occurs through diffusion of campaign messages via interpersonal discussion within and across social networks, which reduces the social acceptability of smoking (Abroms & Maibach, 2008; Hornik & Yanovitzky, 2003).

There are several comprehensive reviews that have established that mass media campaigns can drive behaviour change across the population (Abroms & Maibach, 2008; Bala, Strzeszynski, & Topor-Madry, 2017; Durkin, Brennan, & Wakefield, 2012). Nevertheless, evidence for the effectiveness of mass media campaigns on reducing tobacco use among youth is mixed (Carson-Chahhoud et al., 2017; Wakefield, Flay, Nichter, & Giovino, 2003). There are a range of factors that can influence whether a specific message

is effective with the target audience, including message tone, execution and theme (Durkin et al., 2012). For example, a recent review exploring the effectiveness of mass media campaigns to reduce youth smoking found only mixed support for using health effects messaging (Allen et al., 2015), a strategy highly effective with adult smokers (Durkin et al., 2012). An additional finding of the review was that there was insufficient evidence to recommend social norms as a theme for reducing smoking among youth, despite research showing that youth are influenced by perceptions of the smoking behaviour of their peers (Allen et al., 2015).

Integrative systematic reviews that offer practical guidance for advertising development and implementation (Bala et al., 2017; Durkin et al., 2012) have emphasised the cognitive and emotional responses to advertising messages rather than the broader social influence arising from campaign exposure (Abroms & Maibach, 2008). Therefore, while social influence is fundamental to mass media communication (Hornik & Yanovitzky, 2003), and the research indicates that smokers are influenced by the attitudes and behaviours of others, the relationship between social norms, smoking cessation, and anti-smoking advertising has been underexplored.

Study aims

The primary aim of the research presented in this thesis was to integrate and expand on the current understanding of the relationship between social norms and smoking cessation among emerging adults. The studies undertaken were designed to extend existing knowledge of social norms in relation to smoking cessation by incorporating specific theoretical frameworks, Focus Theory and Social Identity Theory, which help to explain the mechanisms through which social norms exert their influence on behaviour change.

Furthering our understanding of smoking cessation through the lens of social norms can help to identify key social barriers and facilitators of change, which if incorporated into existing tobacco control strategies, could increase the likelihood of smoking cessation in this age group.

An additional aim of the research was to investigate social norms in the context of two smoking cessation approaches that are highly relevant to young people: e-cigarettes – an emerging industry-driven product designed to replace tobacco smoking, and anti-smoking mass media campaigns – a well-developed public health approach to persuading people not to smoke. The studies provide empirical evidence on the mechanisms through which social norms influence the outcomes of interventions and offer insight that can be tested in future research. These aims were addressed in four studies.

The aim of Study 1 was to explore how participants interpreted smoking cessation when viewed from the perspective of their friends and family in terms of interpersonal discussion, perceived expectations, what behaviours are commonly observed and what behaviours are expected of them. The study was conducted thought focus groups with young adult daily smokers, occasional smokers and ex-smokers. Specifically, the study explores the challenge of transitioning from a smoker to a non-smoker in social settings. It is difficult to ascertain the extent that one can know how others' opinions, beliefs and behaviours influence their own behaviour through direct questions, therefore participants were asked to share their views of their own experiences in relation to others, their perceptions of others' experiences, and what they observed in social settings with regard to smoking and quitting. Thematic analysis of transcripts provided insight into the influence of social norms and social identity as barriers and facilitators to quitting.

Study 2 was a continuation of Study 1 with the second part of the focus group discussion focussed on e-cigarettes. The overarching aim of Study 2 was to gain a deeper understanding of young adult smokers' and ex-smokers' perceptions of e-cigarettes as a cessation aid given that, compared to other jurisdictions, the government and tobacco control experts in Australia were developing a policy position that was not in favour of e-cigarettes. Actual e-cigarette use was incidental to the study and few participants had used e-cigarettes as a cessation aid. Therefore, another aim of the study was to explore how e-cigarette users were perceived by smokers and ex-smokers, and how these perceptions influenced whether there was interest in using e-cigarettes in the future. Pre-existing descriptive and injunctive smoking norms (i.e. what people do and are expected to do when smoking) and identifying as a smoker in some capacity, whether as a daily smoker or social smoker, were identified as influential barriers to e-cigarette use.

The focus group studies provided in-depth understanding of how pro-smoking descriptive and injunctive social norms were often experienced as a barrier to change and how non-smoking descriptive and injunctive norms made it easier to not smoke. However, these studies provided limited understanding of how descriptive and injunctive norms could change after intervention. Study 3, a systematic literature review examining the role of social norms (as defined by the studies under review) in anti-smoking mass media campaigns, was undertaken to examine how tobacco control researchers had utilised social norms (i.e. the influence of others' behaviour or expectations) to influence behaviour change. Anti-smoking mass media campaigns embody a mature field of applied research that is broad in its application of the theories and constructs that are hypothesized to influence behaviour change. Despite widespread impact, interpreting the mechanisms that

underlie the success of these campaigns remains challenging given the different terms and measures used, particularly in relation to social normative processes. Therefore, the aim of Study 3 was to conduct a scoping literature review using a systematic search strategy that explored associations between measures of social norms, exposure to anti-smoking advertising messaging, and smoking cessation. The term 'social norms' encompassed the numerous definitions and measurements of various types of norms used across this body of literature.

The review was not limited to emerging adults, but instead applied to the general population, due to the heterogeneity of studies in terms of aims, design/methods and analysis, as well as varied definitions and inclusion criteria related to sampling. Furthermore, others' smoking and quitting behaviours and expectations, as portrayed through social marketing messages had similar effects on adults and emerging adults, therefore it was deemed unnecessary to restrict the studies included in the review to only emerging adults.

The recurring themes from the first three studies - the influence of pro-smoking norms and smoker social identity as barriers to quitting - provided the basis for the fourth study. These findings, as well as emerging literature, showed that behaviour change may arise from changing what is commonly practiced by a group of people who share an identity, but negotiating such changes are likely to be difficult due to the motivation of the group to protect social identity. These findings also showed that young adults' experiences of quitting smoking involved managing high-risk social situations, which could be difficult if they lacked confidence (i.e. self-efficacy) in their ability to resist smoking.

Self-efficacy is a key factor in models such as the TTI, where social experiences can feed back into a person's attitudes and sense of control, and competencies. Furthermore, the broader smoking cessation literature has demonstrated the importance of self-confidence to resist smoking in social settings as an important predictor of preventing relapse (Gwaltney et al. 2001; Marlatt & Gordon, 1985). However, self-efficacy is generally not a feature of social normative models of behaviour change. Consequently, it is not clear how self-efficacy may relate to the changes in a person's behaviour and their social identity as they attempt to make non-smoking the norm when trying to quit smoking.

Study 4 aimed to expand the conceptualisation of descriptive and injunctive smoking and non-smoking norms (i.e. what people do and expect regarding smoking and quitting) in order to explore how these norms, in combination with smoking-related social identities (i.e. seeing oneself as a member of a social group), were related to self-efficacy to resist smoking. This was achieved by developing a more comprehensive measure of descriptive norm influence by differentiating 'smoking' from 'non-smoking' norms and using multiple versions of smoking-related social identities (i.e. 'smoker', 'attempting quitter' and 'ex-smoker').

Social norms are recognised as a key influence of behaviour change in broader, overarching frameworks such as the TTI, but the mechanisms of social normative change are not the focus in these models. To better understand how the social context evolves and influences how people behave, and expect others to behave, in the face of change, it is useful to consider theories that provide a more comprehensive explanation of how social norms influence behaviour. Together, the four studies described in this dissertation integrate and expand on various social normative frameworks, namely focus theory, social

identity theory and the theory of normative behaviour, in the context of smoking cessation among emerging adults. By integrating multiple frameworks, this dissertation demonstrated that interventions aimed at changing social norms need to be far more sophisticated to capture the context-dependent nature of social normative change, which may involve changes to social identity and social networks to succeed.

CHAPTER 2: STUDY 1

Preamble

The first study was a qualitative study that explored how young adults perceived smoking cessation in terms of impact on social relationships, group dynamics and normative behaviours. Young adult (18 to 25 years), daily smokers, occasional smokers and ex-smokers participated in focus group discussions to share their experiences of smoking and quitting in general and in relation to others, as well as their perceptions of transitioning between smoking and non-smoking social groups. A semi-structured discussion guide was used to initiate conversation and participants were encouraged to share their own perceptions and experiences. Normative behaviour can exist outside of conscious awareness. Therefore it was decided that, rather than using direct questioning about norms, any data that referenced perceptions and experiences relating to others were extracted from the transcripts. Thematic analysis of the coded data provided insight into a range of social experiences associated with quitting. Notably, social norms and social identity were highlighted as potential barriers or facilitators to quitting, depending on the circumstances.

Statement of authorship

Title of Paper	"I'm not the anti-smoker now. I just don't smoke anymore": social obstacles to quitting smoking among emerging adults
Publication Status	☑ Published ☐ Accepted for Publication ☐ Submitted for Publication ☐ Unpublished and Unsubmitted work written in manuscript style
Publication Details	Dono, J., Miller, C., Ettridge, K., & Wilson, C. (2019) "I'm not the anti-smoker now. I just don't smoke anymore": social obstacles to quitting smoking among emerging adults. Addiction Research & Theory. Advance online publication. doi: 10.1080/16066359.2019.1623205

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Contribution to the Paper	I was responsible for the primary authorship of this paper. I conceptualised and designed the study in collaboration with the co-authors. I conducted the thematic analysis and took a lead role in interpreting the results and writing and revising the manuscript. I served as corresponding author and was responsible for manuscript submission, revisions, and responses to feedback from reviewers of the manuscript.
Overall percentage (%)	80
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.
Signature	Date 26 April

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

i. the candidate's stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate in include the publication in the thesis; and

iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

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Signature	Date 15 April 2020

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Signature	Date 16 April

Study 1: "I'm not the anti-smoker now. I just don't smoke anymore": Social obstacles to quitting smoking among emerging adults

Abstract

Background: Emerging adulthood presents unique challenges to smoking cessation that are not well understood. During this phase, smoking identities can develop that become obstacles for quitting, particularly in social situations where smoking is accepted and expected. Using a social identity approach, this study explores how social relationships and normative group behaviours can be barriers to transitioning from a smoker to non-smoker identity. **Method**: Six focus groups of five participants (N=30) were conducted with participants aged 18-25 years (57% male). Participants' smoking status was ascertained to construct six groups, two each of daily smokers, occasional (non-daily) smokers, and ex-smokers. **Results**: Salient in-group identities invoked out-group comparisons that could create barriers to change including feeling conflicted about becoming a "non-smoker", and maintenance of pro-smoking group norms. Three subthemes were identified: 1) Managing the division between smoker and non-smoker groups; 2) The isolation associated with navigating others' expectations about quitting when attempting to quit; and 3) Encountering normative in-group smoking-related behaviours when attempting to quit. **Conclusions**: The transition from smoker to non-smoker, when understood from a social identity approach, is not straightforward. Identifying as a smoker can invoke negative judgements from non-smokers while, conversely, attempting to quit may lead to perceived rejection among smokers. Further research is needed to explore whether perceptions of social risk can be reduced by increasing the salience of a transitional "quitter" identity that helps to reduce the perceived gap between "smoker" and "non-smoker".

Introduction

Quitting smoking in emerging adulthood (18 up to 29 years), presents a unique public health challenge and opportunity. Emerging adulthood is a transitional period associated with increasing independence, changes in home, work and friendship arrangements (Arnett, 2000), and vulnerability to poor behavioural choices, including smoking, that may persist well into adulthood (Hammond, 2005). The opportunity to intervene presents huge potential health gains because quitting before age 30 virtually eliminates all long-term health risk (Doll et al., 2004). Nonetheless, reviews of smoking cessation intervention programmes for emerging adult smokers, have shown limited efficacy (Villanti et al., 2010) or low uptake (Suls et al., 2012). This suggests that the unique circumstances of emerging adults need to be better understood to determine the best strategies for smoking cessation in this population.

Emerging adults' relative underutilisation of cessation programmes may be due to their conceptualisation of their smoking habits and dependence and their identity development. Although nicotine addiction may be a barrier to quitting among emerging adults (Diemert et al., 2013; O'Loughlin et al., 2003; Villanti et al., 2016; Walker & Loprinzi, 2014), they often see themselves as not addicted, or less addicted, to nicotine than older smokers and therefore perceive nicotine treatment and formal cessation programs as unnecessary (Amos et al., 2005; Berg et al., 2010; Berg et al., 2013; Dono, Wilson, Ettridge, & Miller, 2019). Furthermore, some emerging adults view quitting smoking as not urgent due to optimistic beliefs about their ability to quit (Weinstein et al., 2004) or unnecessary by denying being "real smokers" (Berg et al., 2010; Berg, Lin, White, & Alfonso-Barry, 2017).

Internalising a smoking identity has important implications for quitting smoking because feeling positive about being a ‘smoker’ or a ‘social smoker’ can reduce motivation and intention to quit (Song & Ling, 2011; Tombor, Shahab, Herbec, et al., 2015). Emerging adults have smoking identities that are multi-faceted, highly context dependent, take time to develop, and do not necessarily align with their smoking behaviour (Tombor, Shahab, Herbec, et al., 2015). Numerous studies have shown that managing multiple, sometimes conflicting, social identities is necessary in cultures where smoking is increasingly unacceptable (Hoek et al., 2013; Scheffels & Tokle, 2017; Scott et al., 2015). These studies investigated how non-daily smokers used various demarcation strategies to distinguish themselves from ‘smokers’, including imposing restrictions on smoking, and not buying cigarettes. Alternative identities, such as ‘social smoker’ or ‘non-smoker’, protected them from negative perceptions associated with ‘smokers’ but allowed them to continue to smoke when it was considered appropriate.

Although social smokers may reject being labelled a ‘smoker’, smoking facilitates social connections with others who smoke, and can be normative group behaviour in certain circumstances (Hoek et al., 2013; Scott et al., 2015). Therefore, social smokers may be motivated to maintain membership in social networks and group affiliation with other smokers despite identifying as a non-smoker in circumstances where smoking is not the norm. Research has shown that emergent adults can possess different smoker identities concurrently without experiencing conflict because their identity shifts according to what is accepted in the momentary social context (Tombor, Shahab, Herbec, et al., 2015). Social smokers may have fluidity in who they identify with but are motivated to maintain positive feelings associated with each identity when it is salient.

Established smokers have also been shown to be motivated by maintaining a positive social identity, which can hinder quitting. Four qualitative studies (Amos et al., 2005; Haines-Saah et al., 2013; Hefler & Chapman, 2015; McVea et al., 2009) of young smokers who had tried to quit suggested a smoker identity is tied to context and group norms that signfiy belonging. Quitting represented potential group rejection, and the establishment of new, non-smoking friends. Research on the importance of developing a non-smoker identity to maintain smoking abstinence is growing but undertanding of how identity transitions occur is limited (Meijer, Gebhardt, Dijkstra, Willemsen, & Van Laar, 2015; Meijer et al., 2017; Tombor, Shahab, Brown, Notley, & West, 2015). Social division has been identified as one potential factor, particularly in the absence of pro-quitting social norms (Meijer et al., 2017) or when adult smokers and non-smokers hold negative attitudes towards each other (McCool et al., 2013).

Recent theoretical developments in the addiction literature have incorporated Social Identity Theory (SIT; Tajfel & Turner, 1979) and Self Categorisation Theory (SCT; Turner et al., 1987) to explain the social processes underlying the transition from ‘addict’ to ‘recovering addict’. Frings and Albery (2015) proposed the ‘Social Identity Model of Cessation Maintenance’ (SIMCM) after demonstrating that group therapy interventions can create a shared identity that increases self-efficacy to maintain abstinence (Buckingham, Frings, & Albery, 2013). Best and colleagues (2016) proposed a similar theory, the ‘Social Identity Model of Recovery’ (SIMOR), which emphasised changing social networks, norms and influence on transitioning social identities. However, the extent that SIMCM or SIMOR applies to emerging adults is unclear; identifying as an ‘addict’ is uncommon in this age group and group therapy approaches are underutilised.

Nevertheless, SIT provides a useful framework for exploring the relational and behavioural aspects of identity, and its resistance to behaviour change (Jetten, Haslam, Haslam, Dingle, & Jones, 2014; Tajfel & Turner, 1979). SIT posits that membership in a social group or category is important for self-worth, and people are motivated to behave according to social norms of the current salient "in-groups'" to maintain membership, while minimising associations with the "outgroup". SCT (Turner et al., 1987), an extension of SIT, incorporates the context dependent ways that people internalise group membership and behave in ways that are prototypical of the group. Importantly, normative behaviour arises from shared representations of unique group characteristics, which can vary depending on group salience, and thus are always context dependent (Hogg & Reid, 2006). Moreover, the desire to be accepted as a group member increases when identity is strong, and the group is perceived to be under threat, which can produce group polarisation between the in-group and out-group. However, the motivation to maintain group membership may diminish in circumstances where the relevant social identity is not salient. This inter-group perspective is different from other normative approaches that focus on how an individual behaves according to what they perceive as normal or approved by important others (see Reynolds et al., 2015).

Social and contextual factors have also been identified as barriers to smoking cessation in quantitative studies (Bowes et al., 2015; Cengelli et al., 2012; Diemert et al., 2013; Guiney et al., 2015; Jiang et al., 2014; Klein et al., 2013; McClure et al., 2013; Tucker et al., 2005; Tworek et al., 2014; Walker & Loprinzi, 2014). However, these studies have not provided in depth exploration of how social relationships and internalising normative group behaviour through self-categorisation may create barriers for behaviour

change. Furthermore, smoking identity is context-dependent, suggesting that emerging adults face unique social and situational challenges to developing an unwavering non-smoker identity when quitting smoking. A social identity approach builds on this existing research by investigating whether reducing percieved social risk is possible via addressing barriers to re-negotiating social identity.

This study aimed to build on the existing research by exploring how group dynamics and contextual influences may create barriers to quitting among emerging adults. Specifically, this study investigated how young adults who were either daily, occasional or ex-smokers i) viewed their experiences of smoking and quitting in relation to others, and ii) perceived the transitioning between smoking and non-smoking social groups, to elucidate how social relationships and normative behaviours are implicated in the smoking identity and behavioural transition from smoker to non-smoker.

Method

Focus groups were utilised to capitalise on social interactions among group members to generate new insights (Braun & Clark, 2013). Detailed methodology for this study has been described elsewhere (Dono, Wilson, et al., 2019). A professional recruitment firm contacted South Australian residents from their pre-existing, self-referred, research participant database. Study eligibility (i.e., aged 18 to 25 years, English-speaking, lifetime consumption of at least 100 cigarettes) was established using screening questions. Participants were interviewed in six focus groups, with a quota applied to construct two groups each of daily smokers (i.e., smoked every day in the last month), occasional smokers (i.e., smoked less than daily in the last month), and ex-smokers (i.e., non-smoker for at least 1 month). Each group had five participants, with 30 participants in total (57%

male). Following the recommendation that groups share similar lifestyle characteristics to facilitate open discussion (Braun & Clark, 2013), participants were assigned to either a lower or higher socio-economic status (SES) group within each smoking status category based on level of involvement in work and education. The SES criteria for each smoking status category varied due to the characteristics of participants (see Table 1). Prior quit attempts or intentions to quit were not prerequisites for participating in the study, which had broader aims than those specific to this paper (see also Dono, Wilson, et al., 2019). Instead, intentions and experiences with quitting smoking were elicited from group discussion where participants talked about their experiences in as much detail as they were comfortable sharing. These findings are summarised in Table 1. An incentive of $80 AUD was offered for participation in a study that was described as investigating smoking cessation among adults.

Table 1.

Focus group composition (N=30)

Elicited from screening process		Elicited from group discussion:
Groups based on smoking status	Socio-economic status	Quit smoking intentions and experiences
1. Daily smokers (3 males, 2 females)	Lower; Casual work or unemployed	Clear intentions to quit n=5; Prior quit attempts n=4; Quit attempts ranged in length from a couple of days to four months.
2. Daily smokers (2 males, 3 females)	Higher; Working or studying	Clear intentions to quit n=1; Ambivalent about quitting n=4; Prior quit attempts n=4; Quit attempts generally lasted a few days, usually when sick
3. Occasional smokers (3 males, 2 females)	Lower; Studying; unemployed	Former daily smoker n=5; social smoker n=4; smoked to cope with stress n=1; Clear intentions to quit n=1; Ambivalent about quitting n=1; Intent on continuing smoking n=3; Prior quit attempt n=3; quit attempts ranged from 2 months to 1 year; No longer buying cigarettes n=4
4. Occasional smokers (4 males, 1 female)	Higher; Working	Former daily smoker n=1; social smoker n=4; Clear intentions to quit n=4; Not considered quitting because smoked infrequently n=1; Prior quit attempts n=2; No longer buying cigarettes n=3
5. Ex-smokers (2 males, 3 females)	Higher; Full-time work; trade or professional qualifications	Former daily smoker n=5; Quit cold turkey n=5; Multiple quit attempts n=1; Gradually reduced amount smoked n=1; Stopping smoking coincided with change in circumstances n=3
6. Ex-smokers (3 males, 2 females)	Lower; Casual work; trade or professional qualifications	Former daily smoker n=2; Multiple quit attempts n=2; Former social smoker n=3; Quit cold turkey n=3

Note: Smoking status was based on having smoked at least 100 cigarettes in their lifetime and currently smoked daily or occasionally. Socio-economic status was differentiated into higher and lower categories within each smoking status grouping based on participants' employment and/or educational status.

Upon arrival at a centrally located medical research facility, participants were provided with an information sheet and a consent form to sign. This documentation explained that participation was voluntary, and data would be de-identified for analysis and reporting. The first author, who has prior formal training and experience in conducting focus groups, moderated the groups and a research assistant took notes. The groups took place in November 2015 and averaged 56 minutes (range 47 to 60). The study was approved by the University of Adelaide Human Research Ethics Subcommittee. A semi-structured moderator's guide was developed with input from all authors and used to facilitate group discussions. The broad topics relevant to this study included: current and past experiences with smoking, and experiences, perceptions of, and external influences on, smoking cessation. The remainder of the discussion guide focussed on perceptions of, and experiences with, electronic cigarettes, with the results reported elsewhere (Dono, Wilson, et al., 2019). Questions were open-ended and carefully worded to avoid leading responses. Simple prompts, iterative questioning and active listening techniques were used to encourage participants to expand on their initial comments. To reduce the likelihood of introducing researcher bias into the discussion, the moderator frequently referred to the discussion guide, was objective, did not impose their views or preconceptions on participants, and sought feedback from the other researchers on the group discussion following each session. Audio-recordings of the groups were transcribed verbatim by the first author.

A broad, pragmatic and descriptive approach using semantic interpretation (Sandelowski, 2000) was employed in analysis, and thematic coding (Braun & Clark, 2013) was used to identify recurring patterns in the data. Transcripts were coded using N-VIVO

10 (QSR International Pty Ltd, 2012) by the first author using a framework that used a deductive approach based on smoking and quitting questions contained in the discussion guide as well as a broad inductive approach that was guided by SIT. First, raw data were extracted when participants mentioned "others" (i.e., what others do and think; perception of self by others) in relation to smoking and quitting. The broad categories of "smoking" and "process of quitting" were then examined further and re-coded based on patterns (i.e., similar content from multiple people) that were identified inductively after re-reading the transcripts. Codes were then mapped and organised into clusters based on overlapping concepts, which were analysed and interpreted to form major themes. Supplementary Table 1 (Appendix A) provides a summary of the coding process. Note that differences across smoking status categories were not formally analysed due to the diversity in participant characteristics within each group. Nevertheless, responses were grouped together when participants shared similar characteristics in specific contexts, which often aligned with their smoking status.

The moderator debriefed with the research team while conducting focus groups and analysis. All authors discussed the analysis procedure, independently reviewed each iteration of the coding structure, discussed where codes overlapped, provided feedback on the interpretation of themes, and continued to interrogate the results during write-up. Analysis ceased once there was consensus that there were no additional themes to include in the analysis. Participants' quotations are used throughout to illustrate findings relating to each of the themes, coded according to gender (M=male, F=female) and smoking status (daily, occasional or ex-smoker).

Results

The overarching theme was that salient in-group and out-group identities, and associated norms and expectations, were a barrier to change for those wanting to quit smoking. Specifically, those who identified as smokers were often conflicted about wanting to become a "non-smoker" or had difficulty achieving a "non-smoker" status. Those identifying as "social smokers" were generally non-committal about changing their smoking behaviour but were guided by the acceptability of smoking across different situations. Thus, quitting norms were absent or ambiguous in social settings with other smokers because of a tendency to follow long standing pro-smoking, in-group norms to avoid rejection from the group with whom they derived a sense of belonging. Within this overarching theme were three sub-themes: 1) Managing the division between smoker and non-smoker groups; 2) Navigating others' expectations about quitting smoking can be isolating when attempting to quit smoking; and 3) Encountering normative in-group smoking-related behaviours when attempting to quit.

Managing the division between smoker and non-smoker groups

Smokers and ex-smokers managed their awareness of non-smokers' negative perceptions in different ways. Most smokers were aware that they were part of a minority group whose behaviour was not tolerated by non-smokers. Some smokers accommodated the view of non-smokers by segregating themselves into areas where smoking was permitted: *"It's like shunned. You're still like, whose bothered by it, where can we [smoke]"* (M/Daily). There were some smokers who were strongly opposed to changing who they were to accommodate the views of non-smokers. These responses ranged from dismissive: "*The [shopping] Mall you're not meant to smoke…I'll still have a cigarette*

through the Mall, just hold it inside my hand…But unless it's a cop [police officer] come up to you, like telling you off, nothings gonna stop you much" (M/Occasional), to reactionary, as demonstrated in a conversation among participants who strongly identified as smokers and who perceived themselves as being treated differently because they were not following societal expectations:

> *F1 (daily): Well they do that with like life insurance [advertisements] and stuff on the TV all the time, [making a point about being a] "Non-smoker", and that just makes me angry, I don't know why. When I hear that "I'm a non-smoker" it's like ok good, like, I can't get life insurance, none…*
> *Moderator: it doesn't make you want to become a non-smoker though?*
> *F1: No [laugh]*
> *F2: I'm a non-smoker [mocking accent]*
> *F1: Yeah I don't even like the term [laugh], so bad.*

Other smokers responded to perceived social disapproval by being selective about where they smoked so that they could pass as non-smokers. For instance, they hid their smoking from non-smokers: "*Like if I've had one it's like deodorant, mint afterwards. I don't want to be around non-smokers stinking of it…Doesn't stop me having one at the time.*" (M/Daily). Furthermore, some daily and occasional smokers managed others' impressions of their smoking status by intentionally not smoking around certain friends, family and work colleagues who disapproved of smoking: "*Usually when I go interstate to visit my family, cos they don't like me smoking so I just don't*" (M/Daily) and "*It [smoking] was seen as like a probably really bad thing and I didn't want to give off that impression*" (F/Occasional).

Some self-identified ‘social smokers’ explained that they viewed themselves differently from ‘smokers’ and maintained a low level of cigarette consumption to avoid the label of ‘smoker’. However, differing views were held on the extent that social smoking was a problem, as demonstrated by the following comments made by occasional smokers who were discussing their future smoking intentions:

> *“I wouldn’t want to be a smoker. I’d maybe do it twice a month going out or something, but probably when I’m in my mid-twenties I wouldn’t want to be carrying on [smoking] too much” (F/Occasional) and “I’ve always said that I’d probably always be a social smoker. Even if it’s like once every now and then…but I definitely don’t smoke as much now as I used too” (F/occasional)*

In contrast, some ex-smokers considered the continuation of social smoking pointless, even if it was rarely undertaken, as it appeared to contradict a non-smoking identity: “*What’s the point of dabbling every now and then [if I have quit smoking]…just like being a vegetarian who has meat every now and then, there’s no point.”* Furthermore, some ex-smokers had aligned themselves with non-smoking groups who were opposed to smoking, which helped to reinforce their rationale for not smoking:

> *“The way they [non-smokers] react to be even being in the presence of some kind of cigarette smoke or something, they're absolutely repulsed…but I think that makes it a lot easier to be like no I'm not associated with that.” (F/Ex-smoker)*

Ex-smokers also commented on how their relationship with other smokers was affected when they quit smoking. Some ex-smokers explained that their friends who smoked were accepting of their decision to quit; “*a couple of them will say you’re doing*

heaps well man and stuff like that" (M/Ex-smoker). However, other ex-smokers expressed concern that by quitting they would be perceived to be making an implicit judgement about smokers that would be received negatively by their friends: "*I'm not like, I don't know, the anti-smoker now. I just don't smoke anymore*" (M/Ex-smoker) and

> *"I think they felt like I was judging them because I'd quit smoking…me being around them when they were smoking I think made them uncomfortable, which made me feel uncomfortable…I think people thought I got up on my righteous high horse because I decided to quit" (F/Ex-smoker)*

For these participants, not smoking was considered to be making a statement that separated them from the group. From the discussion across a range of smoking identity perspectives, it appears that depending on circumstances, either continuing to smoke or quitting smoking can create tension between wanting or needing to behave differently from what is accepted by the group while seeking to maintain a positive relationship with group members.

Navigating others' expectations about quitting can be isolating when attempting to quit smoking

Participants acknowledged that quitting often involved multiple attempts and occasionally giving in to temptation but indicated others did not understand this process. Participants discussed friends' comments that implied that the only options were "smoker" or "abstainer", with no in-between stage. This implied failure to those who had cut back but not ceased: "*They'll say 'how's quitting going, Good I see' when you're smoking. Makes you feel like shit*" (F/Daily). Nevertheless, some smokers acknowledged that they judged

those who were not meeting their expectations of a 'non-smoker': "*most of my friends have quit smoking but every time we go out it's 'oh can I have a smoke' [with accent], it's like ahh ok*." (F/Daily), implying that their friends did not really want to stop smoking and sought out opportunities to continue smoking. Participants also indicated that non-smokers' expectations of smokers as being able to "just quit" lacked an understanding of the difficulty of quitting: *"Especially for non-smokers…it's like why don't you just stop. Yeah no worries, if it was that easy we would all just stop."* (M/Ex-smoker). Believing that they would be judged negatively for 'falling off the bandwagon' provided motivation to keep quit attempts secret.

For some participants, it was easier to avoid situations or people where they would be tempted to smoke: "*I didn't go out for any kind of social drink or whatever for about three four weeks*" (F/ex-smoker). Many ex-smokers indicated that their circumstances changed so that they spent more time with non-smokers, which made it easier to "stay quit". Some occasional and ex-smokers perceived that smokers were the minority in social groups, which meant that they felt less of a need to join the smokers: "*Here, if someone went out for a smoke, one or two people go out on their own, of my friends anyway…in France, you'd be the one or two people left inside and everybody else would go out for a smoke*" (F/Occasional). Daily smokers tended to hold a different perception; they prioritised being part of the smoking group regardless of the ratio of smokers to non-smokers: "*You're always out, you spend a lot more time together cos you're out having a smoke with each other*" (M/Daily), which could make it difficult to avoid smoking.

Some participants did seek out support from friends and family when quitting, expecting jovial comments such as "cut that out". To avoid temptation, some participants

stated that having a non-smoking partner made it easier to not smoke, and others liked the idea of quitting as a group, although they knew that this would be difficult, as illustrated by this conversation among daily smokers:

> *M1: We've all got this grand idea of quitting together.*
> *M2: That's a problem as well. The quitting together thing, one person sort of faulters. You don't feel the urge anymore, but begin to smoke.*
> *M1: Which can be a pain so it's probably just best to do it by yourself and just be like, [ask friends to] make sure I don't smoke.*

Another daily smoker explained that a joint quit attempt with her partner who smoked was unsuccessful because she would secretly smoke and when he found out he resumed smoking: *"I kind of cheated all the way through…[Because he knew I had smoked] he started [smoking] again, so we both did."* (F/Daily). Thus participants were aware that they could be hindered by others who resumed smoking around them or who lacked sufficient motivation: "*I always ask my boyfriend to quit with me and he always says 'nah I'm not ready'*" (F/Daily). However, one ex-smoker had managed to quit at the same time as a good friend, with whom he frequently smoked, by using e-cigarettes: *"When I bought the e-cigarette thing, I bought him one for his birthday, at the same time and he quit too. So I think that helped - quitting with him" (M/Ex-smoker).* Overall, given the rarity of successfully quitting with others, those who were attempting to quit were often faced with navigating others' potential judgement and undermining behaviours. Some participants were able to cope with this by avoiding situations involving other smokers.

Encountering normative in-group smoking-related behaviours when attempting to quit

Participants described how it was not always possible, nor desirable, to avoid smokers when trying to quit. Instead, they developed strategies to cope with the presence of other smokers. Particularly challenging was the offering and receiving of cigarettes, which were described as well-established behaviours, virtually habitual among daily and occasional smokers. Sharing cigarettes was viewed as mainly benefiting "social smokers" who wanted to avoid buying packs of cigarettes. Identifying as a social smoker allowed them to enjoy smoking without the burden of stigma and health consequences*: "I sort of just brush that aside because I am a social smoker" (*F/Occasional). Instead of buying a pack of cigarettes, they relied on friends to provide them: "*I won't buy cigarettes, I'll 'bum' [ask for] cigarettes off them, or if they offer me a cigarette*" (M/Occasional) and "*I haven't really bought a pack, I'd ring up a friend and ask if they had a cigarette, go and hang out with them just to have a smoke*" (F/Occasional).

Sharing cigarettes often increased rather than decreased the amount smoked in social situations. This was perceived as creating implicit expectations around carrying extra cigarettes to share with friends. This practice made it difficult to abstain from smoking because the onus was on the quitter to refuse offers. Participants explained that they had to develop a strong resolve to resist asking for, or accepting, the offer of a cigarette when trying to quit:

> *"Don't be weak and give in to all those temptations…seeing people smoking is going to be something that is always there. So if you really want to quit you have to prepare to go and ignore that" (M/Daily)*

This challenge was exacerbated by repeated offers. Some ex-smokers interpreted this as a test of their resolve to stay quit: "*It was almost like a little challenge to them to see if they could push you back over the edge [by offering you cigarettes]*" (F/Ex-smoker). Others understood that cigarettes were offered out of politeness and, even though they thought it did not help, they did not feel pressure and could easily say no. There was also an element of stubbornness for some participants, "*I said I don't smoke anymore, I'm pretty stubborn as well, so if I say I don't smoke then you probably have to hold me down for me to have one*" (M/Ex-smoker). Ex-smokers described how it eventually became easier to cope with social situations involving smokers once people stopped offering them cigarettes and categorised them as non-smokers.

Alcohol consumption magnified cigarette sharing and consumption patterns in social settings to the point where it was accepted as normal practice: "*You can't be out in a beer garden having a drink getting drunk without a cigarette*" (F/Ex-smoker). Some participants indicated that it was the only time that they consumed cigarettes: "*If someone has one… and only if I'm drinking. I would never have one sober. I don't even like the smell of it sober*" (F/Occasional). Participants were aware that drinking and socialising made it harder to quit "*I'm sitting there, and there's a table of ten guys, and eight of them are smoking and we're all having a beer…and it's like oh I'll just have one, like yeah chuck us one*" (M/Ex-smoker). Daily smokers also agreed that they smoked more in social settings and seeing someone else smoke was a smoking trigger.

Consistent with sharing and bonding over cigarettes, participants explained that smoking provided a social benefit. The social utility of smoking incorporates multiple social short-cuts, including providing a reason to congregate and bond with like-minded

others, and to initiate or develop conversation: "*If you want to have a decent conversation you go outside and have a cigarette*" (M/Occasional). Participants explained communicating an intent to smoke signals a social exchange: "*you know who to go do the old symbol too [demonstrates by bringing fingers in v-shape to mouth] and go out the back*" (M/Occasional). This implicit expectation could make it difficult to decline the offer "*Even if you don't want one, you'll go outside, 'did you want a smoke', and you're just like, 'mmm, yeah alright'*" (M/Occasional). It created the perception among some that smoking was inevitable in social settings involving other smokers: "*That's the only way you can socialise now*" (M/Daily).

Discussion

Few studies have examined the transition from smoker to non-smoker among emerging adults. This exploratory study provides unique insight into the obstacles faced by emerging adults when quitting by describing how social relationships and normative behaviours create incompatible smoking and non-smoking social identities. Furthermore, the transition is not necessarily straightforward or desirable due to difficulty navigating expectations regarding smoking status. These results suggest that interventions that increase exposure to alternative identities and social networks may facilitate quitting among emerging adults.

Having smoking friends is consistently identified as a barrier to quitting (Cengelli et al., 2012). Consistent with SIT, these results indicate that quitting can make intergroup comparisons between smokers and non-smokers more salient. Distinct smoking identities are reinforced by others' expectations of appropriate behaviour in social settings (i.e., refusing cigarette offers) for those attempting to quit. The meta-contrast principle proposes

that salience of group membership can increase perceptions of within group similarities and maximise outgroup differences (Turner et al., 1987). From this perspective, obtaining non-smoker group membership appeared insurmountable for some smokers with low social mobility, and defensive strategies were used to maintain a positive identity associated with smoking. These smokers were concerned that quitting smoking would make them feel like outsiders and alienate them from their friends and colleagues. Conversely, it was apparent that ex-smokers had access to non-smoker groups, whose approval they valued, through other social networks (e.g., colleagues, teammates). Furthermore, they were aware that developing alternative work and sporting identities and networks was critical to their success and were less concerned about potential rejection from their smoking friends when attempting to quit.

The broader drug and alcohol addiction literature suggests that developing connections with non-using groups is associated with ongoing abstinence (Beckwith et al., 2019; Best et al., 2012). Furthermore, decreased exposure to other smokers is an important predictor of long-term smoking cessation among emerging adults (Tucker et al., 2005). Whether this social change is temporary or sustained through the development of alternative friendship groups is an underexplored area in smoking cessation. One study showed that smokers and non-smokers exist in distinct clusters and whole clusters of smokers quit simultaneously leaving marginalised clusters of smokers on the periphery of social networks (Christakis & Fowler, 2008). Our study extends these findings by showing that having access to meaningful non-smoking groups through study, work or sport reduced the desire to maintain solidarity with smokers, which made it easier to avoid smokers when attempting to quit.

The strategy of withdrawing from social situations when quitting is used by adults of all ages (e.g., Brown, 1996). Yet this practice hides the “transitional” non-smoker from view until they feel ready to self-categorise as a “permanent” non-smoker. Consequently, study participants’ had limited understanding of, or desire for, the development of an ‘attempting quitter’ identity. They preferred an all or nothing mindset which was predicated on their optimism about their ability to quit easily and limited exposure to ‘attempting quitters’ among their peers. The hidden ‘transitional’ non-smoker and the accompanying secrecy presents a social obstacle to quitting as finding other ‘attempting quitters’ to connect with is difficult. Two related and complimentary theoretical approaches, the SIMOR (Best et al., 2016) and SIMCM (Frings & Albery, 2015), highlight the importance of social identity processes in developing a transitional ‘recovering’ identity that ultimately increases the likelihood of remaining abstinent. Studies have shown that therapeutic groups can support the development of a transitional identity (e.g., ‘team stop smoker’) in smoking and addiction contexts through shared affinity with group members (Frings & Albery, 2015; Vangeli & West, 2012). This type of social support is an internalised understanding to act consistently with the group independent of the presence of group members but requires a therapeutic community to establish shared values and normative behaviours.

The encouragement of quitting through shared experiences within a supportive group is not a new approach. However, outside of formal therapy settings, which emerging adults tend to deem unnecessary for quitting (Kishchuk, Tremblay, Lapierre, Heneman, & O'Loughlin, 2004), it is difficult for those attempting to quit to develop a sense of solidarity with other ‘quitters’ in group settings so that new behavioural norms can be established. Moreover, study participants found that group quit attempts were unsuccessful due to

differences in motivation and expectations. Our findings support the development of interventions that facilitate appropriate support within naturally occurring friendship groups (Kishchuk et al., 2004) as well as increased exposure to naturally occurring non-smoking groups, in line with SIMOR (Best et al., 2016). Having access to multiple alternative social groups that support quitting increases the likelihood of coping with challenges (Haslam et al., 2019) and will help circumvent negative comments regarding quit attempts which are acknowledged as an impediment to quitting by participants in this study and in the broader literature (Meijer, Gebhardt, Van Laar, Kawous, & Beijk, 2016). Future research applying recently developed social network identity mapping tools in addiction recovery would be of great value in monitoring the success of this approach (Beckwith et al., 2019).

Participants in this study were aware that quitting smoking challenged existing pro-smoking norms (e.g., not accepting cigarette offers) which could attract unwanted attention and judgement. Other qualitative studies have shown that concern about how others will respond to changes in smoking behaviour was a factor when considering quitting (Amos et al., 2005; Haines-Saah et al., 2013; Hefler & Chapman, 2015; McVea et al., 2009). This study extends this body of work by showing that ex-smokers were required to be extremely persistent in the face of pro-smoking norms and many chose to completely withdraw from social encounters with smokers. Such behaviour may further perpetuate smoking identity divisions between smokers and non-smokers rather than facilitate awareness and support of a transitional attempting quitter identity. From a SIT perspective, an individual's attempt to quit smoking may not be supported by friends who smoke if they perceive a threat to their smoker identity. To maintain a positive self-worth from a smoking identity, such friends will seek to continue normative behaviours to maintain group solidarity. These

undermining behaviours, such as smoking prompts and modelling behaviour, tend to be strong when smoking identity is salient (McVea et al., 2009; Morgan, Ashenberg, & Fisher, 1988). Interventions such as social marketing campaigns that reduce the salience of smoking identities may reduce these pro-smoking norms that continue to present obstacles in group settings for those attempting to quit.

Another method of managing others' expectations of smoking transitions is the adoption of a 'social smoker' identity. In the current study, adopting a "social smoking" identity rather than quitting enabled participants to maintain their connection with fellow smokers without disruption, and to continue to enjoy smoking without the social stigma and potential health effects. Similar results were found for those transitioning from non-smoker to social smoker whereby boundaries were imposed on smoking behaviour to make it feel safe and to avoid risk of alienation from smokers (Hoek et al., 2013; Scott et al., 2015). Consequently, norms for social smoking strengthen smoking as a group bonding activity. Indeed, study participants perceived sharing cigarettes in social settings as ubiquitous. These perceptions may underlie study participants' beliefs that resisting cigarette offers was the responsibility of the person attempting to quit and may contribute to the ambiguity regarding abstinence and quitting norms. Similar to other studies (Burton, Hoek, Nesbit, & Khan, 2015; Guiney et al., 2015; Hoek et al., 2013; Jiang et al., 2014; Marsh et al., 2016; Scott et al., 2015), socialising at premises serving alcohol was noted by study participants as particularly challenging when quitting. Further research on strategies and interventions that de-normalise social smoking is warranted because these norms are potentially compelling those attempting to quit into social isolation and hindering the development of non-smoking identities.

This exploratory study was conducted with a small sample size and was designed to provide the groundwork for developing interventions that acknowledge group dynamics and social identity, as barriers to smoking cessation among emerging adults. Focus groups are susceptible to social desirability effects and one-on-one interviews may have provided an opportunity to probe individual circumstances further (Braun & Clark, 2013). However, collecting perceptions via focus groups enabled interaction among participants, opening up additional lines of enquiry. Self-selection bias may have occurred whereby recruiting participants who had registered to participate in paid research may have attracted people who were more interested in the topic of smoking cessation than the general population (Robinson, 2014). However, the research aims were presented in broad terms to avoid any priming or self-selection bias. Purposefully coding data pertaining to others was driven by the research question, but other factors which were discussed but not analysed (e.g., health risks, addiction, motivation) may also be important for understanding smoking cessation among emerging adults. Furthermore, the sampling strategy of using only 'frequency of smoking' questions to derive 'smoking status groups' prohibited formal analysis of comparative differences between groups. This was due to the diversity of smoking behaviours and quitting experiences exhibited by participants within each smoking status category.

Implications

Countries with advanced tobacco control programs have successfully "denormalised" tobacco smoking. Nonetheless, the social environment presents challenges for emerging adults attempting to quit. This study suggests that interventions aimed at increasing non-smoker identities among emerging adults need to consider the social and

environmental cues that perpetuate pro-smoking norms, including acceptance of social smoking when consuming alcohol. Identity-based branding campaigns are a potential strategy that have received some attention as they attempt to de-normalise smoking by increasing anti-smoking sentiment within peer groups who share an identity such as ‘hipster’ or ‘young professional’ (e.g., Ling et al., 2014). However, this approach does not necessarily facilitate the development of a transitional ‘attempting quitter’ identity. Furthermore, identity transitions are complex and have important implications for maintaining or withdrawing from friendship groups. Future research could explore how to increase the salience and acceptance of a transitional “quitter” identity among emerging adults while minimising threat to others’ smoking identity and social exclusion, thus ultimately reducing the perceived gap between “smoker” and “non-smoker”. If the transition from endorsement of one social identity (smoker) to another (non-smoker) can be managed in a way that minimises social disruption and rejection, the path to ceasing smoking among emerging adults may be smoother.

Conclusion

A social identity approach provides a useful framework to understand many of the social challenges faced by emerging adult smokers when attempting to quit smoking. The transition from smoker to non-smoker may be made difficult because of perceptions regarding what it means to be a “non-smoker” and the implications for withdrawing from friendship groups, as well as managing expectations associated with quitting. Furthermore, it requires navigating social circumstances, such as those associated with social drinking situations, where smoking maybe accepted as the norm. Further research is needed to understand how identity transition may be facilitated among those who have limited access

to non-smoking groups and who derive self-worth from groups that have pro-smoking norms. In addition, smoking cessation interventions for emerging adults should consider the comparative extent to which both non-smokers and smoker identities are valued and accepted.

CHAPTER 3: STUDY 2

Preamble

The results of Study 1 described some of the social challenges that young adults face when attempting to quit smoking. Specifically, the potential transition from 'smoker' to 'non-smoker' can invite perceived judgement and rejection from friends. Study 2 continued examining this possibility by dedicating the second half of the focus group discussion to exploring how social context influences perceptions of e-cigarettes as a cessation aid.

At the time of the study reported here (2015), e-cigarettes were a relatively new product on the market in Australia and, because of their close association with tobacco smoking, were an emerging public health issue requiring a policy response. Policy makers and the public health community were grappling with the need to make decisions on long-term outcomes of use and efficacy as a cessation aid without adequate high-level, scientific evidence. Australia adopted a conservative position about the use of e-cigarettes either for smoking cessation, or as an alternative to cigarettes, because of the inclusion of nicotine, a federally controlled poison. Other jurisdictions, such as the United Kingdom, allowed the sale of nicotine-containing e-cigarettes arguing that a harm reduction policy position was required and because e-cigarettes were viewed as a safer alternative to tobacco cigarettes. Consequently, for Study 2, the discussion on e-cigarettes was intentionally broad to capture the conservative context in South Australia, relative to more permissive environments elsewhere. Furthermore, the discussion was not dependent on participants having ever used e-cigarettes. Therefore, an additional aim of the study was to inform policy development in South Australia, where the e-cigarette marketplace was expanding but no e-cigarette

specific regulations over and above the national poison control legislation had been implemented.

Statement of authorship

Title of Paper	"I don't think I'd feel good about myself if I was to give up smoking and go to one of these": perceptions of e-cigarettes among South Australian young adult smokers and ex-smokers.
Publication Status	☑ Published ☐ Accepted for Publication ☐ Submitted for Publication ☐ Unpublished and Unsubmitted work written in manuscript style
Publication Details	Dono, J., Wilson, C., Ettridge, K., & Miller, C. (2019). "I don't think I'd feel good about myself if I was to give up smoking and go to one of these": perceptions of e-cigarettes among South Australian young adult smokers and ex-smokers. Addiction Research & Theory, 27(3), 258–268. doi: 10.1080/16066359.2018.1501032

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Name of Principal Author (Candidate)	Joanne Dono
Contribution to the Paper	I was responsible for the primary authorship of this paper. I conceptualised and designed the study in collaboration with the co-authors. I conducted the thematic analysis and took a lead role in interpreting the results and writing and revising the manuscript. I served as corresponding author and was responsible for manuscript submission, revisions, and responses to feedback from reviewers of the manuscript.
Overall percentage (%)	80
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.
Signature	Date 26 April 2020

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

iv. the candidate's stated contribution to the publication is accurate (as detailed above);

v. permission is granted for the candidate in include the publication in the thesis; and
vi. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

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Signature	Date 14 April 2020

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Contribution to the Paper	I commented on drafts, made suggestions on the methodology, assisted with the interpretation of the results, and provided editorial input. I also provided advice on responding to comments by the journal reviewers and editor.
Signature	Date 26April 2020

Study 2: "I don't think I'd feel good about myself if I was to give up smoking and go to one of these": Perceptions of e-cigarettes among South Australian young adult smokers and ex-smokers

Abstract

Objective: To explore South Australian (SA) young adult smokers' and ex-smokers' perceptions of e-cigarettes as a possible tool for smoking cessation in a context where only e-cigarettes that do not contain nicotine are legally available. **Design**: Six focus groups: two groups of five participants each for daily smokers, occasional smokers (less than daily) and ex-smokers. Participants (N=30, 57% male) were aged between 18 and 25 years; e-cigarette experience ranged from none (33%), experimental (47%) to using them as a cessation aid (20%). Topics discussed included smoking experiences, smoking cessation, and e-cigarette experiences, observations and perceptions. Transcripts of the discussions were analysed thematically. **Results**: Three overarching themes emerged: 1) E-cigarettes deemed unnecessary for quitting and lack appeal as a quitting aid; 2) Social unacceptability of e-cigarettes; and 3) Ambiguity in how e-cigarettes should be managed given the unknown risks and benefits. These views appeared to limit the desire to use e-cigarettes as a cessation aid. Nonetheless, participants preferred a 'wait and see' approach to regulation of e-cigarette availability, highlighting uncertainty about the evidence of harm. **Conclusion**: Perceptions of e-cigarettes may be shaped by the policy and social environment. Australia's maintained ban on nicotine-containing e-cigarettes signals potential harm, but unlike other Australian states, SA is yet to implement proposed non-nicotine e-cigarette regulations, which may create confusion about the risks and benefits of use. Further research is needed

to identify how to convey information about e-cigarettes that does not undermine existing commitments to protecting the community from potential harm.

Introduction

Electronic cigarette (e-cigarette) availability and use has outpaced the evidence base and policy responses governing their use (Rose et al., 2015). A 2016 study on the global approaches to e-cigarette regulation identified 68 countries with a national e-cigarette policy (Kennedy, Awopegba, De León, & Cohen, 2017). Regulatory approaches varied across countries; only 25 countries had enacted new e-cigarette policies and the remainder applied a range of product classifications to suit existing policies, including 'tobacco product', 'medicinal product', 'consumer product' and 'nicotine as poison'. These policy positions have continued to evolve in response to recommendations from the World Health Organization and the ongoing international debate on the relative benefits versus harms of e-cigarettes (Institute for Global Tobacco Control, 2018).

Australia defaulted to one of the most conservative e-cigarette policy positions due to the classification of nicotine as a poison (National Health and Medical Research Council, 2017). Nicotine-containing e-cigarettes are illegal for sale; non-nicotine e-cigarette regulations vary across states but are sold legally to adults in Australia provided that manufacturers do not market them as smoking cessation aids (Greenhalgh & Scollo, 2016). South Australia (SA; study location) has a pre-existing tobacco control law specifying that products resembling tobacco products are banned from sale (SA Health, 2018), however, e-cigarettes continue to be sold in tobacconists, petrol stations, specialist stores and vending machines. Other Australian states have developed regulations specific to non-nicotine e-cigarettes that control the sale, use and promotion of these products; policy makers in SA have proposed similar regulations but have yet to adopt them (Greenhalgh & Scollo, 2016).

Internationally, two other countries (Czech Republic and Malaysia) also classify nicotine as a poison, and 25 countries have banned all types of e-cigarettes (Kennedy et al., 2017). Other countries such as Canada and New Zealand (NZ) have a conservative approach with a two-tiered system for nicotine and non-nicotine e-cigarettes. The United States (US) and the United Kingdom (UK) are more permissive, with nicotine-containing e-cigarettes legally available (Rose et al., 2015). Australians have access to these unrestricted markets via the internet, which is the most common place for e-cigarette purchases for Australians (Dunlop et al., 2016). This has resulted in some pressure on more restrictive governments to legalise nicotine-containing e-cigarettes, particularly given research findings from the UK and the US suggesting that e-cigarettes expose users to fewer toxins than tobacco cigarettes and may assist smokers wanting to quit tobacco smoking (McNeill, Brose, Calder, Bauld, & Robson, 2018). In response, the New Zealand Government recently announced plans to legalise nicotine-containing e-cigarettes (Ministry of Health, 2017). However, the Australian Government has not yet acquiesced, taking a precautionary approach and arguing that there is insufficient evidence to conclude that e-cigarettes are a safe and effective cessation aid (National Health and Medical Research Council, 2017; Theraperutic Goods Administration, 2017). The precautionary approach adopted by Governments worldwide is driven by concerns that e-cigarettes have the potential to undermine success in tobacco control by providing a ‘gateway’ to tobacco smoking for adolescent non-smokers (Barrington-Trimis et al., 2016) or reduce motivation to quit smoking among those who become dual users of tobacco and e-cigarettes (Chapman, 2014).

Prevalence data on e-cigarette use in Australia is sparse and does not differentiate the various device types that have become increasingly available as e-cigarettes have evolved from disposable 'cigalikes' to increasingly modifiable 'vaporizers' that allow users to control nicotine delivery. Current e-cigarette use, as defined by Yong et al. (2015) as 'less than monthly or more often', lagged in Australia compared to the UK, but prevalence among smokers and ex-smokers increased rapidly between 2010 and 2013 (Australia: 0.6% to 6.6%; UK: 4.5% to 18.8%). A recent survey estimated that 1.2% of the Australian population reported 'current use' in 2016 but the rate was higher among smokers (4.4%) compared to ex-smokers (1.1%) and never smokers (0.4%; Australian Institute of Health and Welfare, 2016). Australian data also revealed that 'ever use' (i.e., past but not current use) was most common in young adult smokers and decreased linearly with age (Dunlop et al., 2016; Yong et al., 2015). Despite current e-cigarette use remaining low, additional SA data shows that between 2014 and 2016 population-level awareness of the existence of e-cigarettes increased from 81% to 85%, and experimentation also increased from 10% to 12% (Dono J, Bowden, & C., 2015; Martin K, Bowden J, & Miller C, 2017).

Quitting tobacco smoking is an oft-cited reason for using e-cigarettes (Pepper, Ribisl, et al., 2014). The hand-to-mouth action and the exhalation of a smoke-like vapour makes e-cigarette use similar to tobacco smoking, particularly in terms of sensory feedback, offering an advantage over other forms of cessation aids for those who miss the physical sensations of smoking when they try to quit. However, many people discontinue e-cigarettes after 'just experimenting' (Pepper, Ribisl, et al., 2014). US studies show that young adults (aged 18-24 years), who are the highest 'ever use' consumers of e-cigarettes (Delnevo et al., 2016), are often more interested in trying e-cigarettes out of curiosity or

friends' influence than for goal-oriented reasons such as assistance with quitting (Kong et al., 2015; Pepper, Ribisl, et al., 2014) and friends are frequently cited as sources of e-cigarette information (Hall, Pepper, Morgan, & Brewer, 2016; Pepper, Emery, Ribisl, & Brewer, 2014).

The extent that peers influence e-cigarette perceptions and uptake may relate to social context which can vary within and across jurisdictions. Several US-based studies have demonstrated that e-cigarette uptake among young adults is helped by perceived social benefits (Pokhrel et al., 2015; Simmons et al., 2016) but is also hindered by perceived negative social consequences (Case et al., 2016; McDonald & Ling, 2015; Noland et al., 2016). An association between social acceptability and e-cigarette use has also been observed in UK and NZ adolescent and adult populations (e.g., Clarke & Lusher, 2017; Robertson et al., 2019; Sherratt et al., 2016).

This raises the question of whether e-cigarette experimentation may stimulate interest in young adult smokers to use e-cigarettes as a smoking cessation device, and if so, whether Governments and health authorities should be more encouraging of e-cigarette use. Young adulthood, ranging from 18 up to 29 years, is recognised as a developmental stage that is associated with significant changes in social, living and working arrangements that can entrench smoking habits that persist into adulthood (Hammond, 2005). Targeting young adult smokers is complex because it may contradict e-cigarette prevention messaging aimed at adolescent and young adult non-smokers. Yet young adulthood is a critical time in which to target resources encouraging smoking cessation even though it is an overlooked stage of life for smoking interventions (Bader et al., 2007). Tackling quitting at this age is particularly important because it represents an opportunity to intervene where

success would virtually eliminate all health risk (Doll et al., 2004). Many young adults state interest in quitting when asked (Cengelli et al., 2012), yet this group is difficult to reach because they tend to underutilise cessation support services and aids (Suls et al., 2012). The typical quitting age tends to be older, with Australian data from both 2010 and 2013 indicating that the average adult quitter is 35 years of age (Australian Institute of Health and Welfare, 2016).

An exploratory study was undertaken to gain a deeper understanding of young adult smokers' and ex-smokers' perceptions of e-cigarettes as a cessation aid in a relatively unique environment. Specifically, an environment subject to existing political and social influences that, compared to other countries, is relatively unaccepting of e-cigarettes as a harm minimisation strategy for smokers, but has not moved to a total e-cigarette ban. Gaining insight into attitudes towards e-cigarettes within this environment will provide valuable insight for policy development in jurisdictions that are yet to implement e-cigarette specific regulations despite the presence of a burgeoning e-cigarette marketplace. Exploring these perceptions among young adults is also of particular interest given cessation rates are lowest among this age group and the most effective strategies for cessation are still unclear.

Method

A focus group study design was utilised to facilitate the generation of insightful data. Focus groups are dynamic and capitalise on social interactions among group members to reveal how the meaning of a topic is negotiated and understood collectively (Braun & Clark, 2013). A professional recruitment firm contacted people located in SA from a pre-existing database of people who had expressed interest in paid research participation.

Potential participants were asked screening questions to ensure they met the inclusion criteria (i.e., aged 18 to 25 years and able to converse in English; and had smoked at least 100 cigarettes in their lifetime). Table 1 displays the structure of the groups. A quota was used for smoking status to enable two groups of five participants each for daily smoker (i.e., smoked every day in last month), occasional smoker (i.e., smoked less than daily in last month, or ex-smoker (i.e., non-smoker for at least one month). The recruiter also ascertained work and education status to assign participants to groups based on similar characteristics to help facilitate an open discussion (Table 1; Braun & Clark, 2013). Prior e-cigarette use was not a prerequisite for study participation because of the overall low prevalence of current e-cigarette use, and the legal restrictions on e-cigarette sales in SA. E-cigarette use was elicited from group discussion where participants talked about their own e-cigarette use in conversation with others, revealing as much detail as they felt comfortable with based on their own understanding of e-cigarette devices. From this discussion, three distinct groups of e-cigarette use pertaining to quitting smoking were apparent: none (had never used e-cigarettes; 33%); experimental (had used e-cigarettes but for reasons other than to quit smoking; 47%); and using them as a cessation aid (had used e-cigarettes for reasons including to quit smoking; 20%). A brief description of the study (i.e. an investigation into smoking cessation among young adults) was provided and an incentive of $80 AUD was offered for participation.

Table 1.

Focus group composition (N=30)

Elicited from screening process				Elicited from group discussion: Experience with e-cigarettes		
Groups based on smoking status (n=5 per group)	Socio-economic status	Males	Females	Experimental use only	Experimental and cessation aid use	No experience
1. Daily smokers	Lower; Casual work or unemployed	3	2	2	3	0
2. Daily smokers	Higher; Working or studying	2	3	3	0	2
(Daily smokers subtotal [n=10])		(5)	(5)	(5)	(3)	(2)
3. Occasional smokers	Lower; Studying; unemployed	3	2	3	0	2
4. Occasional smokers	Higher; Working	4	1	4	0	1
(Occasional smokers subtotal [n=10])		(7)	(3)	(7)	(0)	(3)
5. Ex-smokers	Higher; Full-time work; trade or professional qualifications	2	3	1	1	3
6. Ex-smokers	Lower; Casual work; trade or professional qualifications	3	2	1	2	2
(Ex-smokers subtotal [n=10])		(5)	(5)	(2)	(3)	(5)
Total	N=30	17 (57%)	13 (43%)	14 (47%)	6 (20%)	10 (33%)

Note: Smoking status was based on having smoked at least 100 cigarettes in their lifetime and currently smoked daily or occasionally. Socio-economic status was differentiated into higher and lower categories within each smoking status grouping based on participants' employment and/or educational status.

Focus groups were hosted at a centrally located medical research facility in SA. On arrival, participants were provided with an information sheet describing the study rationale and a consent form to sign, indicating that participation was voluntary and that the data would be de-identified for analysis and reporting. The groups were moderated by the first author, who has training and experience in conducting qualitative research, and a research assistant took notes. The focus groups were conducted over three days in November 2015 and were approximately one hour in duration (average 56 mins; range 47 to 60 mins). The study was approved by the University of Adelaide's Human Research Ethics Subcommittee.

A semi-structured moderator's guide was developed to facilitate discussion in line with the research aims (Table 2). Visual stimuli that exposed participants to the portrayal of e-cigarettes from multiple perspectives (see descriptions and links in Table 2) were used to facilitate an inclusive discussion among participants who differed in their familiarity with e-cigarettes. The groups were audio recorded and transcribed verbatim. Analysis comprised of a broad, descriptive approach (Sandelowski, 2000) using a thematic coding method (Braun & Clark, 2013) to identify patterns that best represented the data. Both inductive and deductive approaches were used and a semantic (i.e., explicity rather than implicit) interpretation of the data was utilised. The first author coded the transcripts using N-VIVO 10 (QSR International Pty Ltd, 2012) and initially organised the data according to participants' experiences or perceptions of e-cigarettes. Subsequent re-reading and coding identified clusters of responses which were mapped according to overlapping concepts which were analysed and interpreted to construct themes. The themes and illustrative quotes were reviewed by all authors and refined iteratively through discussion; analysis

ceased once it was agreed that no new themes could be identified from the data. Participants' quotations, along with their gender, age, smoking status (daily, occasional, ex-smoker) and e-cigarette experience (none, experimental, cessation), are reported in the results section to illustrate the themes.

Table 2.

Semi-structured discussion guide for smokers and ex-smokers

Topic, prompts, and description of visual stimuli	Average time allocated
Section 1: Introduction and setting the scene	10 mins
Smokers: Current experiences with smoking. How often you smoke, when and where you smoke? How common is it to smoke when you are with friends (how many of your friends smoke)? Ex-smokers: Past experiences with smoking. How often did you smoke, when and where did you smoke? How common was it to smoke when you were with friends (how many of your friends smoked; how many currently smoke)?	
Section 2: Smoking cessation: experiences, perceptions, external influences[i]	16 mins
Smokers: Thoughts and opinions on stopping smoking. Have you ever tried to quit smoking? How did you do it? Can you imagine a time when you will no longer be smoking? Is this related to age/life stage, social support, number of quit attempts? What about using cessation aids such as NRT, prescription meds, Quitline, apps, websites? Would you discuss with others or go it alone? How important is approval from others when considering quitting smoking? Ex-smokers: Thoughts and opinions on stopping smoking. When did you stop smoking? How did you do it? Before you stopped, could you imagine a time when you would no longer be smoking? Was this related to age/life stage, social support, number of quit attempts? What about using cessation aids such as NRT, prescription meds, Quitline, apps, websites? Did you discuss with others or go it alone? How important was approval from others when quitting smoking? External smoking cessation messages What messages do you hear from others about stopping smoking? WHO: Family, friends, peers, media, workplace, educational facility; WHAT: health, social, financial, offer of support How do these messages differ from your own thoughts about not smoking? How are they similar? How do you respond to these messages?	
Section 3: E-cigarettes – knowledge, experiences, perceptions as a cessation aid, perceptions of e-cigarette users, external messages about e-cigarettes	16 mins
DESCRIPTION OF VISUAL STIMULI: picture of 2nd generation e-cigarette (i.e. modifiable) - featuring a hand holding a large, cylindrical, electronic looking device and a cloud of smoke/vapour	

What is the first thing that comes to mind when you look at this picture? Can you tell me what you know about e-cigarettes? Prompt for personal use, purpose, availability, use as a cessation device, novelty, harm, flavours if necessary. Do you think that it signals an intention to quit smoking? How would you feel about this? What are your perceptions of e-cigarette users reasons for use, approval of others, need approval from others before using? What about other uses, such as a long term replacement for smoking? External messages regarding e-cigarettes: Are you aware of any media that has portrayed e-cigarettes? If so, what do think these types of messages are telling you about e-cigarettes compared to other messages about stopping smoking?	
Section 4: Perceptions of messages portrayed in e-cigarette advertisements	9 mins
DESCRIPTION OF VISUAL STIMULI: e-cigarette advertisements sourced from a leading US e-cigarette manufacturer (‘Blu e-cigarettes’), one depicting the social benefit of using an e-cigarette (i.e. ‘Leader of the pack’) and the other encouraging people to switch to e-cigarettes (i.e. ‘Why quit? Switch to Blu’), available for viewing at http://tobacco.stanford.edu/tobacco_main/main_ecigs.php. What are your first impressions of these ads? Do they make you curious about trying? Consistent with other messages about stopping smoking? What about using them for reasons other than quitting smoking?	
Section 5: Perceptions of anti-e-cigarette advocacy message reported in the media	9 mins
DESCRIPTION OF VISUAL STIMULI: 180-word news article, originally published in the Herald Sun Newspaper on May 8 2015 and titled ‘More calls for a ban on e-cigs’, which featured comments made by health policy advocates regarding the possibility of banning e-cigarettes in light of concerns about safety, youth uptake, and insufficient evidence for quitting smoking What are your thoughts about this story? Does it change your views on e-cigs? What are your thoughts on attempts to stop people from using a product which some people claim helped them to stop smoking?	
Debrief and close session	

Note: The groups were run flexibly and responsively to the comments raised by participants, therefore, this guide was used to steer conversation to cover the main topic areas meaning that the order and wording of the questions varied across groups. [i]Results reported in Study 1.

Results

After a process of iterative coding and analysis, three themes describing young adults' attitudes to e-cigarettes were identified: e-cigarettes deemed unnecessary for quitting and lack appeal as a quitting aid; social unacceptability of e-cigarettes; and ambiguity in how e-cigarettes should be managed given the unknown risks and benefits. These themes were identified by analysing comments made across all disclosures within the discussions and not necessarily in direct response to the presentation of e-cigarette stimuli.

E-cigarettes deemed unnecessary for quitting and lack appeal as a quitting aid

Participants perceived e-cigarettes as having limited value when quitting smoking. E-cigarette use was likened to smoking and participants held the view that quitting smoking required the cessation of all products resembling or substituting tobacco use. This was best illustrated in a discussion among daily smokers (Table 3). Participants emphasised the importance of internal motivation and mindset and most believed that they would successfully quit when they 'felt ready' and had identified the 'right' time to do it. While some smokers were concerned that the motivation to quit may never arrive: 'Personally, it doesn't really make any sense…I know it's bad…I have this weird thing that maybe I'll just be ready. Eventually.' (Male, 25, daily, experimental), most believed that with the right motivation they could push through any difficulties they might experience in quitting. Ex-smokers expressed a similar mindset, explaining that they had quit smoking with minimal intervention based on a decision to prioritise activities that were incompatible with smoking: 'I'll just go head to the gym, cos don't wanna smoke while I'm on the treadmill.' (Male, 22, ex-smoker, experimental).

Table 3.

Discussion about quitting smoking among daily smokers

Person: gender, age, e-cigarette experience	Discussion
1; Female, 25 years, experimental	I think it's a mind over matter sort of thing…and I wouldn't be able to drink or anything else
2; Male, 23 years, cessation	But its, if I, when I do quit it'll be cold turkey probably. It's just the easiest way that I've found to do it
3; Male, 22 years, cessation	It is, yeah
4; Male, 23 years, cessation	Because otherwise I think, like, if you do that [use e-cigarettes], you're always expecting to blow out smoke, like always
2; Male, 23 years, cessation	Yeah
4; Male, 23 years, cessation	Like as in, humans are meant to blow out smoke, at all times out of their mouth, but really that's not true, you should be you know sucking in fresh air and just stuff like that and that [e-cigarette] just like reminds you that alright I've quit but at all times I've still got to have this, you know, blowing smoke or socially or go somewhere, I don't know. Its still, yeah it's still there. So cold turkey's the proper way, hard to do obviously, but, that's what I gotta do.
Moderator	Do you have strategies to help with the cold turkey method, or is it just stopping and hoping for the best?
4; Male, 23 years, cessation	Yeah, na, that's probably what it is, cos just have something
2; Male, 23 years, cessation	Find something else to do
1; Female, 25 years, experimental	Yeah, preoccupy yourself
3; Male, 22 years, cessation	Yeah, waiting for an opportunity or something like that, like especially getting sick and sort of being unable to smoke for a few days
2; Male, 23 years, cessation	Yeah, yeah
3; Male, 22 years, cessation	And sort of realise well I haven't smoked for four days already I can just
2; Male, 23 years, cessation	Maybe keep it going sort of thing, you know. I don't know, as much people give New Year's Resolution shit, I did four months off from it, it was pretty good. Seemed to work...I mean until I started smoking again [Laugh].

Few participants had used e-cigarettes as a cessation aid (6 out of 30) but those who had used them were more knowledgeable about device type. Two smokers indicated that they had trialled non-nicotine e-cigarettes and one smoker had used a modifiable nicotine-containing e-cigarette as a cessation aid and all were, ultimately, unsuccessful in their quit attempt. They found cigarette cravings difficult to manage with e-cigarettes, resulting in simultaneous use of tobacco and e-cigarettes.

> *I didn't have a nicotine one, so it didn't help me quit smoking in the end. But when I was driving, I was just like using it to cut down. (Male, 22, daily, cessation)*

Three ex-smokers had incorporated e-cigarettes into their quit attempt, two using a disposable non-nicotine device and one using a modifiable nicotine-containing device, but all used multiple strategies to cope with triggers for smoking (e.g. drinking alcohol) and attributed their success to other factors such as maintaining the appropriate mindset.

> *It was kind of like a last resort thing for me, push myself mentally as far as I can go without having one, and then, if I'm out drinking or whatever, at least I knew that I had that [an e-cigarette] to turn to as opposed to bumming a smoke off someone, so it wasn't an all day, every day, alternative…you just have to make a place in your mind for it. (Female, 24, ex-smoker, cessation)*

Participants believed that the real health benefit would come from quitting all products that resembled or substituted tobacco smoking. They were concerned that e-cigarettes had the potential to reinforce smoking behaviours and tobacco-related sensory

experiences and that replacing one habit with another would undermine their goal of quitting tobacco smoking for good.

> *I don't think I'd feel good about myself if I was to give up smoking and go to one of these [E-cigarette]. I don't think I would have, like, thought to myself that oh yeah you've done good job you've quit…cos you haven't… (Female, 25, daily, experimental)*

Some participants, particularly e-cigarette experimenters, were unsure whether nicotine was present in the devices that they had trialled. Others had deliberately sought out nicotine-containing e-cigarette devices. Irrespective of e-cigarette experience, the presence or absence of nicotine was a major consideration in participants' perceived judgement of whether e-cigarettes would help or interfere with quitting tobacco smoking. Participants suggested that, without nicotine, e-cigarettes did not produce a 'hit' and would be perceived as unsatisfying and unhelpful in managing cigarette cravings: 'Without nicotine, it's not really gonna help to be honest' (Male, 25, daily, experimental); non-nicotine e-cigarettes were viewed as 'stupid': 'If that had no nicotine in it, was just a thing that you did… it just seems so stupid.' (Male, 25, occasional, none). Paradoxically, some participants also viewed nicotine-containing e-cigarettes as unhelpful because they might reinforce a nicotine addiction or lead to increased nicotine dosage: 'If you've got nicotine in there you're still feeding that addiction (Female, 22, ex-smoker, none); participants were concerned for those who resumed tobacco smoking after experimenting with e-cigarettes.

> *When I had one with nicotine in it, I became a lot more addicted to nicotine. I didn't have to go through a whole cigarette, I would just have a little puff [on e-cigarette] whenever I wanted it…then when I went back to [tobacco] smoking I*

> *was suddenly smoking like twice as much as I was before. (Male, 23, daily, cessation)*

However, some participants believed that nicotine-containing e-cigarettes had fewer side effects than tobacco and could provide a potentially safe alternative to smoking tobacco for older, long term, addicted smokers who might need help to quit.

> *I thought that was like the main point, at least you're still getting nicotine…[parents think] I don't want smoke around my kids, I'll just have e-cigarettes instead. (Female, 24, occasional, none)*

Curiosity was described as a potential motivator of e-cigarette experimentation. Novel features, the variety of flavours, and new ways of 'blowing out smoke' were considered as attractive to young people:

> *You get to sit there and play with the smoke essentially…They're all flavoured and they're all different colours and they light up and they're shiny and stuff you know stupid kids like stuff like that…I would have liked stuff like that when I was a kid. (Male, 23, daily, cessation)*

Nevertheless, participants explained that their own interest in e-cigarettes was short-lived because they preferred the 'real thing'; not a 'light' version of tobacco smoking: 'Doesn't quench that, cigarette thirst…yeah it's like, diet coke…like diet cigarette.' (Male, 23, occasional, experimental). E-cigarettes were also compared unfavourably to tobacco cigarettes with regard to physical features such as size, weight, battery life, and sourcing cartridge refills.

> *The ones that I had were quite heavy so it doesn't feel the same as a cigarette does in your hand, but the motion that you're making is the same, so, that's probably what kept me doing it for a little while, it's not the same sensation when you take a drag in, it's not the same sensation in your hand. (Female, 24, ex-smoker, cessation)*

Social unacceptability of e-cigarettes

Participants were conscious of how they might be perceived by others when using e-cigarettes and compared it to how they were perceived as smokers or ex-smokers. Participants were conscious of the stigma associated with tobacco smoking. Ex-smokers suggested that the stigma from tobacco smoking would carry over to e-cigarettes and did not want to be associated with that image: 'I don't want people to think I'm a smoker now' (Male, 22, ex-smoker, experimental). Smokers tended to respond defensively when considering stigma and the societal expectation on them to quit: 'Kinda makes me wanna smoke more out of spite' (Female, 22, occasional, experimental) and so were concerned that switching to e-cigarettes or quitting smoking could exclude them from bonding experiences with their fellow smokers:

> *There's no exclusive, like club for it, where you go outside and have a cigarette…you can just do it inside…There is some sort of loyalty…to your fellow smokers…If I went out for a smoke with them and they were like yeah you wanna cigarette and I'm like na I've got this e-cigarette, they'd be like oh what [laugh] come and die, like, kill yourself with me.' (Male, 25, occasional, none)*

Discussions of e-cigarette use focussed mostly on others' use, partly due to limited personal experience, but also because of perceived disapproval by their peers and their

reluctance to share positive e-cigarette experiences. The social unacceptability of e-cigarettes was most evident when participants mocked others for using them in public: ‘You see a guy… driving having one… laugh at him cos he's like [laugh] he's only like one dude doing it’(Male, 23, occasional, experimental). Some even expressed unwillingness to have others perceive them as an e-cigarette user:

> *I would quit just by smoking publicly with one of these. The people you see smoking these inside look like complete d*ckheads…it’s like if you wear sunglasses inside you don’t do it cos you look like an idiot. (Female, 25, daily, experimental)*

Non-tobacco smoking e-cigarette users were perceived as attempting to achieve a social status that was once associated with tobacco smoking; they were attempting to be ‘cool’ and rebellious without the health risks or stigma: ‘Kinda sounds like, oh yeah I'm cool I'm smoking, but I'm not actually getting lung cancer.’ (Male, 22, ex-smoker, experimental). Participants acknowledged that tobacco smoking had appealed for the very same reasons when they were younger, but this view has since changed and most now regretted taking up smoking. Participants were highly critical of attempts to capture the former ‘smoker’ stereotype and apply it to e-cigarette users.

> *They're trying to say it’s cool (Male, 25, occasional, none)*
> *Like it’s almost better than cigarettes and if you're not smoking you should at least do that [use e-cigarette] (Female, 24, occasional, none)*

Former tobacco smoking e-cigarette users were also viewed negatively. Those with friends who had switched from tobacco to e-cigarettes discussed how their friends' habits had shifted away from 'normal' smoking behaviour to 'unusual' patterns of use.

> *Couple of lads from footy who are tryin' a quit are constantly on 'em, all the time, just cos they're tryin' a suck something out of them, like, tryin' a smash into them and it's just not doing it for 'em (Male, 24, ex-smoker, none)*

Participants made the point that shisha (i.e. water pipe tobacco or hookah) was another product that had similarities with tobacco smoking and e-cigarette use. Shisha use was understood as a social activity that was undertaken at a designated location or event, regardless of smoking status. It was not considered as stigmatising as cigarette smoking because non-smoking friends were willing to participate in the activity: 'It's definitely a different experience to smoking an actual cigarette, my girlfriend doesn't smoke, she has the shisha when we go out to town sometimes.' (Male, 25, occasional, none). E-cigarettes were likened to shisha: 'It just tastes, it's like shisha but not.' (Male, 23, occasional, experimental). Some participants viewed this positively because of the convenience: 'If we wanna go out and have something shisha-ish we can only go to a particular place with a particular group, whereas this you can go out anywhere and do it.' (Female, 22, ex-smoker, none), whereas others prioritised socialising: 'If you are going to do something like that [use e-cigarette] then you may as well get a shisha, and have everyone around the table with a shisha' (Female, 25, daily, experimental).

Ambiguity in how e-cigarettes should be managed given the unknown risks and benefits

Most participants had limited awareness and understanding of the debate around existing and potential e-cigarette legislation. Some participants expressed confusion about the inconsistent reporting of e-cigarette harms and benefits when attempting to access information online: 'I've seen conflicting information online. I tried to look it up and I've seen a couple of studies saying it's not bad for you it's just the nicotine if you've got nicotine in it, and then a couple saying that it is.' (Male, 25, ex-smoker, cessation). Participants noted that they could easily source reliable information online on the harms of tobacco: 'I can go and find out pretty much everything there is to know about the effects of smoking with like raw data and stuff by looking at my phone.' (Male, 23, daily, cessation), and therefore expected the same regarding e-cigarettes. There was a presumption of intensive investigation into the safety of e-cigarettes and that any evidence of harm would be shared widely and acted upon quickly.

> *Hopefully, we're at the point where technology moves fast enough that they can come up with some solid evidence that they're doing bad things to you umm before people really take them on board. (Female, 24, ex-smoker, cessation)*

The perceived absence of such information was viewed as a sign that e-cigarettes were safe to use: 'There's no commercial about a vaporiser killing you yet.' (Male, 23, daily, cessation).

Participants were suspicious of e-cigarette industry motives in helping smokers to quit. Participants also expressed concern about tobacco industry involvement in the sales and promotion of e-cigarettes, particularly their deceptive methods to entrap a new

generation of addicted consumers: ‘The ones with nicotine I'm guessing probably owned by like cigarette companies. If they're losing money on like because people are buying e-cigarettes, they just wanna make their time with e-cigarettes’ (Male, 23, occasional, experimental). They suspected that social settings involving other smokers would make e-cigarette users highly susceptible to switching to tobacco cigarettes.

> *You go outside and then everyone's having real cigarettes and you're like ok…this thing’s dead now [E-cigarette ran out of charge]…I don't wanna just sit around here and not be cool…so it’s like oh can I pinch a smoke, and then next thing you know, you're actually a smoker. (Male, 22, ex-smoker, experimental)*

A few participants had developed opinions on e-cigarettes based on their own experiences or stories told by friends. The desire to avoid health-related effects of smoking and lingering odours from smoking tobacco cigarettes were discussed as potential reasons for e-cigarettes having some long-term value: ‘I can see myself switching to them at some point, doesn’t hurt my lungs as much, it doesn’t make me cough as much.’ (Male, 22, daily, cessation). However, some participants had already experienced physical side effects from e-cigarettes: ‘It’s the worst, you still cough from an e-cigarette, I don't care what anyone says, the vapour’s bad for you as well.’ (Male, 23, occasional, experimental). The risk of e-cigarette dependency and subsequent long-term health consequences was also raised as a concern.

> *I think it’s really circumstantial like someone whose really heavy smoker constantly smoking, one of these is probably better for them cos it’s not as bad for them. But at the same time someone who doesn't already smoke might be*

just like oh I can smoke without many side effects like everyone else, like, could just encourage people do it more. (Male, 25, daily, experimental)

Participants expressed uncertainty about regulating e-cigarettes without further information. Both pro- and anti-regulation arguments were made; some participants suggested e-cigarettes should be treated like tobacco cigarettes and that advertising of e-cigarettes should be banned: 'It should be treated the same as smoking, you know, same boundaries cos it's still smoking' (Female, 23, ex-smoker, cessation). Conversely, others said people should be allowed to make unhealthy choices and suggested e-cigarettes might help people quit smoking tobacco cigarettes: 'Yeah I think you should keep 'em…you know, just have that alternative' (Male, 23, occasional, experimental). Few participants agreed with an outright ban on e-cigarettes and some thought that it made more sense to ban tobacco cigarettes than e-cigarettes: 'Can't they ban cigarettes before they ban e-cigarettes?' (Female, 24, occasional, none).

Discussion

The aim of this study was to explore young adult smokers' and ex-smokers' perceptions of e-cigarettes as a potential quitting aid in a relatively unique policy and social environment. Australia has a ban on the sale of nicotine-containing e-cigarettes and legal ambiguity regarding non-nicotine e-cigarette sales, and from a global perspective, is relatively unreceptive to e-cigarettes as a harm reduction strategy. Participants in this study suggested e-cigarettes were: unlikely to help young adult smokers quit, unappealing compared to tobacco cigarettes, and socially unacceptable among their peers. However, most participants had only a rudimentary understanding of e-cigarettes due to brief

experimentation and no desire to continue using them. This is consistent with other studies demonstrating that short-term experimental e-cigarette use, which is more common among young adults, is associated with curiosity or influence from friends rather than motivated by a desire to quit smoking (Dunlop et al., 2016; Pepper, Ribisl, et al., 2014; Pokhrel et al., 2015).

The finding that e-cigarettes were incompatible with participants' notions of quitting smoking is consistent with the broader young adulthood literature on quitting smoking and the role of cessation aids (Suls et al., 2012). Participants indicated that they expected to quit all products that resembled or substituted tobacco smoking in the future and that they were waiting for sufficient motivation and mindset to find the 'right' time to quit 'cold turkey'. Young adults, as less established smokers, may hold optimistic views about their ability to quit smoking before they become 'too addicted', and therefore, do not seek out formal assistance (Mantler, 2013; Solberg et al., 2007). Consistent with these findings, the purported benefits of e-cigarettes as a cessation aid (e.g., mimicking tobacco smoking; treating nicotine addiction) were considered unnecessary by most young adults in the current study. Quitting unassisted is common (Hung et al., 2011; Smith, Chapman, et al., 2015) and may reflect an internalisation of cultural values of autonomy, self-control and strength (Balmford & Borland, 2008; Morphett, Partridge, Gartner, Carter, & Hall, 2015; Smith, Carter, Chapman, Dunlop, & Freeman, 2015).

Social factors also contributed to the lack of appeal of e-cigarette use in this study. Tobacco smoking provided smokers with a sense of belonging that helped them to cope with social stigma, and shisha was described as socially acceptable, even among non-smokers. By contrast, the social unacceptability of e-cigarettes was evident in the negative

terminology used to describe what others looked like when using e-cigarettes. US studies of college students have also shown that the social acceptability of e-cigarettes ranked lower than shisha (Berg et al., 2015; Noland et al., 2016), and that the stigma surrounding e-cigarettes discouraged use (Case et al., 2016). Conversely, young adults in other studies have conveyed a positive social image associated with e-cigarette use, describing them as cool or trendy (Coleman et al., 2016; Kong et al., 2015), demonstrating the existence of supportive social environments in some contexts. US studies indicate that friends are an important source of influence on experimental e-cigarette use, particularly in relation to understanding how e-cigarettes are used and preferences for brand, type and flavour (Hall et al., 2016; Pepper, Emery, et al., 2014).

The diffusion of an innovation like e-cigarettes is dependent upon the achievement of a base level of social endorsement which is followed by increased engagement in the behaviour and further normalization (Peres, Muller, & Mahajan, 2010). Participants in our study suggest poor diffusion of e-cigarettes use in Australia. From a social identity perspective (see Jetten, Branscombe, Schmitt, & Spears, 2001), smokers who feel stigmatised by mainstream society may seek to develop stronger bonds with other smokers by emphasising in-group similarity and cohesion and reject challenges to their identity such as smoker stereotypes used to promote e-cigarettes. Consequently, smokers may seek to distance themselves from e-cigarette users who are considered ‘others’. Boundaries become blurred when considering the sub-groups of e-cigarette users that exist, such as ‘e-cig rejecters’ (i.e., remained a smoker) or ‘switchers’ (i.e., replaced tobacco cigarettes with e-cigarettes; Pechacek, Nayak, Gregory, Weaver, & Eriksen, 2016). Those who switch from tobacco to e-cigarettes appear to value the opportunity to create new relationships with

other like-minded people rather than trying to integrate new behaviours into existing tobacco smoking norms. The internet has been instrumental in bringing together e-cigarette enthusiasts who redefine themselves as a 'vaper' rather than a 'smoker', modifying their devices so that they no longer resemble tobacco cigarettes, and sharing tips and experiences with other 'vapers' (Keane, Weier, Fraser, & Gartner, 2017; McQueen, Tower, & Sumner, 2011; Simmons et al., 2016). In other words, a new 'out-group' is created. The extent to which positive messages shared by a vaping sub-culture permeates more widely impacts the sustainability of the behaviour.

Different regulatory environments for e-cigarettes may influence acceptability of e-cigarettes. A recent study used the different regulatory environments of the UK and Australia as the basis of comparison for e-cigarette social acceptability and use (Lee, Yong, Borland, McNeill, & Hitchman, 2018). They found that 'vaping' was more socially acceptable in the UK than Australia, and Australian participants' perceptions of social acceptability were more influenced by observations of friends and family than UK participants. They also found that vaping in smoke-free public places was less likely in Australia compared to the UK, suggesting that the different policy approaches shaped exposure and subsequent approval of vaping. However, further research is needed as the relationship is likely to be more complex and nuanced as associations between social endorsement and social judgement on e-cigarette use have been observed within the same study in the UK (Sherratt et al., 2016) and NZ (Robertson et al., 2019).

In the present study, the discussion of how e-cigarettes should be managed paralleled the current, widespread health debate on the potential efficacy versus harms of e-cigarettes (Chapman, 2014), and whether regulatory intervention was necessary given

current low usage. Participants favoured a ‘wait and see’ approach to e-cigarette regulation, notwithstanding a stated desire to protect teenagers. Since the completion of this study, the Australian Government has maintained its precautionary approach regarding nicotine-containing e-cigarettes (National Health and Medical Research Council, 2017) and most Australian states now have e-cigarette specific regulations specifying controls on sale, use and promotion (Greenhalgh & Scollo, 2016). SA is yet to pass an e-cigarette amendment bill that was introduced into parliament in May 2017. The bill arose from an investigation and public consultation that concluded that e-cigarettes should have the same restrictions as tobacco products (SA Health, 2018). Globally, there is increasing awareness that e-cigarettes may require regulations that mirror those applied to tobacco products to impede uptake by non-smokers and because of the increasing presence of the tobacco industry in the e-cigarette marketplace (World Health Organization, 2014). Nevertheless, consensus is yet to be reached on how to regulate e-cigarettes in a way that can help smokers quit tobacco, particularly in relation to the availability of nicotine-containing e-cigarettes (Institute for Global Tobacco Control, 2018).

Some argue that countries adopting a precautionary approach to e-cigarettes do a disservice to smokers who are seeking alternative approaches to quitting smoking (e.g., Gartner, 2018; Levy et al., 2017). But as discussed by Freeman (2017), other factors beyond regulation may contribute to e-cigarettes being used as a cessation aid, many of which were discussed by participants in this study. Examples of factors associated with e-cigarette perceptions include product appeal (Baweja et al., 2016; Etter, 2010; Kong et al., 2015; Pepper, Ribisl, et al., 2014), potential for dependence (Pénzes, Foley, Balázs, & Urbán, 2016), advertising exposure (Li, Newcombe, & Walton, 2014), and risk perceptions

(Cooper, Loukas, Case, Marti, & Perry, 2018; Maglia, Caponnetto, Di Piazza, La Torre, & Polosa, 2018). Attempts to alter perceptions of these factors may backfire in a conservative policy environment.

One example is risk perception. Some participants expressed confusion about the effects of long term e-cigarette use and research shows that that uncertainty about the safety of e-cigarettes can dissuade smokers from using e-cigarettes (Sherratt, Marcus, Robinson, Newson, & Field, 2015). Recent research by Yong et al. (2017) suggests that the policy environment can influence risk perceptions. They found that compared to UK respondents, Australians, who were exposed to more official public dis-endorsement of e-cigarettes, were more uncertain about the relative harm of tobacco compared to e-cigarettes. Other studies have shown that harm perceptions can influence support for regulatory control of e-cigarettes (Brose, Partos, Hitchman, & McNeill, 2017; Tan, Lee, & Bigman, 2015). Thus, the portrayal of e-cigarette health risks may oscillate depending on the agenda of the advocating group. Exposure to conflicting information in the media may mean that people turn to their friends to decide what is appropriate, which could consolidate their identity as a smoker.

This study was exploratory and was conducted in 2015 with a limited sample of young adults in one Australian location. Qualitative research is critical for capturing perceptions in a rapidly evolving e-cigarette landscape as it is adaptable and responsive to the individual's perspective (Gibson et al., 2018). Furthermore, the unique insights can be used to develop robust measurement tools in quantitative surveys. However, the results are not generalisable, and ongoing research is required to test whether perceptions have evolved along with the expansion of device categories and features. Focusing the initial

discussion on broader experiences of smoking and quitting may have biased comments about e-cigarettes. There was limited opportunity to discuss direct experiences of using e-cigarettes as a quitting aid because few participants had pursued this approach, despite experimentation with e-cigarettes. Further research with a larger sample is needed to investigate whether e-cigarette perceptions differed according to device used, history and circumstance of use, and knowledge. Focus groups are susceptible to social desirability effects and conforming to group norms (Braun & Clark, 2013). While this approach may have reduced participants' readiness to disclose attitudes and experiences of e-cigarettes that were incompatible with the perceived social norm, it did demonstrate that prevailing social norms among smokers influence perceptions of e-cigarette users who were considered an 'out group' by participants in this study. Recruiting people who had registered to participate in paid research may have resulted in self-selection bias with a sample of participants who are more interested in the topic than the general population (Robinson, 2014).

This study found that the lack of product appeal and social acceptance, plus tight control of e-cigarettes in Australia, appeared to limit the desire to use e-cigarettes as a cessation aid among young adult smokers in SA, who preferred to quit smoking unassisted. However, the social acceptability of tobacco smoking, e-cigarette use and shisha is ever changing in line with the evolution of mainstream and sub-culture attitudes and social norms. It is important to continue to monitor and respond to changes in the social and physical environments that influence perceptions of e-cigarettes. Further research with a broader and more diverse sample of e-cigarette users is needed to fully explore how policy intersects with social acceptability in shaping attitudes towards e-cigarettes as a cessation

aid. The maintained ban on nicotine-containing e-cigarettes signals potential harm, but unlike other Australian states, SA is yet to implement non-nicotine e-cigarette regulations, which may create confusion about the risks and benefits of use. Further research is needed to identify how to convey information about e-cigarettes that do not undermine existing commitments to protecting the community from potential harm.

CHAPTER 4: STUDY 3

Preamble

The first two studies provided insight into the social challenges that young adult smokers' face when quitting. Pro-smoking social norms and the challenges of managing a smoker-related social identity were perceived as barriers to change. Moreover, norms and identity were implicated in participants' reluctance to use tobacco alternatives, such as e-cigarettes, which would make them stand out from the group. Conversely, identifying with, and adopting the norms of, non-smokers could facilitate change if the person had access to non-smokers whom they respected. These results suggested that integrating new non-smoking norms into situations where smoking norms were dominant was difficult to achieve and so the preferred option was to avoid high-risk situations.

There are numerous tobacco control strategies that are designed to reduce pro-smoking norms, including smoking bans in public spaces, warning labels on cigarette packs, and anti-smoking mass media campaigns. The combined effect of these strategies is 'tobacco denormalisation'; this has contributed to the overall decline in smoking prevalence (Wakefield et al., 2014). Of these approaches, the anti-smoking mass media campaign strategy was most relevant to the social normative focus of this dissertation. A key feature of anti-smoking mass media campaigns is to change the normative behaviour of smokers via their perceptions of, and relationships with others.

Study 3 is an in-depth examination of anti-smoking mass media campaigns as a critical source of social normative change. The social normative processes that potentially contribute to the success of mass media campaigns in the tobacco control field are not well understood. This may be due, in part, to the multiple definitions and measurements of

social norms used across the literature. A systematic scoping literature review was undertaken to clarify and integrate the findings from studies examining the relationship between social norms, exposure to anti-smoking advertising messaging and smoking cessation. The term ‘social norms’ encompassed the numerous definitions and measurements of various types of norms used across this body of literature.

Statement of authorship

Title of Paper	The Role of Social Norms in the Relationship between Anti-smoking Advertising Campaigns and Smoking Cessation: A Scoping Review
Publication Status	☑ Published ☐ Accepted for Publication ☐ Submitted for Publication ☐ Unpublished and Unsubmitted work written in manuscript style
Publication Details	Dono, J., Miller, C., Ettridge, K., & Wilson, C. (2020). The Role of Social Norms in the Relationship between Anti-smoking Advertising Campaigns and Smoking Cessation: A Scoping Review. *Health Education Research.* Advanced online publication. DOI: 10.1093/her/cyaa008

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Contribution to the Paper	I was responsible for the primary authorship of this paper. I conceptualised and designed the study in collaboration with the co-authors. I conducted the literature search, extracted the data from the included studies and took a lead role in synthesising and interpreting the results and writing and revising the manuscript. I served as corresponding author and was responsible for manuscript submission, revisions, and responses to feedback from reviewers of the manuscript.
Overall percentage (%)	80
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.

Signature Date 26 April 2020

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

i. the candidate's stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate in include the publication in the thesis; and
iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

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Signature	Date 14 April 2020

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Signature	Date 16 April 2020

Study 3: The Role of Social Norms in the Relationship between Anti-smoking Advertising Campaigns and Smoking Cessation: A Scoping Review

Abstract

A systematic scoping review of anti-smoking mass media campaign literature provided opportunity to explore how social normative theories and constructs are used to influence smoking cessation. Synthesis of findings was constrained by significant heterogeneity. Nevertheless, the results indicate that a broader conceptualisation of social norm is worthy of further exploration. Perceptions of what others think and do contributed in multiple ways to the relationship between anti-smoking messaging and quitting outcomes. Furthermore, integrating research on social norms, social identity and communication may improve understanding of why quitting intentions are enhanced in some circumstances but reactance and counter-arguing responses corresponding to lower quitting intentions occur in others. Integrating a broader theoretical understanding of normative influences into campaign development and evaluation may prove useful in demonstrating the effectiveness of this approach in behaviour change campaigns.

Introduction

Population-level behaviour change is difficult to achieve without modifying existing social norms (Chung & Rimal, 2016; Tankard & Paluck, 2016). Indeed, denormalising tobacco consumption through a range of population-level initiatives, such as mass media campaigns, implemented over many years has been critical in reducing smoking prevalence (Chapman & Freeman, 2008; Wakefield et al., 2010). Reviews of anti-smoking mass media campaigns have shown that they are effective in reducing the acceptability of smoking (Durkin et al., 2012) and increasing smoking cessation rates (Wakefield et al., 2014). While the underlying theory of mass media communication has social influence at its core (Hornik & Yanovitzky, 2003), the relationship between social norms, smoking cessation and anti-smoking advertising has been underexplored. Given the importance of modifying social norms in achieving population-level behaviour change, the relationship between social norms and mass media campaigns is worthy of further investigation.

Drawing from marketing principles, anti-smoking advertising uses persuasive communication techniques to encourage smokers to quit by conveying brief messages on mass media platforms, such as television. The approach generally involves more than simple education; it endeavours to change the acceptability of smoking in the population so that smoking abstinence becomes the accepted norm (Bala et al., 2013). Campaigns can change population behaviour via direct and indirect pathways; direct influence comprises education and modelling of a new behaviour or skill whereas indirect influence comprises agenda setting, regulatory response and diffusion of campaign messages through social networks (Abroms & Maibach, 2008; Hornik & Yanovitzky, 2003). Changes to social norms are implicit in both pathways. Mass media campaigns can directly encourage

individuals to question existing norms and adopt new ones and can indirectly reduce the social acceptability of smoking through public discussion and regulation without requiring individuals to have direct campaign exposure.

Anti-smoking campaigns are a cost-effective method of achieving high population reach but require a substantial upfront investment in advertisement development and purchase of media space (Atusingwize, Lewis, & Langley, 2015). To justify the substantial financial outlay, formative (i.e., controlled experiments) and evaluative (i.e., real-world impact) research has been conducted to identify the key components of an effective advertising campaign (Wellings & Macdowall, 2000). Systematic reviews that integrate these findings offer practical guidance for advertising development and implementation (Bala et al., 2013; Durkin et al., 2012). However, much of the research has focused on how individuals cognitively and emotionally process advertising messages, with limited attention given to the broader social influence component of campaign exposure (Abroms & Maibach, 2008).

Social diffusion of campaign messages via interpersonal communication is one source of social influence that is increasingly being recognized as an important indicator of campaign effectiveness (Jeong & Bae, 2018). Interpersonal discussion can provide insight into what other people do and value regarding a certain behaviour (Hornik & Yanovitzky, 2003; Real & Rimal, 2007; Southwell & Yzer, 2009). As such, interpersonal discussion has been conceptualized as a contextual attribute of the relationship between norms and behaviour, whereby a shared understanding of what is appropriate is elicited from conversation (Chung & Rimal, 2016; Hogg & Reid, 2006). However, normative information can also be transmitted non-verbally, such as conveying disapproval via facial

expressions (Evans & Furst, 2016). Therefore, merely measuring the presence of interpersonal discussion offers limited insight into campaign-related normative perceptions. Only one (Dunlop, Kashima, & Wakefield, 2010) out of 124 studies included in a recent meta-analysis (Jeong & Bae, 2018) measured normative perceptions in their investigation of campaign-generated interpersonal discussion on health outcomes.

Social norms, broadly defined as a group's shared rules that guide social behaviour via social sanctions rather than by law, can be used to influence people by making values of the group salient (Nolan, 2017). A recent review of applied social norms research revealed the existence of 84 theories with the term 'social norms' often used without specifying norm type (Shulman et al., 2017). Norm types can vary depending on the referent group and whether the behaviour is observable or internalized based on others' expectations. For instance, Focus Theory (Cialdini et al., 1991) posits that the social and physical environment provides cues regarding perceptions of 'normal' or 'dominant' behaviour (termed descriptive norm) and perceptions of what behaviours would be socially sanctioned by others (termed injunctive norm). Alternatively, the term subjective norm used in the Theory of Planned Behaviour (Ajzen, 1991) refers to perceptions of what important others think one should do. Social norms can also be conceptualized as ingroup norms whereby people develop and internalize ways of behaving that are common to the ingroup and differentiate them from outgroups (Reynolds et al., 2015). Alternatively, as described above, social norms can be understood as dynamic and spread through communication, as described in the Theory of Normative Social Behaviour (Lapinski & Rimal, 2005; Rimal & Real, 2005), and thus responsive to mass communication interventions (Burchell, Rettie, & Patel, 2013; Mabry & Mackert, 2014).

Reviewing the literature on anti-smoking mass media campaigns provides opportunity to explore how social normative theories and constructs have been applied as a way of understanding and influencing smoking cessation. Anti-smoking mass media campaigns embody a mature field of applied research that is broad in its application of the theories and constructs that are hypothesized to influence behaviour change. Despite widespread impact, interpreting the mechanisms that underlie the success of these campaigns remains challenging given the different terms and measures used, particularly in relation to social normative processes. This study focused specifically on smoking cessation in order to generate insight into smokers' experiences of normative barriers and facilitators when quitting. To identify opportunities for further development and application of a social normative framework to anti-smoking campaigns, we conducted a scoping literature review using a systematic search strategy that explored associations between measures of social norms, exposure to anti-smoking advertising messaging and smoking cessation. The term 'social norms' encompasses the numerous definitions and measurements of various types of norms used across this body of literature.

Method

A scoping review of the peer-reviewed literature was undertaken using Levac et al.'s (2010) guidelines. Initially, a preliminary reading of the literature guided identification of the appropriate search terms for the three constructs of interest; quitting smoking, social norms and anti-smoking advertising, with specific search terms listed in Table 1. Broad search terms were utilised because of the inconsistent terminology used throughout the literature. The search was undertaken in three steps: first, each term within a construct was searched individually; second, these results were combined with an 'OR' criterion to give a

construct search term; and third, the three construct search terms were combined with an 'AND' criterion. This search procedure, coupled with best practice techniques for searching within each database (e.g., capturing synonyms with MeSH terms in PubMed), identified relevant studies from the following databases: PsychInfo, Medline, PubMed, CINAHL, Scopus and Web of Science. No time or language filters were applied to the initial results.

Table 1.

Search terms by construct

Intervention: anti-smoking advertising[a]	Direct or indirect (moderator or mediator) predictor variable: Social norms	Outcome or moderator variable: Quitting smoking
-Marketing	-Norm/normative	-Smoking cessation
-Advertising/Advertizing	-Social influence	-Quit/quitting smoking
-Media	-Peer influence	-Stop/stopping smoking
-Campaign	-Social context	-smoking use cessation
-Message	-Approval	-Former smoker/smoking
-Announcement	-Peer group	-Ex-smoker
-Communication	-Social interaction	-Quit attempt
	-Interpersonal	-Smoker
	-Social cognitive	
	-Social factor	
	-Social environment	
	-Peer smoking	
	-Friend smoking	

[a]Anti-smoking advertising terminology varies across studies (e.g. mass media campaigns, public service announcements, tobacco-control campaigns) therefore broad search terms were used to avoid unnecessarily and prematurely restricting the results

The search was conducted on 27 May 2019 and 3,559 records were returned. Figure 1 displays the flow chart for study selection. Study eligibility was assessed using the following inclusion criteria: primary data reported on the assessment of anti-smoking advertising message in association with smoking cessation, and either included a social norm message or measured social norm outcomes associated with advertising exposure. To be eligible, the social norm component had to relate to the thoughts and/or behaviours of others in relation to smoking. The search and selection of articles was conducted in accordance to the PRISMA guidelines for systematic reviews (Moher, Liberati, Tetzlaff, & Altman, 2009).

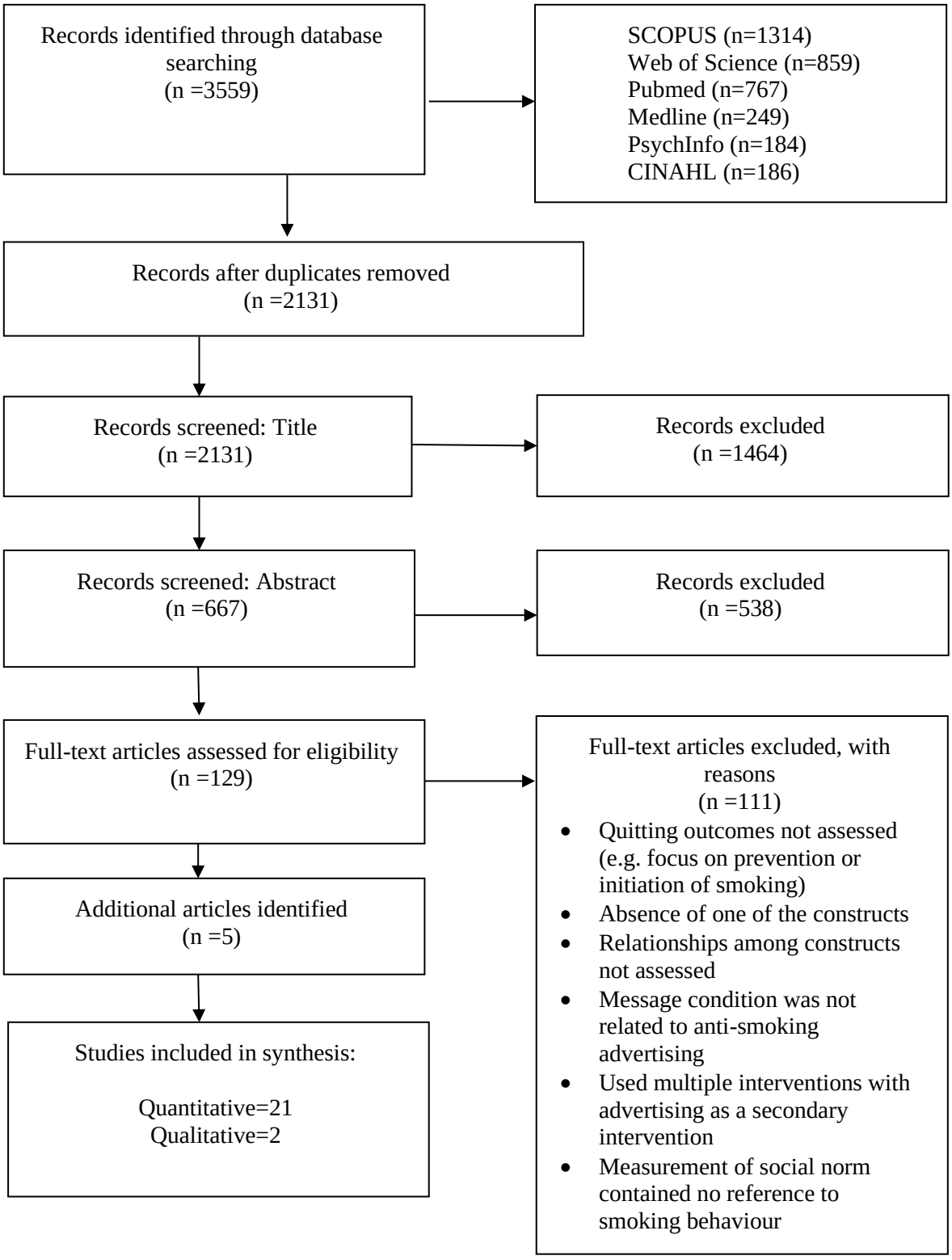

Figure 1. Flow chart of study identification, screening and selection

Data extraction occurred once the final set of research articles had been identified. Information obtained from each article included: location, sample, design, message conditions, measures relating to quitting outcomes, social norms, message recall and evaluation, and results reporting relationships between message condition, social norms and quitting outcomes, as well as any other noteworthy results. The data were compiled into tables, and once coding was complete, an iterative process of analysing and synthesising the data for patterns and themes was undertaken.

Results

The integration of results across multiple studies was constrained by many factors, including significant heterogeneity in aims, samples, design/methods and analysis, as well as varied definitions and operationalisation of social norms, reflecting the lack of consistency of social norm research more broadly. A total of 23 articles met the inclusion criteria, of which 21 were quantitative and 2 were qualitative (see Table 2 and Supplemental Table 1 [Appendix B]). One article (Amonini, Pettigrew, & Clayforth, 2015) contained two separate quantitative studies, giving a total of 24 included studies. The studies spanned from 1996 to 2019 and the majority was set in the United States (eight studies) and Norway (four studies). Just over half of the studies sampled adolescents and young adults only. Study design varied within these groups, with studies classified as formative/experimental (i.e., message testing; 11 studies), evaluative (i.e., message impact; 11 studies) or qualitative (2 studies). The aim of this study was to scope the literature; therefore, study quality was not assessed. Nevertheless, it was apparent that conditions associated with strong design were absent in most of the included studies. For instance, only six studies (25%) incorporated control conditions and only five studies (21%) were

cohort studies. Only 13 studies (54%) measured message receptivity (i.e. favourable or unfavourable response to message).

Numerous theoretical frameworks were used to conceptualise social norms, but the Theory of Reasoned Action, Theory of Planned Behaviour (seven studies) and Focus Theory (five studies) were the most common. The term ‘social norm’ was often used without any reference to a specific norm type; however, it was possible to code norms as descriptive (prevalence of behaviour), injunctive (approval of behaviour) or subjective (expectations by significant others) based on descriptions or measures used in the study. Eleven studies made no reference to social norm theory, although two of these did reference Social Contagion Theory, which may share common elements with social norm processes. Almost half of the studies measured quit attempts or change in smoking status, but measuring quitting intentions was slightly more common at 54%.

Table 2.

Summary of articles used in analysis

First author; year; Country	Sample[a]	Design^	Social Norm Theory[a]	Message conditions[b]	Norm: reference group~	Measure: social norm[b]; reference group~, behaviour	Measure: message receptiveness	Quit outcome+	Relationship between social norms and quitting outcomes[b,c]	Contextual effects[b~]
Group 1: *Formative (experimental) studies*										
Bresnahan; 2016; China	A, G	PP; BG	FT; TNSB	4: DN (low vs high smoking prevalence) X IN (approval vs disapproval of smoking)	Soc	-	N	I	P: DN and IN combined (low prevalence high disapproval) increased intentions to not smoke.	B: intentions to continue smoking associated with high smoking prevalence (DN) and smoking approval (IN).
Lee; 2014; USA & Korea	U, S	PP; BG	FT; TPB	3: DN (University majority do not smoke…) OR IN (University majority disapprove of your smoking…) OR SBN (Important others think you should not smoke…) …in the presence of non-smokers	Soc & sig separately	-	N	I	A: Message condition not related to quit intention	Guilt related to quit intentions in all three conditions
Lee; 2013; Korea	A, S	PP; BG	FT; TPB	3: DN (Korean majority do not smoke…) OR IN (Korean majority disapprove of your smoking…) OR SBN (important others disapprove of your smoking…) …in the presence of others	Soc & sig separately	DN, IN, SBN Both soc & sig; smoking	N	I	P: Increased societal disapproval (IN condition & perceptions) associated with increased quit intentions N: Increased significant others approval (SBN condition & perceptions) associated with increased quit intentions	Guilt had stronger direct relationship with quit intentions than any norm condition

Pegors; 2017; USA	A, S	PP, RM; C	FT	4: Neutral IN AND Neutral HE AND Negative IN (disapproval of smoking-exclusion) AND Negative HE (disease)	Sig	Indirect DN Sig; smoking	Y	Be	N: Strongly represented IN-negative reduced likelihood of smoking reduction. BUT HE-negative associated with smoking reduction when strongly represented (univariate)	B: Effect of IN-negative was stronger for those with low smoker/non-smoker ratio.
Murphy-Hoefer; 2008; USA	U, G	PP; BG	TPB	3: IN (smoking uncommon, bad decision, exclusion), OR HE (diseases), OR TI (deceit)	Soc	-	Y	I	P: IN increased quit intentions. BUT HE out-performed IN and TI messages	B: effectiveness of all ads was greater for occasional compared to frequent smokers
Rhodes; 2008; USA	U, G	PP; RM	FT; TPB	4: IN (disapproval of smoking) AND ETS-Regulation AND ETS-Dangers AND TI (deceit)	Soc	SBN Sig; smoking	Y	I	A: message condition not related to quit intention	B: accessible pro-smoking SBN protected against deep processing of message. Non-smokers responded more favourably than smokers to all ads.
Amonini 2015- Phase 2; Australia	A, S	PP, BG	None	3: IN (shame – exclusion); guilt; HE (diseases)	Soc & sig combined	-	Y	I	P: IN was better than other messages for relevancy and likeability. Was associated with quit intentions BUT did not outperform other messages	
Wong; 2017; USA	U, S	PP, BG, C	TMT	3: IN (disapproval of smoking-exclusion) OR HE (disease) OR Control	Sig	Implicit IN Sig; smoking	Y	I	P: Quitting intentions higher in IN condition than HE and control conditions when smoker self-concept was high. Both IN and HE outperformed control when smoker self-concept was low	F: Positive ad evaluation increased quit intentions in social focused condition
Martin; 2010; USA	U, S	BG; C	TMT	3: IN (disapproval of smoking-exclusion) OR HE (disease) OR Control	Sig	-	N	I	P: IN condition outperformed other conditions in relation to quitting intentions	F: high smoker self-concept/self-esteem enhanced the effect of IN condition
Strasser; 2009; USA	A, S	PP; BG	IM/TRA	4: Message sensation value (high vs low) X argument strength (high vs low)	NA	Not specified but labelled social norm	N	I	A: message condition not related to quit intentions	Social norm measure was positively associated with quit intentions

Falomir; 1999; Switzerland	Ad, S	BG; C	TPB/TRA; SIT	2: Persuasive source vs control	NA	SBN Sig; smoking	N	I	N: Quit intentions were lower when exposed to message, strong smoker identity and friends' approval of smoking (SBN) was high	B: strong smoker identity and smoking approval lower quit intentions; light smokers more influenced by SBN norms than heavy smokers
Group 2a: *Evaluative studies measured at more than 1 point in time*										
Solomon; 2009; USA	Ad, S	L; C	SCT	2: multi-themed campaign which included DN (smoking prevalence) and IN (approval of quitting smoking) vs control	Soc & sig combined	DN (soc) IN (sig); smoking & quitting	N	Be	P: Intervention group had slightly greater cessation and slightly less progression from occasional to regular smoking	DN and IN variables had no bearing on results
Hafstad, Aarø, Engeland; 1997; Norway	Ad, S	L; C	None	2: Multiple campaigns over 3 years – all with IN themes (i.e. disapproval of smoking) vs control	Soc	-	N	I, Be	P: Greater cessation for females only; campaign had greatest impact on reducing recruitment of new smokers	
Rennen; 2014; France, Germany, Netherlands	A, S	L	None	Multiple campaigns, varied by country – France and Netherlands: secondhand smoke; Netherlands and Germany: smoking cessation	NA	IN Soc & sig; smoking	N	I, Be	P: Results varied by country. In some circumstances, campaign awareness associated with smoking disapproval (IN) and smoking disapproval was associated with quit attempts	F: campaigns increased feelings of being uncomfortable about smoking. Significant other disapproval was a predictor of quit attempts.
Hammond; 2006; Canada, US, UK, Australia	A, S	L	None	Multiple campaigns – details of campaigns not specified	NA	IN Soc & sig combined; smoking	N	I, Be	P: Results varied by country. Overall, campaign awareness associated with smoking disapproval (IN) and smoking disapproval associated with quit intentions and cessation at follow-up	Societal disapproval of smoking was already very high in these countries. Other policies also related to IN: ETS restrictions

Troelstra, Harting; 2019; The Netherlands	A, S	L, PP	SCoT*	'Stoptober' Campaign – aimed to create social movement around stopping smoking	Soc & sig combined	DN & IN combined Sig; not smoking	N	Be	P: Campaign was associated with reduction in smoking rate; for those who quit social norms towards not smoking increased; no change for those who did not quit	F: change in pro-quitting social norms for those who quit
Group 2b: *Evaluative studies measured at 1 time point only*										
Lee; 2015; Malaysia	A, S	CS	None	Single mass media campaign with HE theme – 12 month exposure	NA	IN Soc; smoking	Y	I	P: Campaign was associated with quit intentions, with increased societal disapproval associated with both quit intentions and campaign impact	F: Societal disapproval of smoking
Amonini; 2015- Phase 3; Australia	A, S	CS	None	Single TV advert 'How you're seen' - 4 week exposure	Soc & sig combined	-	Y	Be	P: Ad exposure was associated with quitting outcomes	
Hoek; 2011 New Zealand;	Y, G	CS	SIT, SPT	Single mass media campaign with IN theme	Soc	-	Y	I	P: Campaign was associated with lower intentions to smoke, but was more effective for non-smokers and smokers with a recent quit attempt than smokers without a quit attempt	
Hafstad, StrayPedersen; 1997; Norway	Ad, G	CS	None	Single mass media campaign with IN theme	Soc	-	Y	I, Be	P: Campaign was associated with intentions to quit	F: Campaign discussion increased intentions to quit
Hafstad; 1996; Norway	Ad, G	CS	None	Single mass media campaign with IN theme	Soc	-	Y	I, Be	P: Campaign was associated with intentions to quit	F: Campaign discussion increased intentions to quit
Hafstad & Aaro; 1997 Norway	Ad, G	CS	None	Single mass media campaign with IN theme	Soc	-	Y	I, Be	P: Campaign was associated with intentions to quit BUT evidence of counter-reactions	F & B: Campaign discussion was related to positive and negative affective responses to the campaign

Group 3: *Qualitative studies*									
Devlin; 2007; England	Ad, S	Interviews and focus groups	TPB/TRA	3: Norm (IN & DN), TI, HE	Soc	IN & DN Soc; smoking	Y	I	P: Norm ads were most appealing to ambivalent smokers BUT were least appealing to those who perceived smoking as normal within their peer group. Health effects messages were fear inducing but could be discounted and industry tactics messages were too complex.	B: salient pro-smoking social norms made it difficult to identify with the ads
Troelstra, Kunst; 2019; The Netherlands	A, S	Interviews	SCoT*	'Stoptober' Campaign – aimed to create social movement around stopping smoking	Soc & sig combined	IN, DN Soc & sig; stop smoking	Y	Be	P: Campaign helped to normalize quitting smoking BUT not effective for those with strong pro-smoking norms in their peer group	B: salient pro-smoking social norms made it difficult to reconcile personal experiences with the broader campaign message

Notes. Sample: A, adult; U, university student; Ad, adolescent; Y, young people; S, smokers [and recent quitters]; G, general population. Design: PP, pre–post exposure survey; BG, between-group; RM, repeated measures; C, control condition present; L, longitudinal (repeated survey waves); CS, cross-sectional. Reference group: Soc, society; Sig, significant others; NA, not available. Quit outcome: I, quit intentions; Be, behavioural action towards quitting (attempts, change in smoking status, reduction in amount smoked). Contextual effects: B, barrier; F, facilitator.

[a]*Explicitly stated in paper: SIT, Social Identity Theory; SPT, Stereotype Priming Theory; TPB, Theory of Planned Behaviour; FT, Focus Theory; SCT, Social Cognitive Theory; TRA, Theory of Reasoned Action; TMT, Terror Management Theory; TNSB, Theory of Normative Social Behaviour; IM, Integrated Model of Behaviour Prediction; *SCoT, Social contagion theory—interpersonal influence via social network information diffusion, not explicitly related to social norms.*

[b]*Note: 'Social norm' was often used without referring to a specific norm type, however, based on the description or measure, each norm has been coded as either descriptive norm (what people DO) or injunctive norm (what people think SHOULD be done) or left as subjective norm if this was the term used in the study. DN, Descriptive norm; IN, Injunctive norm; SBN, subjective norm HE, Health Effects; TI, Tobacco Industry; ETS, environmental tobacco smoke.*

[c]*P, positive; N, negative; A, absence of any relationship.*

The studies were grouped according to study design. Group 1 contained 11 experimental studies, with three studies comparing different types of norm messages, six studies comparing injunctive norm messages with other anti-smoking themed messages, and two studies comparing message elements that were not specified as norms but measured norm outcomes. Group 2 contained the evaluation studies and was split into two subgroups: (2a) five cohort studies and (2b) six cross-section studies. Group 3 contained the two qualitative studies.

Group 1: Formative (experimental) studies

Overall, among the experimental studies, three found no relationship between any message type and quit intentions (Lee & Paek, 2014; Rhodes, Roskos-Ewoldsen, Edison, & Bradford, 2008; Strasser et al., 2009) and two found that there was a reduced likelihood of quit intentions or smoking reduction after exposure to messages about smoking disapproval (Pegors, Tompson, O'Donnell, & Falk, 2017) or smokers as tobacco industry victims (Falomir & Invernizzi, 1999). Holding pre-existing perceptions of others' approval of smoking (i.e., injunctive smoking norms) also reduced the effect of exposure to various message types (e.g., disapproval of smoking, second-hand smoke, tobacco industry) on quit intentions (Falomir & Invernizzi, 1999; Rhodes et al., 2008). However, one study found that pre-existing social norms (type not specified) were associated with increased quit intentions after exposure to anti-smoking advertisements that featured a range of themes, although there was no relationship between social norms and message condition (Strasser et al., 2009). Two experimental studies demonstrated that the type of normative message was important for increasing quit intentions, as was the context of the message (Bresnahan & Zhuang, 2016; Lee & Paek, 2013). That is, messaging about societal disapproval of

smoking (injunctive norm) was effective when combined with messaging about low smoking prevalence (descriptive norm; Bresnahan & Zhuang, 2016) and when salience of injunctive norms was also high (Lee & Paek, 2013). Descriptive norm messages regarding smoking prevalence were only included in studies comparing norm types and the results indicated that they were unlikely to increase quit intentions without also referencing injunctive norms (Bresnahan & Zhuang, 2016; Lee & Paek, 2013, 2014).

Experimental studies comparing different message themes showed that health effects messaging could be more effective (Murphy-Hoefer, Hyland, & Higbee, 2008; Pegors et al., 2017) or equivalent (Amonini et al., 2015) to messaging about societal or significant other disapproval of smoking at increasing quit intentions. However, messaging about significant other disapproval of smoking could also be more effective than health effects messaging, particularly among university students who used smoking to feel accepted among their peers (Martin & Kamins, 2010; Wong, Nisbett, & Harvell, 2017).

The mixed results regarding the relative strength of the relationship between quit intentions and exposure to injunctive norm messages compared with health effects messaging may also be due to contextual effects. The two studies with results indicating that messaging about health effects outperformed or were as effective as injunctive norm messaging did not account for any interpersonal differences in how such messages were received (Amonini et al., 2015; Murphy-Hoefer et al., 2008). The receptiveness of social norm messaging is important given that some studies showed that negatively evaluating messages conveying themes of smoking disapproval were shown to produce counter-argument and a defensive response (Rhodes et al., 2008) and lower quit intentions (Wong et al., 2017). Another variable that moderates how smokers respond to normative messages is

'smoker identity'. The two studies that found that injunctive norms outperformed health messages also included a measure of smoker self-concept and found that the effect was most prominent among those who viewed smoking as part of their identity and a way to be socially accepted, and who thus feared social rejection (Martin & Kamins, 2010; Wong et al., 2017). Furthermore, identifying with other smokers could reduce intentions to quit after exposure to messages conveying high smoking prevalence (descriptive norm) or smoking approval (injunctive/subjective norm; Bresnahan & Zhuang, 2016; Falomir & Invernizzi, 1999).

Group 2a: Evaluative studies measured at more than one point in time

Among the cohort evaluation studies, all but one (Troelstra, Harting, & Kunst, 2019) included campaigns with multiple themes, including a range of normative messages: these were not evaluated independently. These studies demonstrated that mass media exposure, along with exposure to other tobacco control policies, could increase intentions to quit and smoking cessation but the extent to which changes in normative perceptions contributed to these results varied across studies (Hafstad, Aarø, et al., 1997; Hammond et al., 2006; Rennen et al., 2014; Solomon et al., 2009; Troelstra, Harting, et al., 2019). Increases in societal disapproval of smoking or significant other approval of quitting in the context of anti-smoking campaigns were associated with improved quit outcomes in some circumstances (Hammond et al., 2006; Rennen et al., 2014; Troelstra, Harting, et al., 2019). However, campaigns were not as effective at increasing significant others smoking disapproval (Rennen et al., 2014; Solomon et al., 2009) which was also an independent predictor of quit attempts (Rennen et al., 2014).

Two of the studies in this category evaluated campaigns featuring social norm messages targeted at adolescent smokers; one included messaging about smoking prevalence and approval of quitting by significant others (Solomon et al., 2009), whereas the other included multiple versions of disapproving injunctive norms (Hafstad, Aarø, et al., 1997). Both studies showed increased cessation among the target audience; however, the effect was small and the intervention appeared to be most effective among less established smokers.

Only two studies in this group tracked changes to perceptions of social norms over time; the first found that perceived prevalence and approval for quitting increased over time but there was no difference between control and exposed group (Solomon et al., 2009). The second (Troelstra, Harting, et al., 2019) also reported that perceptions of the acceptance of non-smoking and non-smoker identity had increased from baseline to follow-up among those who had quit smoking. However, there was no control group and those who had not quit continued to experience strong pro-smoking norms.

Group 2b: Evaluative studies measured at one time point only

One evaluation of a mass media campaign focused on health impacts was associated with increased societal disapproval of smoking which in turn was associated with increased quit intentions, suggesting that health effects campaign messages might exert effects on quitting via influencing injunctive social norms (Lee et al., 2015). However, this study was cross-sectional and did not include a control group, precluding any conclusions about causation and causal pathways.

Cross-sectional evaluative studies of campaigns conveying societal disapproval of smoking demonstrated positive associations with quit outcomes (Amonini et al., 2015;

Hafstad, Aaro, & Langmark, 1996; Hafstad, StrayPedersen, & Langmark, 1997; Hoek, Newcombe Rhiannon, & Walker, 2011). However, a major limitation of the studies evaluating injunctive norm mass media campaigns was that they did not include a measure of social norm perceptions or include a control group; therefore, any campaign effects on changing norms are implied rather than explicitly tested (Amonini et al., 2015; Hafstad & Aaro, 1997; Hafstad et al., 1996; Hafstad, StrayPedersen, et al., 1997; Hoek et al., 2011). All studies found that campaign exposure was associated with increased quit outcomes but context moderated the results. Hoek et al.'s (2011) social identity approach to social norm messaging showed that the campaign was least effective for current smokers without a quit attempt in the past 12 months, and was most effective for non-smokers not interested in starting smoking. Three closely related evaluation studies (Hafstad & Aaro, 1997; Hafstad et al., 1996; Hafstad, StrayPedersen, et al., 1997) of a three-wave campaign showed that 'provocative' social norm statements (i.e., those designed to produce strong emotional responses), aimed at adolescents, were effective at increasing quitting intentions and behaviour, particularly among those who had a positive reaction to the campaign and discussed it with peers. However, the effects appeared to diminish over time. Moreover, negative responses to campaign discussions suggested that counter-reactions and reinforcement of smoking behaviour were occurring.

Group 3: Qualitative studies

The qualitative studies suggested that injunctive norm messages were appealing to smokers who were not faced with challenges associated with belonging to a peer group where smoking was expected (Devlin, Eadie, Stead, & Evans, 2007; Troelstra, Kunst, & Harting, 2019). The two qualitative studies were conducted with different age groups and

discussed different campaigns, but both demonstrated that salient pro-smoking social norms, that is, injunctive and descriptive social norms, made it difficult for the participant to identify with the message because it did not align with their personal experiences (Devlin et al., 2007; Troelstra, Kunst, et al., 2019). Devlin et al.'s (2007) study of adolescents showed that social norm advertisements were appealing to 'reluctant experimenters' but were not appealing to current smokers, who found them inconsistent with their own day-to-day experiences. They also reported that current smokers' exposure to pro-smoking norms meant that smoking was used to maintain acceptance with their peers. Troelstra, Kunst, et al. (2019) found that the mass media approach helped to normalise smoking cessation more broadly but smokers wanting to quit continued to face challenges within their own personal social networks where they perceived a lack of social support and strong pro-smoking social norms.

Discussion

The aim of this scoping review was to explore social norms in the context of mass media campaigns designed to encourage smoking cessation. In most studies social norms were conceptualised as disapproval of smoking by society or significant others. This is reflective of the broader tobacco control strategies of 'denormalisation' designed to convey smoking as abnormal and undesirable (Chapman & Freeman, 2008; Rhoades, Beebe, Boeckman, & Williams, 2015; Roeseler & Burns, 2010). The results indicated that exposure to messages that directly or indirectly conveyed or increased perceptions of smoking disapproval was associated with increased likelihood of smoking cessation across a range of studies. However, messaging that focused on the health impacts of smoking could be equally or more effective. Results also indicated that the relationship between

social norm messaging and smoking cessation was often influenced, either positively or negatively, by social factors relating to the individual or the environment. Furthermore, the results highlight definitional and theoretical confusion regarding social norms that complicates the understanding of these relationships, increasing the difficulty in judging the importance of distal and proximal social influences on smoking behaviour.

The dominance of Theory of Planned Behaviour and Theory of Reasoned Action (Ajzen, 1991; Fishbein & Ajzen, 1975) and Focus Theory (Cialdini et al., 1991) as frameworks for conceptualising social norms meant that conveying and measuring disapproval of smoking (significant others or societal) was consistent across many studies. The premise of social disapproval messaging is to motivate change based on conforming to the expectations of others, who may look down on smokers for engaging in an undesirable behaviour (Burchell et al., 2013). The broader literature suggests that disapproval from significant others has a greater effect on smoking cessation than societal disapproval of smoking (Hosking et al., 2009; Schoenaker et al., 2018; van den Putte et al., 2005), particularly when those norms are internalised and associated with negative emotions (Schoenaker et al., 2018). Few studies included in this review compared societal and significant other disapproval so it was not possible to draw conclusions about the relative effectiveness of each approach. The review did find that approval or disapproval of smoking by significant others was closely associated with quitting outcomes in some studies, but there were exceptions (Lee & Paek, 2013; Solomon et al., 2009). Furthermore, the results suggested that convincing portrayals of significant others disapproving of smoking via mass media campaigns was difficult to achieve because they did not match the experiences of some smokers (Devlin et al., 2007). To further this research, more

sophisticated measures of existing and evolving norm perceptions would be beneficial. Capitalising on advances being made in the literature regarding interpersonal discussion as an outcome of campaign exposure could be a useful approach as it would allow the exploration of normative information contained in campaign discussions (e.g., Brennan, Durkin, Wakefield, & Kashima, 2017; Dunlop, Cotter, & Perez, 2014).

Implicit in some of the studies included in this review was the assumption that smokers would be motivated to conform to the expectations of the non-smoking majority. Review results indicated that increasing the salience of social disapproval of smoking was associated with behaviour change for relatively uncommitted smokers whereas those who strongly identified with other smokers were much less responsive and maintained their resolve to not quit. Although alternative messaging about the undesirability of smoking, such as harms associated with secondhand smoke or 'smokers as victims' of the tobacco industry, may have produced a different response in committed smokers, very few studies included in this review explored these themes. Moreover, those that did found that quit outcomes either did not increase (Lee & Paek, 2014; Rhodes et al., 2008) or increased marginally (Lee & Paek, 2013; Rennen et al., 2014) after exposure to these type of messages. Nevertheless, there is evidence that those who feel uncomfortable about smoking are more likely to quit when they are exposed to changing attitudes and norms around second-hand smoke and pro-tobacco influences (Rennen et al., 2014; Zhang et al., 2010) . This suggests that campaign messages should not be considered in isolation when monitoring changes to social norms.

Motivation to conform to norm messages was not included as a co-variate in any of the included studies. Furthermore, many studies did not measure existing perceived norms

or receptivity to advertising messages. Therefore, it was difficult to quantify the extent that message acceptance and motivation to conform influenced responses to advertising exposure. Some studies showed that social disapproval messages could produce a defensive response in some smokers, especially if the message increased the salience of supportive smoking peers. This protected smokers from internalising anti-smoking messages and increased the likelihood of counter-arguing to invalidate the message. These smokers were shown to respond by increasing their commitment to smoking and smokers. In addition, the qualitative research suggested poor implementation fidelity regarding encouraging smokers to quit because the advertising conflicted with the lived experience of established smokers who were faced with strong pro-smoking norms.

The emphasis on smoking social disapproval has resulted in the incomplete application of frameworks such as Theory of Planned Behaviour (Ajzen, 1991) and Focus Theory (Cialdini et al., 1991). That is, very few studies investigated others' approval of quitting or smoking descriptive norms (e.g., prevalence of smoking) and few measured quitting descriptive norms (e.g., prevalence of quitting behaviours or quitters). Mass media advertising to correct descriptive norm mis-perceptions is a commonly used strategy to address alcohol use (Rimal & Lapinski, 2015). To date, this strategy has had minimal uptake in the anti-smoking field. Research on smokers quitting experiences demonstrates that perceptions of quitting norms are important because the transition from smoker to ex-smoker can be complex and take time (Audrain-McGovern et al., 2009; Dono, Miller, Ettridge, & Wilson, 2019; Haines-Saah et al., 2013; Meijer et al., 2017; Tombor, Shahab, Brown, & West, 2013). Moreover, those attempting to quit are oftentimes navigating conflicting expectations from different groups of people and thus prefer to quit in private

without the scrutiny of others (Dono, Miller, et al., 2019). Consequently, pro-quitting norms (e.g., refusing a cigarette offer) are difficult to establish. Thus, there appears to be role for social norm mass media campaigns to increase salience of pro-quitting norms as a method of mitigating strong pro-smoking norms.

An alternative perspective on social norms that was underexplored in the reviewed studies was that of social identity. From this perspective, norms are internalised representations of group behaviour (Reynolds et al., 2015). In countries where tobacco control strategies involve denormalisation, some people may choose to reject the views of the majority and instead maintain intentions to remain a smoker as a marginalised 'out-group', creating a stronger rather than weakened smoking identity (McCool et al., 2013). Consistent with self-categorisation theory (Abrams & Hogg, 1990) and social identity theory (Tajfel, 2010), smokers may take solace in their shared identity with other smokers, rejecting the need to conform to the majority, and actively maintain attitudes and behaviours that reinforce their identity. There is evidence in the broader literature that a strong smoker social identity can be a barrier to quitting (Tombor et al., 2013).

Social identity was explored in three of the included studies with the results indicating that existing smoking identities were barriers to change in response to anti-tobacco advertising (Bresnahan & Zhuang, 2016; Falomir & Invernizzi, 1999; Hoek et al., 2011). However, Troelstra, Harting, et al. (2019) did demonstrate that identity change from smoker to non-smoker occurred in response to a mass quit campaign where smokers pledged to not smoke for 1 month. One key difference in this campaign compared with others was the focus on building a community of 'attempting quitters' who could establish new ways of behaviour within their social network rather than the expectation that they

abandon their existing network to join the non-smoking majority with whom they did not share a common identity. Nevertheless, some smokers continued to find it challenging to quit because of strong pro-smoking norms in their networks.

Tankard and Paluck (2016) identified conditions when norms and behaviours are most likely to change. These include when an individual identifies with the group promoting the norm, perceives the norm as believable and holds similar personal views to the new norm, when new information regarding norms is shared among group members and when descriptive norms are contextualised. Many smokers have quit in response to sustained mass media campaigns conveying a range of anti-smoking themes which have contributed to the normative change regarding the acceptability of smoking (Rennen et al., 2014). Nevertheless, the success of approaches that attempt to influence smoking-related social norms may increase when contextual factors associated with barriers to normative change are taken into consideration, such as existing pro-smoking norms and smoker social identities (Devlin et al., 2007; Troelstra, Harting, et al., 2019; Troelstra, Kunst, et al., 2019).

Future research in this area should address the following limitations: norm specificity and saliency. Just over half of the studies included in this review measured pre-existing norms. The measurement of norms in these studies often lacked specificity regarding norm type and the operationalisation varied considerably regarding referent group and target behaviour. For instance, injunctive norm measures could comprise questions about the expectations of society (Lee et al., 2015), ‘important others’ (Rennen et al., 2014) or specific people (e.g., friend, parent, sibling; Rhodes et al., 2008), or a combination of these referent groups (Hammond et al., 2006). Or both injunctive and descriptive norms were

merged into a single measure (Troelstra, Harting, et al., 2019). Shulman et al. (2017) argued that greater attention should be given to the referent group and to separating descriptive from injunctive norms. Advertising campaigns that aim to influence social norms should have clear objectives regarding the target referent group and degree of disparity from existing norms (Popa, Phillips, & Robertson, 2014).

Consideration of method to detect normative effects is also important. Mass media exposure is deliberately repetitive, incrementally altering perceptions of normal (Durkin et al., 2012). Thus, formative studies are generally limited by their assessment of message exposure as a single event. Conversely, evaluation studies are often unable to isolate the effective components of advertising campaigns. Both types of research, in conjunction with a more sophisticated application of social norm theory, may facilitate the development of a better understanding of how social norms intersect with advertising campaigns to influence behaviour change.

Limitations of this review relate to the complexity of the disparate body of literature and attempting to capture and integrate all relevant studies. Search terms were intentionally broad and were derived from the existing literature but may have missed studies using alternate terminology to represent social norms or anti-smoking advertising campaigns. Furthermore, by including only studies focussed on quitting outcomes and not smoking prevention, this study does not capture the full extent of the potential role of social norms, particularly with adolescents and young adults who are less established smokers and are likely to have more transient norms around smoking and among whom peer norms are particularly influential.

This study draws together multiple conceptualisations of social norms applied in real-world settings. Several themes were identified in terms of the methods and measures being used to encourage smoking cessation. Normative influence was most often conceptualised as others' disapproval of smoking rather than situation-specific smoking or quitting norms. The findings suggested that increasing perceived disapproval of smoking, either by society or valued others, would correspond with progression towards quitting. However, decreasing the social acceptability of smoking can be achieved through strategies that go beyond social norm messaging. Health effects and tobacco industry messaging also contribute to smoking denormalization as do strategies that reduce smoking prevalence. Indeed, smoking denormalization strategies have had a profound influence on changing social norms around feeling uncomfortable about being a smoker. However, it is important to acknowledge that there are social and psychological processes which can create barriers to normative change, including the moderating effect of strongly identifying with other smokers in social environments where smoking is common and approved. Expanding on the conceptualisation of social norms to incorporate smoker social identity and situation-specific norms around smoking and quitting, as well as analysing norms across social networks to ascertain the relative influence of different social groups on the smoker, would help to further our understanding of the relationship between anti-smoking advertising and quitting outcomes. Furthermore, integrating research on social norms, social identity and communication may improve understanding of why quitting intentions are enhanced in some circumstances but reactance and counter-arguing responses corresponding to lower quitting intentions occur in others.

CHAPTER 5: STUDY 4

Preamble

Studies 1 and 2 confirmed that pro-smoking norms increased the salience of a smoker-related social identity. Moreover, results also highlighted that quitting smoking involved challenging normative smoking practices and could be interpreted as potential rejection of a friendship group that bonded, in part, through their smoking-related identities. Study 3 showed that social denormalisation, as exhibited through anti-smoking messaging regarding others disapproval of smoking, could promote smoking cessation. However, strongly identifying with other smokers in pro-smoking normative environments, following exposure to an anti-smoking message, could be a barrier to change. These findings suggested that reducing exposure to pro-smoking norms was critical for creating optimal conditions for quitting, especially if it reduced the saliency of a smoker-related social identity. It was also apparent that smoking cessation, from a social norm perspective, was a process of continuously negotiating situations where, not only is the temptation to smoke high, but so are concerns about taking social risks that may upset others. Therefore, measuring the extent that smoking-related social identities and normative behaviours contribute to self-efficacy, or confidence in resisting smoking in social settings, was identified as important.

Recent studies have shown that successfully transitioning from a smoker to a non-smoker social identity is associated with long-term cessation (Meijer et al., 2015; Meijer et al., 2017; Vangeli & West, 2012). However, identity change takes time and is associated with establishing new ways of behaving that are negotiated among group members (Best et al., 2016; Frings & Albery, 2015). Consequently, it is possible that multiple smoking-

related social identities can co-exist during the process of quitting smoking, and the saliency of each of the identities depends on the norms for each situation. Descriptive smoking and non-smoking norms (i.e., perceptions of how group members behave with regard to smoking and quitting) are important visual cues that differentiate smoking from non-smoking groups and are likely to influence the saliency of a smoking-related social identity.

No study has used a comprehensive measure of descriptive norms that differentiates smoking from non-smoking behaviours. Therefore, the aim of Study 4 was to use an expanded conceptualisation of normative influence to test how descriptive smoking and non-smoking norms and three types of smoking-related social identities ('attempting quitter', 'smoker' and 'ex-smoker') related to self-efficacy to resist smoking in social settings. It was hypothesised that:

- 'Attempting quitter', 'smoker' and 'ex-smoker', will be distinct but correlated smoking-related social identities that co-exist within individuals. Moreover, smoking status (i.e., smoker with or without recent quit attempt or ex-smoker) will correspond with a dominant social identity that reflects their smoking experience.
- Self-efficacy to resist smoking in social settings, hereafter referred to as self-efficacy to resist smoking, will be higher when non-smoking norms are stronger and lower when descriptive norms are stronger.
- The relationship between self-efficacy to resist smoking and both smoking and non-smoking descriptive norms will be mediated by ex-smoker, attempting quitter and smoker social identities. Moreover, the strength of the mediation will vary so that

social identity as an ex-smoker has a stronger mediating effect than social identity as an attempting quitter or as a smoker.

Statement of authorship

Title of Paper	Increasing young adults' self-efficacy to resist smoking through descriptive norms and changes in smoking-related social identity
Publication Status	☐ Published ☐ Accepted for Publication ☑ Submitted for Publication ☐ Unpublished and Unsubmitted work written in manuscript style
Publication Details	Dono, J., Miller, C., Ettridge, K., & Wilson, C. (2020).Increasing young adults' self-efficacy to resist smoking through descriptive norms and changes in smoking-related social identity. *Social Science and Medicine* (under review).

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Name of Principal Author (Candidate)	Joanne Dono
Contribution to the Paper	I was responsible for the primary authorship of this paper. I conceptualised and designed the study in collaboration with the co-authors. I conducted the statistical analysis and took a lead role in interpreting the results and writing and revising the manuscript. I served as corresponding author and was responsible for manuscript submission, revisions, and responses to feedback from reviewers of the manuscript.
Overall percentage (%)	80
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.
Signature	Date 26 April 2020

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

iv. the candidate's stated contribution to the publication is accurate (as detailed above);

v. permission is granted for the candidate in include the publication in the thesis; and
vi. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

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Signature	Date 14 April 2020

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Contribution to the Paper	I commented on drafts, made suggestions on the methodology, assisted with the interpretation of the results, and provided editorial input. I also provided advice on responding to comments by the journal reviewers and editor.
Signature	Date 16 April 2020

Study 4: Increasing young adults' self-efficacy to resist smoking through descriptive norms and changes in smoking-related social identity

Abstract

Low confidence in high risk social situations can undermine successful smoking cessation, especially for 'emerging' adults (aged 18 to 25 years) who, due to life stage, have a strong drive to develop and maintain social connections. Changing established smoking-related identities, and focusing on new non-smoking norms, may help to increase confidence in managing social situations for smokers wanting to quit. This study aimed to confirm the coexistence of multiple, smoking-related social identities, namely 'smoker', 'attempting quitter' and 'ex-smoker', in a sample of young adult current and former daily smokers, and to test whether the relationship between the independent variables, descriptive smoking and descriptive non-smoking norms, and the dependent variable, self-efficacy to resist smoking in social settings, was mediated by degree of association with three independently measured forms of social identity; 'smoker', 'attempting quitter' and 'ex-smoker'. In June 2019, 451 Australian young (18-25 years) current and former daily smokers participated in an anonymous cross-sectional survey. Analyses confirmed that multiple smoking-related social identities coexisted within individuals. Participants who had greater exposure to descriptive non-smoking norms had higher self-efficacy to resist smoking ($p<0.001$) and the relationship was partially mediated by having a higher 'ex-smoker' social identity (Indirect effect=0.29, SE=0.085, 95%CI=0.14-0.47). 'Attempting quitter' and 'smoker' social identity, although related to descriptive non-smoking norms ($p<0.001$), did not mediate the relationship. Greater exposure to descriptive smoking norms had no effect on self-efficacy. However, additional analyses showed that descriptive non-

smoking and smoking norms mediated the relationship between ‘attempting quitter’ social identity and self-efficacy. Social identity change is complex and context dependent. Perceiving others not smoking can increase confidence in quitting but the resultant effect on identity differs between ‘ex-smoker’ and ‘attempting quitter’. In-group normative behaviour is an important motivation and support for change and could be utilised in interventions designed to increase smoking cessation among young adults.

Introduction

Non-smoking self-efficacy, or confidence in one's ability to abstain from smoking, can facilitate ongoing smoking cessation (Baldwin et al., 2006; Gwaltney, Metrik, Kahler, & Shiffman, 2009; Reese & Veilleux, 2016). Conversely, low confidence to resist smoking in high-risk situations can make quitting smoking difficult (Bolman et al., 2018; Gwaltney et al., 2002; Reese & Veilleux, 2016; Shiffman et al., 2002). Indeed, self-efficacy to resist smoking in specific circumstances may be a more important predictor of relapse than having general overall confidence in one's ability to quit (Gwaltney et al., 2001). Relapse prevention theory (Marlatt & Gordon, 1985) posits that low self-efficacy during high-risk situations can precipitate a smoking lapse (i.e., a smoking event), and a subsequent relapse (i.e., resumption of smoking) after a quit attempt. Therefore, a greater understanding of specific situations in which smokers feel reduced confidence to resist smoking is needed (Reese & Veilleux, 2016).

Confidence in resisting smoking in response to external cues, including high risk social situations, has been explored less than reactions in response to internal cues such as negative affect and cravings (e.g., Johnson & McLeish, 2016; Shiffman & Waters, 2004). This is despite research showing that being around other smokers is commonly implicated in smoking relapse (Bolman et al., 2018; Deiches et al., 2013; Shiffman et al., 2002), particularly among emerging adults (i.e., young people aged between 18 and 25 years; Arnett, 2000) who are less established smokers (Cengelli et al., 2012; Guiney et al., 2015; Klein et al., 2013; Tucker et al., 2005). It is difficult to determine the unique contribution of social factors in confidence to resist smoking. Self-efficacy is often conceptualised as a unidimensional construct or an aggregated global score across a range of high-risk

scenarios (Gwaltney et al., 2009). Moreover, when self-efficacy is conceptualised as multi-factorial or multi-dimensional, the influence from social factors is often combined with other, non-social, influences. For example, a three-factor model of self-efficacy to resist an addictive behaviour, developed by Velicer, Diclemente, Rossi and Prochaska (1990), included the factor 'positive-social', which combined both social items (e.g., with friends at a party) and positive affect items (e.g., when I am happy and celebrating). Similarly, a seven-factor model of non-smoking self-efficacy developed by Gwaltney et al. (2002) described a 'social/food' factor that combined social items (e.g., smoking is allowed) and food items (e.g., had food or drink in last 15 minutes) in the one subscale for determinants of self-efficacy. These measures also limited focus on 'avoiding smoking' and did not extend to confidence in displaying 'quitting behaviours' (e.g., telling others about my effort to quit smoking). Consequently, previous studies have not addressed the uniquely social components of self-efficacy to resist smoking.

Navigating smoking cessation in social situations may be particularly problematic for emerging adults. For example, emerging adults may have greater exposure to high-risk social situations than older smokers because of the value placed on social relationships at this transitional developmental stage (Arnett, 2000). This period often includes changes in living arrangements, education, work, friendships, and family circumstances. The impact of these factors on identity development can be profound. Most young adults value social relationships because they are instrumental in identity development and provide acceptance and belonging (Arnett, 2000; Erikson, 1968). Research suggests that smoking can be used as a tool to facilitate social bonding (Hoek et al., 2013; Scott et al., 2015) and having friends who smoke is linked to consolidation of smoking behaviour into adulthood

(Hammond, 2005; Tucker et al., 2003). Compared to more established smokers, emerging adult smokers tend to have lower health concerns about smoking, are less likely to admit to being 'real smokers' or being addicted, and envision that quitting smoking will be relatively easy (Berg et al., 2010; Dono, Miller, et al., 2019; Weinstein et al., 2004). Consequently, conventional cessation aids are deemed, by this group, unnecessary and the preference is for unassisted quitting approaches (Amos et al., 2005; Berg et al., 2013). Furthermore, smoking cessation interventions aimed at emerging adults tend to have limited impact and uptake (Suls et al., 2012; Villanti et al., 2010). In summary, existing research suggests that emerging adults have unique needs when quitting smoking. Acquiring a better understanding of identity formation and the social environment young people navigate when attempting to stop smoking may assist in addressing these needs (Dono, Miller, et al., 2019).

Social identify theory and Self categorisation theory offer useful frameworks to assist in understanding the way social norms and identities relate to smoking cessation. Social identity theory posits that a people come to see themselves as similar to others (Tajfel, 2010). Self-categorisation theory, extends social identity theory, highlighting how belonging to a group (ingroup) also involves distancing oneself from alternative comparison groups (outgroups; Abrams & Hogg, 1990; Hogg & Reid, 2006). Moreover, maintaining self-esteem relating to their in-group identity involves amplifying both similarities with the ingroup and differences from the outgroup. Distinguishing features of a group are reinforced through in-group norms, or common ways of behaving as group members. In-group norms which become embedded in identity are potentially more instrumental to long-term behaviour change than context-dependent norm types (e.g.,

descriptive and injunctive norms; see Cialdini et al., 1991). This is because their influence is exerted through self-perception (i.e., 'who I am') rather than interaction with the external social (e.g., fear of social sanction; see Hogg & Reid, 2006; Reynolds et al., 2015).

Individuals can self-categorise as a member of multiple social groups (e.g., Australian, university student, smoker) that vary in saliency depending on the situation (Hogg, Sherman, Dierselhuis, Maitner, & Moffitt, 2007). A review of qualitative studies showed that young adult smokers have complex and multi-faceted smoking identities that do not necessarily align with their smoking behaviour (e.g., a person who smokes occasionally may identify as a 'social smoker'; Tombor, Shahab, Herbec, et al., 2015). Context-dependent intergroup dynamics influence the saliency of a specific social identity and perceptions about alternate identities (Hogg & Reid, 2006). For instance, context dependent norms, such as descriptive (i.e., perceptions about what 'is' commonly done in a specific setting) smoking and non-smoking norms, may contribute to the expression or suppression of a smoking-related social identity and subsequent behaviour. Also, negative perceptions of out-groups may be a disincentive for identity change (McCool et al., 2013). Consequently, the development of a new social identity may depend on increased exposure to alternative social groups (Tajfel, 2010) and their compatibility with existing identities (Iyer, Jetten, Tsivrikos, Postmes, & Haslam, 2009).

Anti-smoking strategies may inadvertently increase solidarity among smokers thereby also increasing the saliency of the smoker identity, given that group solidarity is exhibited through the enactment of group norms (Hogg & Reid, 2006; Thompson, Pearce, & Barnett, 2007). Studies have shown that a salient smoker identity can be a barrier to quitting (Harwood & Sparks, 2003; Hertel & Mermelstein, 2012; Høie et al., 2010; Meijer

et al., 2017; Moan & Rise, 2006; Tombor et al., 2013; van den Putte, Yzer, Willemsen, & de Bruijn, 2009; Vangeli & West, 2012). However, quantitative studies investigating social identity *change* as a predictor of quitting smoking have jointly investigated 'smoker' and 'non-smoker' (sometimes termed 'quitter' or 'ex-smoker') identities, predicting that they are separate identities rather than a binary smoker versus non-smoker construct (Meijer et al., 2015; Meijer et al., 2016; van den Putte et al., 2009). Theoretical models of overcoming addiction through changing social identity posit that transitioning from a 'user' to 'non-user' involves internalising the norms of a new social group (Best et al., 2016; Buckingham et al., 2013; Frings & Albery, 2015). Over time, these norms become internalised as part of the person's self-concept, and behaviour is guided more by identity than norms (Frings & Albery, 2015; Meijer et al., 2016). Changes in 'smoker identity' have been shown in adult smoking populations whereby a reduction in 'smoker identity' corresponds with an increase in identifying as a 'non-smoker' (Meijer et al., 2015; Vangeli & West, 2012) or 'quitter' (Meijer et al., 2017). However, a key element of social identity change is that new identities are integrated with existing, potentially incompatible, identities (Iyer et al., 2009), suggesting that a transitional phase may exist where neither the smoker nor the non-smoker identity is dominant. No study has yet tested the extent that a transitional smoking identity (e.g., 'attempting quitter') applies to young adults, who have strategies for managing conflicted identities that do not require quitting smoking (e.g., Hoek et al., 2013) and who tend not to seek out formal cessation support (Solberg et al., 2007).

The relationship between exposure to the social norms promulgated within different groups of smokers and non-smokers, and the impact of this exposure on the different forms of smoking identity, also requires further testing because of its likely impact on smoking

cessation intent and success among young adults. Research on normative behaviour in smoking confirms that ongoing abstinence is associated with less exposure to smokers and their normative expectations and behaviours (i.e., pro-smoking norms), and increased exposure to non-smoking norms (Baha & Le Faou, 2010; Bray, Smith, Piper, Roberts, & Baker, 2016; Dohnke et al., 2011). The process of developing a new identity may be associated with changes in social groups; decreasing time spent with 'users' and increasing time spent with 'non-users' (Best, Bliuc, Iqbal, Upton, & Hodgkins, 2017). Alternatively, it has been shown that a group of smokers can quit simultaneously (Christakis & Fowler, 2008), a process which presumably involves the renegotiation of group norms and may mimic the pattern of change seen in therapeutic settings.

Few studies have simultaneously explored both norms and social identity as barriers and facilitators of quitting smoking (Høie et al., 2010; Moan & Rise, 2007; Moan & Rise, 2006; Phua, 2013; Schofield et al., 2001). While the results of these studies indicate that both norms and identity are related to quitting smoking, the conceptualisation and testing of these constructs varied considerably across studies. For instance, social identity was measured in relation to a variety of reference groups (e.g., smokers, quitters, friends, colleagues and family), and measurement of norms included subjective norms (i.e., others' expectations about quitting smoking) or descriptive and injunctive norms around smoking (i.e., the presence and approval of smokers, respectively). However, none of these studies explored multiple smoker social identities in relation to non-smoking descriptive norms (i.e., perceptions of what the group does).

Descriptive smoking norms and non-smoking norms are important, visible signs differentiating smoking and non-smoking groups. The ready accessibility of descriptive

norms may invoke in-group and out-group comparisons that will be more difficult to navigate for those attempting to quit, compared to those who have already quit or who are not attempting to quit. Moreover, the extent that one identifies with a set of behaviours, may contribute to confidence in managing social settings when quitting smoking. On this basis, it can be hypothesised that:

- 'Attempting quitter', 'smoker' and 'ex-smoker', are distinct but correlated smoking-related social identities that co-exist within individuals. Moreover, smoking status (i.e., smoker with or without recent quit attempt or ex-smoker) will correspond with a dominant social identity that reflects their smoking experience.
- Self-efficacy to resist smoking in social settings, hereafter referred to as self-efficacy to resist smoking, is higher when non-smoking norms are stronger and lower when descriptive norms are stronger.
- The relationship between self-efficacy to resist smoking and both smoking and non-smoking descriptive norms is mediated by ex-smoker, attempting quitter and smoker social identities. Moreover, the strength of the mediation varies so that social identity as an ex-smoker has a stronger mediating effect than social identity as an attempting quitter or as a smoker.

Method

Participants

Participants in this study were 451 Australian young adult smokers and ex-smokers. Participants ranged in age from 18 to 25 years, with a mean age of 22.2 years (SD=2.1 years). There were more females (64.7%) than males (34.4%; and 0.9% identified as non-

binary) and most were born in Australia (90.7%). Close to two-thirds were in paid employment (62.3%) and the majority had either vocational (39.9%) or university (23.5%) level qualifications. Most were daily smokers (61.4%), perceived themselves as not addicted to smoking (65.9%) and were classified as having low addiction on the Heaviness of Smoking Index (73.8%). The quit intentions scale had a mean score of 3.7 (SD=2.1; range 0 to 8), equating to wanting to stop smoking but not having definite plans.

Procedure

An anonymous, online cross-sectional survey was conducted in June 2019. Participants were recruited via an accredited, online panel provider who maintains a database of people who have registered their interest in participating in research and who have supplied demographic information. An email containing a web link to the online survey was distributed to panel members within the designated age-range. Reward points (equivalent to $5 AUD or less, redeemable for gift cards, points programs, charitable donations, and partner products and services) were offered by the panel provider for participation in the study. Participants' age and smoking status were screened for eligibility. Eligible participants were aged between 18 and 25 years, current or former daily smokers (had smoked at least 100 cigarettes in their lifetime and had ever smoked daily) and either current smoker (smoked daily, weekly or less than weekly in past 30 days) or recent ex-smoker (smoked within past 12 months but not past 30 days). A quota sampling strategy was utilised to ensure there was diversity in recent (past 12 months) quit attempts across the sample. The intention was to obtain approximately equal numbers of recent ex-smokers, current smokers with a recent quit attempt, and current smokers without a recent quit attempt. However, recent ex-smokers were rare in the available sampling pool and

recruitment ended with 8% recent ex-smokers, 55% smokers with a recent quit attempt, and 37% smokers without a recent quit attempt. The study had ethics approval from the University of Adelaide's Human Research Ethics subcommittee. Participants provided informed consent prior to commencing the survey.

Measures

Outcome variable

Self-efficacy to resist smoking resistance in social situations: A new measure was developed after reviewing the literature on self-efficacy in social situations as it related to relapse and temptation to smoke (Etter, Bergman, Humair, & Perneger, 2000; Etter, Bergman, & Perneger, 2000; Kremers, Mudde, & de Vries, 2001; Lawrance, 1989; Mudde et al., 2003; Velicer et al., 1990). The sixteen-item measure, randomly ordered, assessed participants confidence in performing a range of actions in the next week ((1) not at all confident to (5) extremely confident). The actions included: positive/social situations (e.g., avoid smoking when I am happy and celebrating); situations likely to invoke stimulus control (e.g. avoid friends who smoke); when engaged in helping relationships (e.g., tell others about my effort to quit smoking); and when required to actively refuse (e.g., say "no" to offers of cigarettes that you don't want). The scale had high internal consistency (Cronbach's alpha=0.94) and a confirmatory factor analysis indicated that all items loaded onto one factor. Responses were summed to create a single smoking resistance self-efficacy score (range: 16-80) where higher scores indicated greater confidence in resisting smoking in social situations. Supplementary Table 1 (Appendix C) contains the full list of scale items for each of the measures.

Predictor variables

Descriptive smoking norms: A new scale, measuring perceptions of how others behaved in specific social settings, was derived from the same set of actions used to measure self-efficacy. The scale comprised of ten actions, randomly ordered, with five phrased as smoking norms (e.g., smoke when seeing someone smoking and enjoying it) and five phrased as non-smoking norms (e.g., say "no" to offers of cigarettes that are not wanted). Participants were asked to rate how common (1=not at all common to 5=extremely common) each of the actions were among important others who they had socialised with in the past month. Confirmatory factor analysis indicated that there was a two-factor structure, representing the perceived commonality of smoking actions and non-smoking actions, respectively. Therefore, two scales were constructed by summing responses to descriptive smoking norms (Cronbach's alpha=0.87) and descriptive non-smoking norms (Cronbach's alpha=0.77). Higher scores (range: 5-25) indicated that the actions were common.

Social Identity: The social identity scale was a multi-component measure of in-group identification (Leach et al., 2008; Postmes, Haslam, & Jans, 2013). There were four statements relating to self-investment (e.g., I feel committed to [in-group]) and four statements relating to self-definition (e.g., I am similar to the average [in-group]). Participants were asked to rate the extent that they agreed or disagreed with each of the statements on a five-point scale. The scale was repeated three times, once for each referent group; smoker, person trying to quit smoking, and person already quit smoking. To increase the relevance and salience of the second and third in-group identities, participants were first asked to select the term from a list of options that ranked the highest when

describing people in that category. Each participant's chosen term was used in place of [in-group] for each of the eight statements. Regarding those trying to quit, the most frequent selection was for 'struggling quitter' (25.7%), followed by 'attempting quitter' (20.8%), 'off and on smoker' (19.1%), social smoker (14.9%), 'relapsing quitter' (13.3%), and 'recovering smoker' (6.2%). Regarding people who have already quit, the most frequent selection was for 'former smoker' (23.1%), 'ex-smoker' (21.3%), 'quitter' (15.1%), 'successful quitter' (15.1%), 'non-smoker' (13.3%), 'abstainer' (12.2%). Responses for each group of terms were merged for analysis and a scale for each social identity (i.e., smoker, attempting quitter, ex-smoker) was created by summing responses. Higher scores (range: 8-40) indicated endorsement of the social identity.

Co-variates

Data were collected on demographic characteristics, smoking, and quitting behaviour in order to describe the sample and control for variation in smoking dependence which is independently associated with self-efficacy (Gwaltney et al., 2009). These included gender, employment, education, postcode, perceived addiction (i.e., extent of agreement with the statement 'I only smoke when I want to, not because I have to or because I am addicted' (Berg et al., 2017), Heaviness of Smoking Index (i.e., how soon until first cigarette and number of cigarettes per day; Kozlowski, Porter, Orleans, Pope, & Heatherton, 1994) and the single question Motivation to Stop Scale (Kotz, Brown, & West, 2013).

Analysis

Analyses were conducted using SPSS version 26 (IBM Corp, 2018). Mean differences in social identity and descriptive norm scores were tested using paired sample t-

tests and one-way ANOVAs. The PROCESS 3.3 macro for SPSS was used to test for parallel mediation (Model 4) and moderated mediation (Model 14; Hayes, 2017). The 95% confidence interval for specific and conditional indirect effects were estimated using the bootstrap re-sampling technique (5000 samples). Confidence intervals that do not include zero are indicative of statistical significance in tests of indirect effects. The threshold for statistical significance for direct effects was $p<0.05$. Moderating variables were mean-centered to facilitate interpretation and significant interactions were probed by exploring the moderator at values representing low (-1 Standard Deviation (SD)), medium (Mean), and high (+1 SD) scores. Indirect effects were reported as unstandardised coefficients, as recommended by Hayes (2017). Data were screened for potential violations of regression assumptions. Each analysis controlled for the following co-variates: gender, employment, qualifications, perceived addiction, heaviness of smoking index and quit smoking intentions.

Results

Differences in average scores on the descriptive norm and social identity scales

Table 1 describes the correlations among all study variables; nearly all pairwise correlations were statistically significant, except for self-efficacy to resist smoking and perceiving smoking actions as common. A paired sample t-test indicated that mean difference in perceiving smoking actions as common ($M=15.41$, $SD= 4.91$) was significantly higher than perceiving non-smoking actions as common ($M=12.49$, $SD=4.29$; $t(450)=10.54$, $p<0.001$).

As hypothesised, all three smoking identities correlated significantly but moderately, confirming their within-person co-existence. Even smoker and ex-smoker

identity correlated at .39 confirming the importance of conceptualizing smoking identity as multidimensional rather than unidimensional. Mean differences in pairs of scores on the social identity scales showed that the average smoker identity score (M=21.84, SD=6.60) was significantly lower than both attempting quitter identity score (M=22.90, SD=7.17; $t(450)=3.78$, $p<0.001$) and ex-smoker identity score (M=22.80, SD=7.03; $t(450)=2.69$, $p=0.007$).

Table 2 shows that the three types of smokers recruited into this study did not exhibit strong identity preferences: absolute differences in mean scores were small and scores were around the mid-point of the range (8 to 40) for all three groups. Nevertheless, one-way ANOVA results were significant for between group differences in mean scores for smoker social identity ($F(2, 448)=3.33$, $p=0.037$), attempting quitter social identity ($F(2, 448)=7.97$, $p<0.001$) and ex-smoker social identity ($F(2, 448)=6.42$, $p=0.002$). Consistent with the hypothesis, ex-smokers scored higher on the 'ex-smoker' social identity scale than smokers without a recent quit attempt ($p<0.001$) and smokers with a recent quit attempt ($p=0.031$). Furthermore, smokers with a quit attempt scored higher on 'ex-smoker' social identity than smokers without a quit attempt ($p=0.042$). In contrast with the hypothesis, there was no mean difference in 'smoker' social identity score or 'attempting quitter' social identity score between smokers with and without a quit attempt. However, ex-smokers did score lower on the 'smoker' social identity scale than smokers with ($p=0.016$) and without ($p=0.001$) a quit attempt.

Table 1.

Bi-variate correlations, means, standard deviations and internal consistencies of study variables (n=451)

	1	2	3	4	5	6
1. Descriptive norm – non-smoking						
2. Descriptive norm – smoking	0.19***					
3. Smoker social identity	0.39***	0.36***				
4. Attempting quitter social identity	0.46***	0.18***	0.63***			
5. Ex-smoker social identity	0.40***	0.10*	0.39***	0.57***		
6. Smoking resistance self-efficacy	0.52***	0.01	0.13**	0.26***	0.42***	
Mean	12.49	15.41	21.84	22.90	22.80	43.77
SD	4.29	4.91	6.60	7.17	7.03	14.91
Range	5 to 25	5 to 25	8 to 40	8 to 40	8 to 40	16 to 80
Cronbach's alpha	0.77	0.87	0.87	0.90	0.90	0.94

***p<0.001; **p<0.01; *p<0.05

Table 2.

Mean (SD) scores for smoker, attempting quitter and ex-smoker social identities by type of smoker (n=451)

Type of smoker	N	Social identity		
		Smoker	Attempting quitter	Ex-smoker
		M (SD)	M (SD)	M (SD)
Smoker with no recent quit attempt	165	22.76 (6.35)	22.17 (7.30)	21.47 (6.67)
Smoker with recent quit attempt	248	21.73 (6.82)	23.65 (6.84)	23.16 (7.18)
Ex-smoker	38	18.58 (5.12)	21.18 (8.23)	26.21 (6.23)

Note. All participants were current or former daily smokers who had smoked at least 100 cigarettes in their lifetime. Recent quit attempt referred to the past 12 months and ex-smokers had not smoked in the past 30 days

The mediating effect of three smoking-related social identities on the relationship between descriptive norms and self-efficacy to resist smoking

The results of two parallel mediation analyses, presented in Figures 1 and 2, supported the hypothesis that self-efficacy to resist smoking is higher when non-smoking actions are perceived as common (i.e., greater descriptive non-smoking norms) and lower when smoking actions are perceived as common (i.e., greater descriptive smoking norms). Moreover, the mediation hypothesis was only partially supported; greater descriptive non-smoking norms were mediated by having an ex-smoker social identity, but not by having an attempting quitter or smoking social identity.

The results from the first analysis are displayed in Figure 1. The overall model was significant and explained 41% of the variance in self-efficacy to resist smoking ($F(11, 439)=28.27$, $p<0.001$). The relationship between descriptive non-smoking norms and self-efficacy was partially mediated by ex-smoker social identity. Greater descriptive non-smoking norms corresponded with higher ex-smoker social identity (B=0.60, B(SE)=0.07, $p<0.001$) and higher ex-smoker social identity was subsequently related to higher self-efficacy (B=0.49, B(SE)=0.10, $p<0.001$). The test of an indirect effect through ex-smoker social identity, holding all other mediators constant, was significant (Indirect effect=0.29, SE=0.085, 95%CI=0.14-0.47). The tests of indirect effects through attempting quitter and smoker social identities were not different from zero (95%CI=-0.25-0.15 and 95%CI=-0.28-0.01, respectively). However, descriptive non-smoking norms correlated positively with both attempting quitter (B=0.73, B(SE)=0.07, $p<0.001$) and smoker social identity (B=0.58, B(SE)=0.07, $p<0.001$). Moreover, greater descriptive non-smoking norms correlated with higher self-efficacy even when taking into account the descriptive non-

smoking norms effect through all three measures of social identity (B=1.46, B(SE)=0.15; p<0.001).

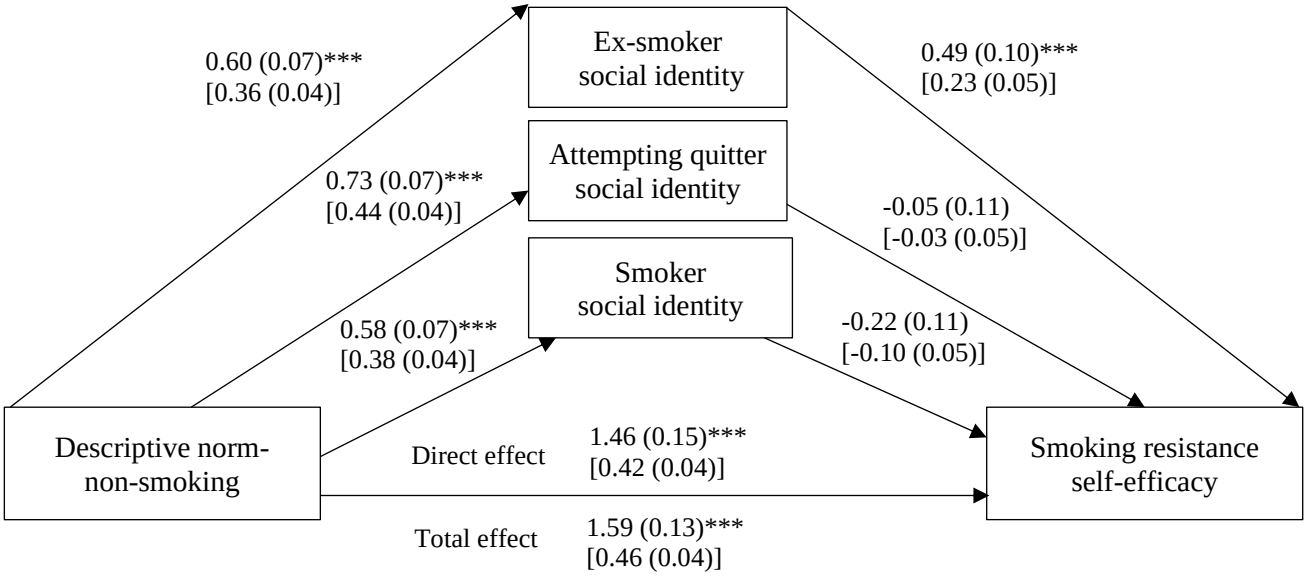

Figure 1. Parallel mediation of ex-smoker, attempting quitter and smoker social identities in the relationship between descriptive norm-non-smoking and smoking resistance self-efficacy. Notes: *p<0.05, **p<0.01, ***p<0.001; Unstandardised effects with standard errors (SE) are reported first followed by standardised effects and associated SE in square brackets.

The results from the second analysis are displayed in Figure 2. The overall model was significant and explained 29% of the variance in self-efficacy to resist smoking (F(11, 439)=16.02, p<0.001). Greater descriptive smoking norms corresponded with higher ex-smoker social identity (B=0.16, B(SE)=0.07, p=0.018) which in turn was associated with

higher self-efficacy (B=0.64, B(SE)=0.11; p<0.001). The test of indirect effect through ex-smoker social identity, holding all other mediators constant, was significant (Indirect effect=0.10, SE=0.058, 95%CI=0.001-0.23). The tests of an indirect effect through attempting quitter and smoker social identities were not different from zero (95%CI=-0.028-0.12 and 95%CI=-0.15-0.10, respectively). The descriptive smoking norm was correlated with both attempting quitter (B=0.25, B(SE)=0.07; p<0.001) and smoker (B=0.44, B(SE)=0.06; p<0.001) social identity. However, there was no relationship between descriptive smoking norm and self-efficacy (B=0.03, B(SE)=0.13; p=0.845).

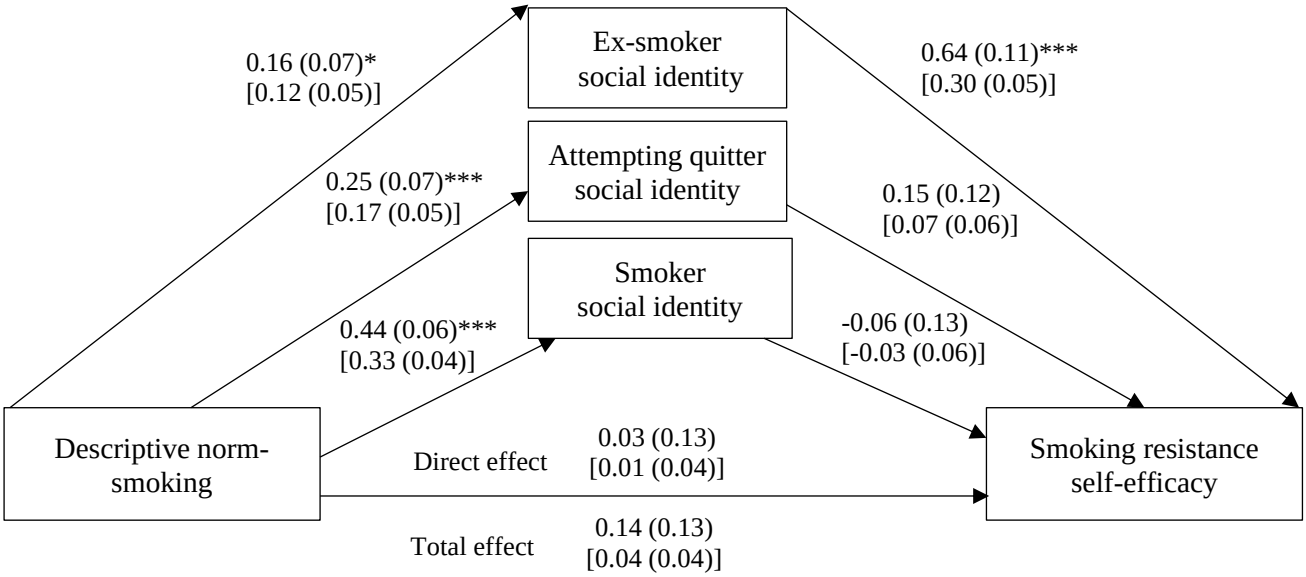

Figure 2. Parallel mediation of ex-smoker, attempting quitter and smoker social identities in the relationship between descriptive norm-smoking and smoking resistance self-efficacy. Notes: *p<0.05, **p<0.01, ***p<0.001; Unstandardised effects with standard errors (SE) are reported first followed by standardised effects and associated SE in square brackets.

No prior study has tested the relationship between a transitional smoking identity (i.e., attempting quitter) and self-efficacy among young adults. Given that the results described above suggested that a relationship existed, but not as hypothesised, the relationship between having an attempting quitter social identity and self-efficacy was investigated further. It is plausible that because identity change is dynamic and responsive to the environment (Meijer et al., 2017), perceiving non-smoking actions as common may mediate the relationship between having an attempting quitter social identity and self-efficacy to resist smoking (see Figure 3). Moreover, perceiving smoking actions as common could change how non-smoking actions mediate the effect of having an attempting quitter social identity on self-efficacy (see Figure 4).

The simple mediation analysis explained 23% of the variance in self-efficacy and there was evidence of the descriptive non-smoking norm mediating the relationship between attempting quitter social identity and self-efficacy to resist smoking. As shown in Figure 3, a higher attempting quitter social identity corresponded with greater descriptive non-smoking norms ($B=0.26$, $B(SE)=0.03$; $p<0.001$), and greater descriptive non-smoking norms were subsequently associated with higher self-efficacy ($B=1.53$, $B(SE)=0.15$; $p<0.001$). The test of indirect effect was significant (Index=0.40; SE=0.07, 95%CI=0.26-0.54). Moreover, after accounting for the indirect effect, there was no relationship between attempting quitter social identity and self-efficacy.

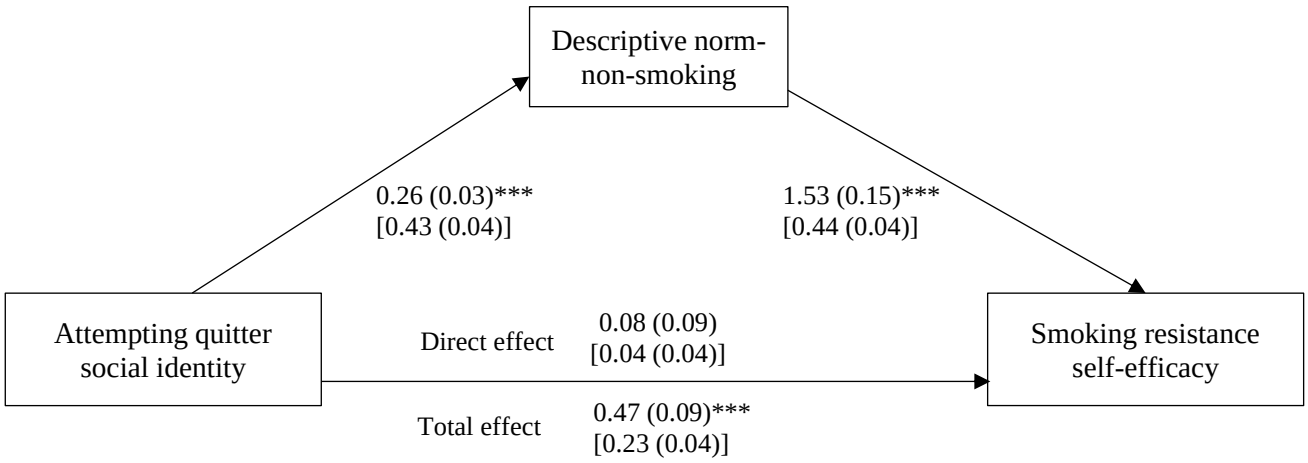

Figure 3. The mediating effect of descriptive norm non-smoking in the relationship between attempting quitter social identity and smoking resistance self-efficacy. Notes: *p<0.05, **p<0.01, ***p<0.001; Unstandardised effects with standard errors (SE) are reported first followed by standardised effects and associated SE in square brackets.

The moderated mediation analysis (see Figure 4) explained 39% of the variance in self-efficacy. The index of moderated mediation was significant (Index=0.015, SE=0.012, 95%CI=0.003-0.029) indicating that the relationship between having an attempting quitter social identity and self-efficacy to resist smoking was mediated by descriptive non-smoking norms, which in turn was moderated by descriptive smoking norms. The conditional indirect effect at all levels of the descriptive smoking norm was significant, with the coefficient of the indirect effect increasing with each progression from minus one to plus one standard deviation of the mean (-1SD: Indirect effect=0.31, SE=0.068, 95%CI=0.19-0.46; Mean: Indirect effect=0.39, SE=0.068; 95%CI=0.26-0.53; +1SD: Indirect effect=0.46, SE=0.083; 95%CI=0.31-0.63). A graphical representation of the moderating

effect using simple slopes is displayed in Figure 5. The results indicate that having an attempting quitter social identity corresponds with a higher self-efficacy score when both non-smoking and smoking actions are perceived as common than when only non-smoking actions are perceived as common.

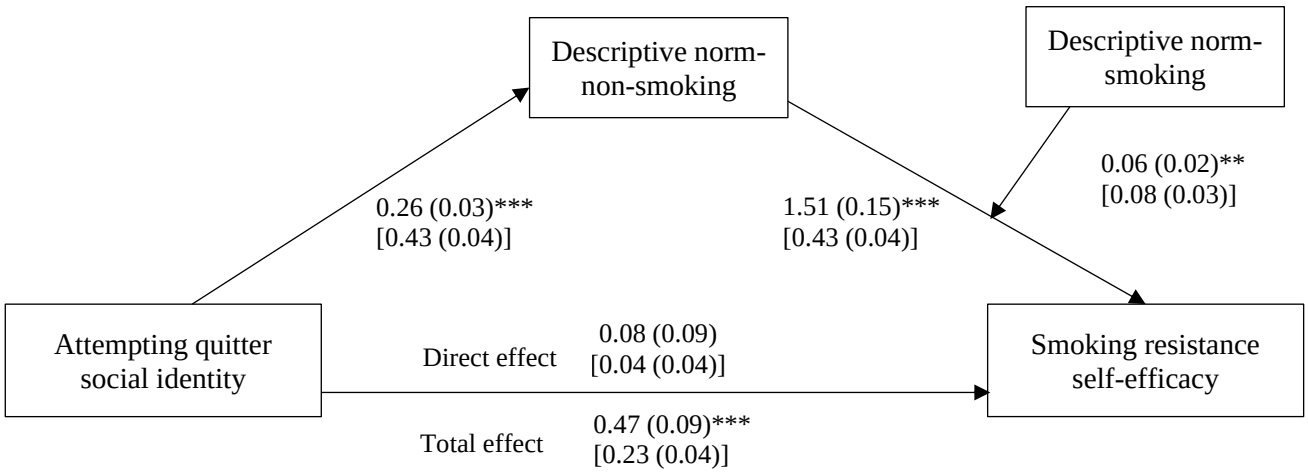

Figure 4. The moderated mediating effect of descriptive norm-non-smoking and descriptive norm-smoking in the relationship between attempting quitter social identity and smoking resistance self-efficacy. Notes: *p<0.05, **p<0.01, ***p<0.001; Unstandardised effects with standard errors (SE) are reported first followed by standardised effects and associated SE in square brackets.

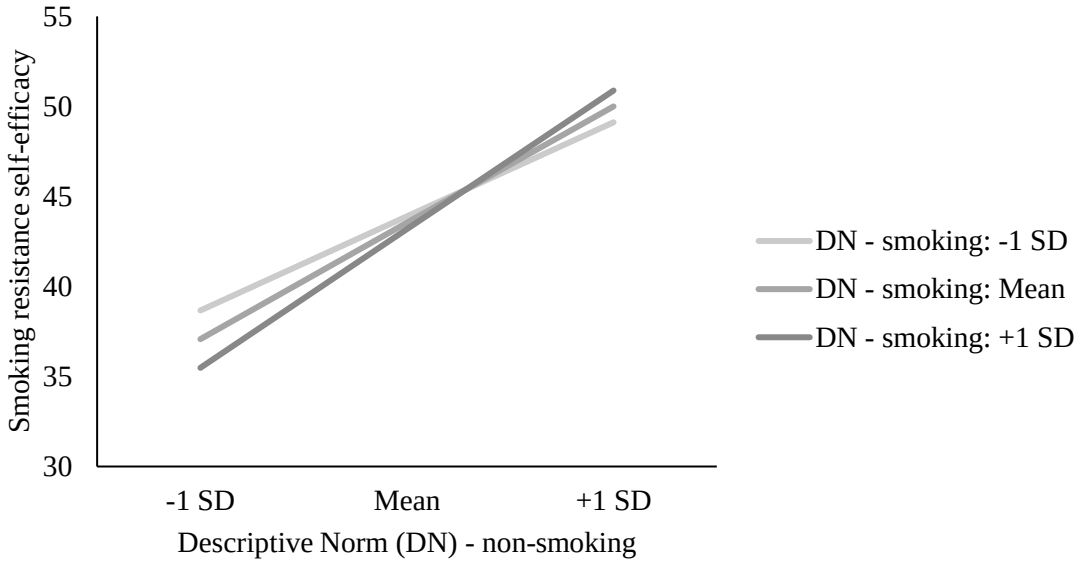

Figure 5. Interaction effect of descriptive norm (DN)-non-smoking and DN-smoking on smoking resistance self-efficacy

Discussion

This study demonstrated that emerging adults' confidence in their ability to resist smoking in social settings is at least partially attributable to perceptions about the commonality of smoking and non-smoking behaviours among important others and the extent to which they hold smoking-related social identities. The results supported the contention that multiple smoking-related social identities coexist, none of which were particularly dominant in a sample of young adult current and former daily smokers. In contrast to the hypothesis that smoking status would correspond with a dominant social identity, both smokers with and without a recent quit attempt scored similarly on the 'smoker' and 'attempting quitter' social identity scales. Nevertheless, participants did vary

in the extent to which they identified with an ‘ex-smoker’ social identity, which was consistent with their smoking status.

The hypothesis that self-efficacy to resist smoking would be higher when participants perceived non-smoking actions as common was supported, however, self-efficacy was not associated with perceiving smoking actions as common. Testing the mediating impact of each smoking-related social identity confirmed that having an ex-smoker social identity partially mediated the relationship between descriptive norms and self-efficacy. However, scoring higher on either the attempting quitter or smoker social identity scale did not mediate this relationship. Instead, identifying as an attempting quitter depended on perceiving non-smoking actions as common for greater confidence to resist smoking, especially in environments where smoking actions were also common. These results suggest that descriptive non-smoking norms are important for increasing smokers’ confidence to resist smoking in social situations and their importance, in part, is because of their relationship with non-smoking social identities.

The results of this study expand on the findings of similar studies indicating a relationship between norms, social or smoking identity and quitting outcomes (Høie et al., 2010; Moan & Rise, 2007; Moan & Rise, 2006; Phua, 2013; Schofield et al., 2001). Importantly, this study demonstrates the value in differentiating behaviours that hinder versus those that support behaviour change. Specifically, the role of descriptive non-smoking norms as a counterpoint to smoking norms in facilitating behaviour change has been underexplored. This may be due to an implicit assumption that it is merely the presence or absence of smoking that signifies quitting (Dohnke et al., 2011; Rise et al., 2008) but also because other studies have found that the disapproval of smoking is more

influential on smoking cessation than perceptions of what others do (Schoenaker et al., 2018; van den Putte et al., 2005). From a relapse prevention perspective (Marlatt & Gordon, 1985), once the decision to quit has been made, the process of quitting smoking is about navigating the multitude of high-risk situations that may lead to a temptation to smoke. Framed this way, quitting smoking encompasses a range of behaviours that may become more salient in social settings (e.g., not accepting a cigarette offer) and in some contexts become norm violations. That is, stopping smoking introduces a new set of non-smoking behaviours that can be difficult to perform in social settings without significant others also doing the same. This study showed that perceptions of others exhibiting non-smoking behaviours increases confidence in doing the same.

Fitting in with peer groups is especially important during adolescence and emerging adulthood (Arnett, 2000). Not fitting in is perceived as socially threatening and may lead to rejection or isolation. Consequently, young adults need to be adept at modifying their behaviour to avoid standing out. Previous research has shown that concern about how others will respond to a quit attempt influences whether an attempt is made, and the strategies used to attempt to quit (Dono, Miller, et al., 2019). This raises the question of how new behaviours, such as those associated with quitting smoking, can be successfully integrated into existing social contexts to the point that they are internalised and deemed normative.

Recent studies have shown that the development of a transitional identity as a non-user can facilitate ongoing abstinence (Best et al., 2016; Frings & Albery, 2015). Furthermore, greater exposure to pro-quitting norms can correspond with increasing quitter self-identities over time (Meijer et al., 2017). However, the changes observed in these

studies are often driven by the construction of therapeutic or intervention groups who develop a shared identity through their shared experiences. Given that emerging adults tend to prefer unassisted cessation, it is unlikely that they will want to join a therapeutic group to quit smoking. Therefore, strategies are required that facilitate identity change in naturally occurring settings.

Identity change takes time; moreover, another identity does not necessarily replace a prior identity. As confirmed by this study, multiple identities coexist. While not tested in the current study, it is likely the saliency of an identity is dependent on the situation. One of the main differences between the social identities of 'ex-smoker' and 'attempting quitter' which may pose difficulties in achieving change is the degree of exposure to similar others of the same identity, especially among young people. Those who are attempting to quit often retreat from social situations involving other smokers until they feel ready to cope and then re-emerge as ex-smokers (Dono, Miller, et al., 2019). Alternatively, other identities such as 'social smoker' may be adopted during this phase so that smoking behaviour can align with the group (Hoek et al., 2013; Tombor, Shahab, Herbec, et al., 2015). Exposure to ex-smokers may occur more frequently in social situations than exposure to attempting quitters and representations of ex-smokers are often used in social marketing campaigns and quit smoking resources. Limited exposure to other 'attempting quitters' within one's existing social group can make it difficult to develop the shared experiences and goals that facilitate identity change. That is, an 'attempting quitter' social identity is much more ambiguous than an 'ex-smoker' social identity.

Despite the ambiguity associated with changing smoker social identity, the results of this study suggest that while consolidating an ex-smoker identity is a worthwhile long-

term goal, a transitional social identity as an ‘attempting quitter’ may be useful in the short term when the temptation to smoke is most acute. However, attempting quitters are faced with the challenge of inadvertently changing group cohesion by introducing non-smoking behaviours into situations where smoking norms are firmly established. For example, subgroups or isolates are created when a person stays in a non-smoking area while others leave to have a cigarette. Therefore, concerns about group membership and identity may perpetuate smoking norms and reduce the likelihood of integrating non-smoking norms.

Strategies that aim to minimise threat to identity while increasing exposure to alternative norms may help to consolidate identity change and subsequent behaviour change (Moran & Sussman, 2014). Structural support from increased exposure to non-smokers or former smokers in one’s social network has been identified as an important factor associated with smoking cessation (Westmaas, Bontemps-Jones, & Bauer, 2010). Structural support facilitates knowledge dissemination and emotional support, and in therapeutic settings, has been shown to facilitate identity change (Buckingham et al., 2013; Vangeli & West, 2012). However, young adults may have limited capacity to modify their exposure to smokers and non-smokers within their existing social network or to intentionally seek out non-smokers, due to location and life circumstances (Hefler & Chapman, 2015). Alternatively, it may be possible to consolidate the goals and values of an attempting quitter social identity through communication strategies, such as social marketing campaigns (Rimal & Real, 2005), to show that incorporating non-smoking behaviours can be successfully negotiated without triggering concerns about group membership and identity.

Self-efficacy to resist smoking in social settings was relatively low in the current sample. Confidence to resist was measured across a range of scenario's requiring many different social skills, some of which may have a greater relationship with normative change and identity than others. For example, it may be more difficult to be confident in situations involving active rather than passive smoking resistance, or confrontation rather than avoidance, both of which are likely to be seen as more threatening and therefore increase the motivation to protect the status quo. Systematically investigating the social skills associated with effectively rejecting smoking conformity is an important area for further targeted research.

There are strengths and limitations to consider when interpreting the results of this study. This was a self-report cross-sectional survey, so the moderation and mediation results require replication using longitudinal data to test the order of effects. Due to the lack of suitable measures to investigate the unique social aspects of self-efficacy and descriptive smoking and non-smoking norms, new measures were developed for this study. While items were carefully selected based on existing literature, pilot tested with a small sub-sample, and demonstrated good face validity, specific validity testing is needed. The norm measures increased specificity by focusing on social scenarios but could only be measured from the perspective of 'important others'. Future research should focus on 'identity-relevant' people or groups, and their smoking status taken into consideration. Focussing on 'identity-relevant' people also applies to the measurement of social identity. Having participants nominate their own most meaningful social identities and understanding how these identities relate to smoking in social settings may provide additional insight into the relationship between norms and self-efficacy to resist smoking. The self-efficacy to resist

smoking measure, while having very good internal consistency, warrants further testing to ensure that it captures the intended construct given the diversity of skills that it covers.

This study demonstrates that young adult smokers and former daily smokers have multiple complex identities related to smoking and indicate they are more likely to be exposed to pro-smoking than non-smoking norms. The desire to quit smoking may invite feelings of non-conformity, group rejection and suggest implicit judgements about others' smoking. Young adults require a unique set of skills to manage these high-risk social situations to facilitate long-term smoking cessation. Increasing exposure to others' non-smoking behaviours helps to increase confidence in dealing with these situations, but this may not occur naturally due to pre-existing smoking norms and social identities. Increasing the heterogeneity of social networks that impact smoking is likely to benefit those who have social mobility. However, those whose environments are dominated by smokers may find this more challenging, and strategies that encourage social identity change in conjunction with increasing exposure to non-smoking norms may be useful. In-group normative behaviour is an important focus for change, and more research is needed to understand the mechanisms of change, the barriers to making changes and how these can be overcome.

CHAPTER 6: DISCUSSION

Preamble

Tobacco smoking is one of the highest risk factors for disease burden in Australia. A concerted and strategic effort to reduce smoking prevalence has had great success, with smoking rates less than half of what they were twenty years ago. Nevertheless, approximately 16% of those aged 18 to 24 smoke at least occasionally, and with relatively low smoking cessation rates compared to other age groups, they are at risk of becoming long-term smokers who have increased health risks. Emerging adults have unique circumstances that can make quitting smoking difficult, most notably, transitional life events that coincide with identity development and the high importance that is placed on socialising and bonding with others. Smoking is a highly social activity for this age group and having smoking friends is a well-known correlate of smoking.

Many young adults plan to quit eventually and prefer unassisted quitting rather than formal cessation support. While this has created challenges to creating efficacious interventions to boost cessation in this population, the broader 'smoking denormalisation' tobacco control strategy implemented in Australia over the last 50 years has been effective at reducing smoking rates across the whole population. Underpinning this process is changing social norms around smoking, both directly, via public health messaging that increases the unacceptability of smoking (i.e., creating a non-smoking injunctive norm), and indirectly, by creating physical and legal barriers that reduce the areas where smoking can occur (i.e., changing descriptive norms through making smoking an uncommon activity in public spaces). However, in emerging adults, the data suggest that past strategies have had a greater influence on decreasing the uptake of smoking than increasing successful

cessation. Moreover, emerging adults who have taken up smoking have done so in an era of long-term denormalisation and have bypassed prevention efforts. Therefore, for emerging adult smokers, a tension appears to exist between the broader social context in which smoking is considered unacceptable and the use of smoking to facilitate bonding during an uncertain developmental period. This tension has implications for smoking cessation that are not well understood.

The aim of this thesis was to integrate and expand on the current understanding of the relationship between social norms and smoking cessation among emerging adults. To do this, a series of studies were conducted to address the following empirical questions:

- How are social relationships and normative behaviours implicated in the smoking cessation process?
- To what extent are e-cigarettes perceived as a feasible cessation aid given
    - perceptions of e-cigarette users
    - changes in social norms and identity arising from e-cigarette use
    - policy context not supportive of e-cigarettes as a cessation aid.
- To what extent is smoking cessation related to efforts to change social norms via exposure to anti-smoking advertising messaging.
- Does confidence in resisting smoking increase when non-smoking norms are present and endorsed and is this relationship mediated by social identity?

This concluding chapter summarises the findings from the four studies that were conducted to investigate these research questions and contextualises them within the

broader literature. Implications for policy and practice are discussed, followed by the strengths and limitations of the studies and recommendations for further research.

Brief summary of the research findings

Study 1 (*"I'm not the anti-smoker now. I just don't smoke anymore": Social obstacles to quitting smoking among emerging adults*) was a qualitative study exploring how social identity and normative group behaviours in social situations could be obstacles for quitting among emerging adults. Six focus groups of five participants each were conducted with participants aged 18 to 25 years. Smoking status varied systematically across groups, with two groups each of daily smokers, non-daily smokers and ex-smokers. The results showed that emerging adults were concerned with, and had difficulty managing, potential changes in social situations that could arise from quitting smoking. Those who identified as smokers and socialised with other smokers were often conflicted about becoming a 'non-smoker' because it required them to behave differently from what was accepted in those circumstances, raising the possibility that they would be perceived as 'rejecting' their peers. Participants were concerned that behaving differently would invite judgement and criticism from others and some preferred to withdraw from social situations involving other smokers. Participants indicated that spending time with non-smokers made it easier to not smoke, but at times they felt judged because the challenge of quitting smoking was not well understood. When avoidance of smokers was not possible, participants acknowledged that there were numerous pro-smoking norms that made not smoking difficult, but felt that the onus was on them to resist these expectations. Consequently, there was an increase in the perceived risk of alienation from the group. Ex-smokers explained that since quitting smoking they felt more aligned with non-smokers.

The results suggested that quitting norms were absent or ambiguous in social settings, making it difficult to transition to alternative non-smoking identities while maintaining positive social connections.

Study 2 (*"I don't think I'd feel good about myself if I was to give up smoking and go to one of these": Perceptions of e-cigarettes among South Australian young adult smokers and ex-smokers*) explored perceptions of e-cigarettes as an emerging smoking cessation strategy that was promoted by commercial companies. At the time of the study (2015), e-cigarettes were becoming increasingly popular with young adults, although the uptake was slower in Australia than in other jurisdictions with more permissive e-cigarette policies. This study involved discussion with the same participants as the first study.

Focus group participants were asked to discuss various aspects of e-cigarettes, prompted by display of pictures of an e-cigarette device, e-cigarette advertisements, and a newspaper article discussing the potential harms of e-cigarettes. The results showed that, beyond some initial curiosity, e-cigarettes held little appeal for the participants in this study. They did not like using the product itself; they thought that e-cigarettes were too similar to tobacco smoking; and that they would be better off quitting all products that resembled or substituted tobacco smoking. Additionally, participants expressed concern that they would be negatively perceived by others when using an e-cigarette. This contrasted with other studies undertaken in locations where advertising promoting e-cigarettes was common and e-cigarette use was more prevalent, suggesting that the development of social acceptability was important for ongoing use (Coleman et al., 2016; Kong et al., 2015).

The results of Study 2 showed that e-cigarettes appeared to increase the salience of a smoker identity. Participants mocked e-cigarette users for trying, and failing, to be like smokers. Ex-smokers avoided e-cigarettes because they did not want to be mistaken for a smoker. Interestingly, the study showed that the threat to smoker identity that arose from e-cigarette users behaving like smokers appeared to consolidate their endorsement of their smoker-related identities; they would rather be a 'proper' smoker than a 'pretend' smoker. Participants were motivated to protect the distinction between smokers and e-cigarette users. Consequently, e-cigarettes were potentially more likely to undermine than to facilitate the development of smoking cessation norms.

Study 3 (*The role of social norms in the relationship between anti-smoking advertising campaigns and smoking cessation: a scoping review*) was undertaken to explore the impact of social norms promulgated in the context of mass media campaigns designed to encourage smoking cessation. A total of 24 studies from 23 papers were included in the review. Due to the small number of included studies, and heterogeneity of the studies, no age restrictions were applied, although half of the studies were undertaken with adolescent and young adult samples. Integration of findings was constrained by significant heterogeneity in study designs and conceptualisation of social norms. Nevertheless, the results indicated that the likelihood of smoking cessation increased following exposure to messages that conveyed disapproval of smoking by others. The role of descriptive norms, especially in relation to quitting smoking, was rarely examined. The results from Study 3 also showed that it was important to consider the social context in which anti-smoking messages were presented because smokers could react defensively (i.e., maintain commitment to smoking) in some circumstances. Specifically, pre-existing

pro-smoking norms and smoker social identity could influence how anti-smoking messages were interpreted and acted upon; qualitative studies suggested a mismatch between the lived experiences of smokers and the messages portrayed in anti-smoking campaigns.

Study 4 (*Increasing young adults' self-efficacy to resist smoking through descriptive norms and changes in smoking-related social identity*) integrated the findings from the first three studies and tested descriptive smoking and non-smoking norms, mediated by scores on three co-existing, smoking-related social identities, on self-efficacy to resist smoking. The study utilised a cross-sectional online survey of 451 current and former daily smokers aged between 18 and 25 years. The results showed that self-efficacy to resist smoking was higher when descriptive non-smoking norms were higher but was not related to descriptive smoking norms. Moreover, the relationship between descriptive non-smoking norms and self-efficacy was mediated by having an 'ex-smoker' social identity but not an 'attempting quitter' social identity. The role of attempting quitter social identity was explored further and was found to be indirectly related to self-efficacy through higher descriptive non-smoking norms, especially when descriptive smoking norms were also high. These results highlight the complexity of managing one's social environment when quitting smoking and the transition from smoker to non-smoker. Promoting the uptake of non-smoking norms is helpful and may increase confidence in resisting smoking for those with an attempting quitter social identity in those scenarios where smoking is common. The relationship between norms and self-efficacy was more straightforward for those who identified as an ex-smoker. These results showed that it is important to consider multiple, co-existing smoking-related social identities and that these vary in their salience regarding to confidence to resist smoking in different contexts.

Conceptual summary of the research findings

Quitting smoking entails navigating normative change

It is well established that smoking has a large social component: it is highly visible, repetitive and easily monitored by others. Consequently, having friends who smoke is consistently identified as a barrier to quitting (Hammond, 2005; Kobus, 2003; Tucker et al., 2003). However, understanding why having friends who smoke poses such a barrier and how this barrier can be overcome has received limited attention. Research on smoking relapse following a quit attempt has shown that smokers are faced with a range of highly tempting situations and younger smokers are especially susceptible to social influences (Deiches et al., 2013; Roberts et al., 2015). By applying a social norm lens to the study of quitting smoking, a key finding of this thesis was that the transition from smoker to non-smoker requires a new set of attitudes and behaviours to fill the space previously occupied by smoking in social settings. Research confirmed that acceptance of this change in behaviour was dependent on the unique social situation in which it occurred. The implication is that 'non-smoking behaviour' comprises a suite of observable actions (e.g. not lighting up a cigarette when others do so, declining cigarette offers) and is not just the 'absence of smoking', which goes unnoticed and is not remarked upon. This presents a shift in understanding of what it takes to quit smoking, moving beyond an individual coping with the removal of smoking from their lives independently of others, to social groups negotiating normative change as non-smoking behaviour replaces smoking behaviour. It also increases the importance of developing strategies that can increase smokers' confidence and skills in resisting smoking when faced with temptation in social situations. However, the results of this thesis suggest that a nuanced approach is needed because not

all situations are alike and different normative situations appear to influence the saliency of various types of smoking-related social identities.

Results from this thesis showed that individual ideas about quitting are at odds with the social environment where quitting does have unavoidable implications for the relationships with others. Study 1 showed that participants viewed the motivation and ability to quit smoking as driven by the individual and was independent of others. Nevertheless, these same participants described how they retreated from social situations when attempting to quit smoking; how the onus was on them to manage the potentially undermining comments and actions of others; and how they experienced concern about alienation from their friends and colleagues who judged them based on their smoking status. This demonstrates the interconnectedness of the individual with their social environment when trying to quit smoking. Study 2 showed that participants were cognisant of how they would be viewed by others when considering whether to use alternative products to tobacco smoking. Specifically, negative perceptions of e-cigarette users made participants unlikely to want to use them to help quit smoking. They maintained that it was better to quit all forms of smoking when they felt ready. Together, these studies demonstrate that strategies around quitting were often modified in response to the subtle influence of others.

The acute phase of quitting smoking can span weeks and may require responding to numerous tempting situations, some of which may result in a smoking lapse. During this transition phase, attempting quitters are trying to establish new behaviours that may be consistent with the perceived expectations of broader society, but may contradict existing pro-smoking social norms within their own social groups. Results from the qualitative

study on barriers to quitting (Study 1) showed that participants found it difficult to manage and respond to the expectations and behaviours of both smokers and non-smokers. Study 4 expanded on these findings by showing that increasing exposure to non-smoking norms, especially when smoking norms were also high, was beneficial for increasing confidence in resisting smoking when thinking of oneself as an 'attempting quitter'.

Much of the research on social norms in the smoking cessation literature is from the perspective of smokers conforming to the expectations of the non-smoking majority (e.g., Hammond et al., 2006; Rennen et al., 2014; Schoenaker et al., 2018). For instance, the literature review in Study 3, which echoed the broader literature on social norms and smoking cessation, found that increasing peoples' awareness of the disapproval of smoking was associated with increased rates of smoking cessation. However, there was evidence of unintended, reactionary consequences of this approach, with some smokers rejecting anti-smoking messages and consolidating their intention to continue to smoke (e.g., Rhoades et al., 2015). Furthermore, social norm messages (i.e., increasing the salience of others' disapproval of smoking) appeared to be more effective at prompting quitting in smokers who only smoked for social reasons (i.e., to fit in) than more established smokers. Implicit in the social norm anti-smoking messages is the assumption that smokers are seeking approval from the non-smoking majority and that this has no bearing on their current relationships with friends who smoke. Yet this thesis has shown that, because smoking is often undertaken in social settings, other smokers affected by the attempting quitter's change in behaviour may interpret the behaviour as a norm violation or a personal rejection.

Observing others behave similarly is likely to reduce the risk of social sanction from a norm violation. The extent that quitting or non-smoking norms were perceived as

common has been relatively underexplored and was identified as a gap in the smoking cessation literature. By applying an in-group normative change perspective, this thesis has shown the importance of developing a more comprehensive understanding of norms. Specifically, this thesis has demonstrated that group contexts can comprise of either or both pro-quitting and pro-smoking norms. Moreover, pro-quitting and pro-smoking norms are not adequately captured using measures that only comprise of questions about the disapproval or prevalence of smoking, which is the most common method of measuring and manipulating social norms in the tobacco control literature (see Study 3). The final study attempted to address this gap by developing a measure of non-smoking norms to contrast against smoking norms in increasing self-efficacy to resist smoking. The results demonstrated the value in differentiating norm types. Furthermore, increased exposure to non-smoking norms was associated with increased confidence to resist smoking in social situations but the relationship varied according to extent of endorsement to quitting-related and smoking-related social identity that coexists within people at any one time.

Social identity is a critical component of normative change

The results from all four studies in this thesis confirmed social identity is critical to understanding the relationship between social norms and quitting smoking. However, the studies offer two slightly different perspectives on social identity. Studies 2 and 3 provided insight into why there may be resistance to abandoning a ‘smoker’ social identity. Studies 1 and 4 expand on this understanding by integrating the effects of multiple social identities and exploring the barriers and facilitators of social identity change.

Both Study 2 and 3 demonstrated that smokers could respond defensively to attempts to redefine smoking and smokers. In Study 2, this was apparent in the views of

participants; e-cigarette users were mocked for trying, unsuccessfully, to be like smokers. Participants wanted to protect smoking as something that bonded them and set them apart from others in a way that was important to them, even though they knew that most people disapproved of smokers. Study 3 showed that a smoker social identity could be a barrier to quitting in the context of anti-smoking messages, particularly those conveying social norm messages such as society or important others disapprove of smoking. A defensive response was more likely to occur when the social environment comprised of mainly smokers, together with pro-smoking norms, which increased the salience of a smoker identity.

Young smokers may take-up smoking, in the face of societal disapproval, as an act of rebellion (Jarvis, 2004; Luke et al., 2001; Wellman et al., 2016). This leads those who are initiating smoking to adopt norms and values outside of the mainstream. People who share a similar way of differentiating themselves from the mainstream can develop a sub-culture with its own set of norms (Jetten & Hornsey, 2014). Smoking, due to its high visibility, is a tool that can be used to characterise and demonstrate belonging to a sub-culture. The norms and values of the sub-culture are internalised and the social identity of the sub-culture becomes part of the person's self-concept. Membership of the sub-cultural social group creates positive self-esteem that is maintained through viewing the group positively. In countries such as Australia where smoking is highly denormalised, not only are smoker's identities continuously under threat, they are also highly marginalised. Therefore, smokers are motivated to defend their identity to maintain a positive self-concept.

Increased perceptions of stigmatisation can lead to feelings of victimisation and powerlessness, which can result in withdrawal from social activities (Ritchie, Amos, &

Martin, 2010). The exclusionary effects of stigma can increase the likelihood of marginalised groups of smokers banding together as ‘outsiders’ (Haines-Saah et al., 2013). Perceived stigma can also produce defensive strategies including increased resolve to continue smoking (Evans-Polce, Castaldelli-Maia, Schomerus, & Evans-Lacko, 2015).

The results observed in Studies 2 and 3 are consistent with the process of stigmatisation but, when understood from a social identity perspective, provide insight into a transitional process where smoking-related social identities can change over time. Smokers may cope with stigma by increasing the distinction between ‘us’ smokers and ‘them’ non-smokers, especially in response to external threats that increase the salience of their smoker identity. However, transitioning through identification with likeminded people, and developing context specific strategies, may facilitate smoking cessation. Nonetheless, it is important to consider the congruence of current and potential future social identities (McCool et al., 2013; Tombor, Shahab, Herbec, et al., 2015) and realise that negative perceptions of non-smokers may be a barrier to quitting by compromising the non-smoker social identity.

As shown in Study 1, quitting smoking is associated with increased salience of the differences between smokers and non-smokers. Furthermore, those with stronger smoker or non-smoker identities were perceived as having limited tolerance for smoking or non-smoking behaviours respectively because they were outside of their norm. This created two issues for those attempting to quit. First, a strong smoker identity was associated with reinforcing smoking norms that maintain group solidarity and that could, potentially, undermine a person’s attempt to quit. Second, non-smokers were perceived to have little tolerance for smoking lapses and had a different set of norms that may be difficult for

attempting quitters to uphold. Therefore, those attempting to quit perceived themselves as caught between smoking and non-smoking groups and perceived that there was limited acceptance in either group for a person attempting to quit. Moreover, those attempting to quit preferred to withdraw from potentially risky social situations until they felt ready to cope. Consequently, there was limited opportunity to make connections with others who were experiencing similar challenges or to bring about normative change.

Research shows that increased exposure to pro-quitting norms and reduced exposure to pro-smoking norms increases the likelihood of maintaining abstinence from smoking (Baha & Le Faou, 2010; Bray et al., 2016; Dohnke et al., 2011). Furthermore, over time ex-smokers self-identify more with non-smokers than smokers (Brown, 1996; Meijer et al., 2017; Vangeli & West, 2012) and this is associated with continued abstinence (Tombor, Shahab, Brown, et al., 2015). Consequently, an emerging line of enquiry in the smoking cessation literature is that facilitating a transitional 'recovery' social identity may help smokers manage the time period between the decision to stop smoking and maintaining long term abstinence (Buckingham et al., 2013; Vangeli & West, 2012). The goal is to achieve a full transition from a smoker to non-smoker social identity, where the norms and values of the non-smoking group are internalised and sustained through group membership (Meijer et al., 2015; Meijer et al., 2017; Tombor, Shahab, Brown, et al., 2015). That is, a 'recovery' social identity itself can become a transitional resource for maintaining the desired behaviour (Jetten et al., 2014).

The Social Identity Model of Recovery (SIMOR; Best et al., 2016) posits that identity transition occurs through increasing exposure to alternative, and appealing, social groups who value recovery as well as motivation to distance oneself from the substance-

using lifestyle. The model has empirical support in therapeutic settings for long term smokers, where the development of recovery groups can be facilitated (e.g., Dingle et al., 2019), and it may explain the success of young adult ex-smokers who have transitioned into new friendship groups (see Study 1). However, the model may have limited applicability, in its current form, to emerging adult smokers because the mechanisms of change are based on finding fault with one's existing situation and seeking out alternative social groups. Studies of smoker identity among emerging adults suggest that other strategies, such as adopting a non-smoker identity but continuing to smoke, may be used to fit in with groups with different smoking norms (Hoek et al., 2013; Tombor, Shahab, Herbec, et al., 2015). These studies, along with the findings of this thesis, suggest that emerging adult smokers may be interested in cessation strategies that help them to manage behaviour changes within their social group while attempting to quit. Nonetheless, the evidence points to changes in social networks, especially increased exposure to non-smokers as an effective strategy (e.g., Bray et al., 2016; Buckingham et al., 2013; Meijer et al., 2017; Vangeli & West, 2012).

Implications of the research for theory and practice

Changing quitting norms through in-group identity

The discussion so far has focused on the influence of the attitudes and behaviours of others within a young person's social network, suggesting that these are of vital importance when quitting smoking. Furthermore, the results of the thesis suggest that bolstering connections with others who are experiencing similar challenges, or who have already quit smoking, may help to develop and internalise non-smoking norms. However, this may be difficult to achieve for emerging adults because of motivations to protect ones smoking

social identity, and limited exposure to alternative norms and social identities beyond their existing social network.

This poses an interesting dilemma. Is it best to target resources at facilitating social network changes that promote integration of smoking and non-smoking groups or is it best to try to change norms from within meaningful social groups? The findings of this thesis support both strategies and it is likely that a combination of approaches will be most effective because of the context dependent nature of normative change. It will also be important to consider the timing of interventions because capitalising on naturally occurring identity transitions (e.g., transitioning from a single person, to one in a relationship, to a parent) may be more efficient and produce longer lasting behaviour change than attempts to artificially induce identity change (Reynolds & Branscombe, 2015). Moreover, attempts to increase the heterogeneity of social networks, or to encourage social group members to question their existing norms, may backfire leading smokers to attempt to protect their threatened identity. This is concerning because smoking rates are higher among some disadvantaged groups (e.g., people with a mental illness, unemployed people), and these people may be more dependent on their existing network for the support needs arising from their marginalisation and stigmatisation (Hefler & Carter, 2019).

In-group normative change via social networks

Norms may be resistant to change in social networks that are relatively homogenous regarding smoking because of a shared social identity. According to social identity change models originating in the addiction literature, identity change is facilitated by changing social groups from substance users to non-users (Beckwith et al., 2019; Best et al., 2016; Best et al., 2012; Frings & Albery, 2015). The smoking cessation literature also shows that

decreased exposure to other smokers is an important predictor of long-term smoking cessation among emerging adults (Tucker et al., 2005), but the relationship with social identity outside of therapeutic settings has not been established. Therefore, it is unknown whether social identity change associated with developing alternative friendship groups when quitting smoking is temporary or sustained.

Having access to multiple alternative social groups who support quitting increases the likelihood of coping with challenges (Haslam et al., 2019) and helps to circumvent impediments to quitting that arise from relationships with other smokers (Best et al., 2016). The results in Study 1 showed that changing friendship groups was commonly associated with quitting smoking, and that ex-smokers had the capacity to expand their social networks through study, work and sport. Moreover, these connections, and the opinions of people within the extended networks, became more important than those of the smokers they used to spend time with. For others, particularly those whose social networks remained the same, there was limited scope or desire to branch out and make new connections. As noted previously, studies of marginalised communities have shown that their social group is an important psychological resource and maintaining positive connections can take precedence over quitting smoking (Hefler & Carter, 2019). This raises the question of how feasible social network change is as an intervention strategy for disadvantaged young adult smokers.

Naturally occurring life events associated with social network changes may facilitate identity transitions. The results from Study 1 showed that ex-smokers who joined new social networks due to life transitions (e.g., graduated from university, started a new job, changed sporting clubs) wanted to distance themselves from smoking and saw

themselves as non-smokers. A social network analysis of quit attempts showed that long-term abstinence was associated with a social network change that increased in size and afforded less exposure to smokers (Bray et al., 2016). Recent research from the US has shown that contextual factors (e.g., having friends who smoke) continue to differentiate different smoking trajectories as young adults mature (Johnson et al., 2019; Villanti, Niaura, Abrams, & Mermelstein, 2019). However, it is important to recognise that smoking trajectories may coincide with settling down into adult roles and this can occur at different ages depending on life circumstances (Bell & Lee, 2006; McDermott, Dobson, & Owen, 2008). Education is particularly influential (Green et al., 2017). For instance, leaving school early is associated with earlier, but more varied, transitions into employment, cohabitating relationships, and children, whereas attending tertiary education may delay the adoption of adult roles. Both pathways can increase exposure to social environments where smoking is valued, but smoking cessation may be more difficult for those who transitioned to adult roles earlier as there is less opportunity for further social network changes.

Recent technological advancements have increased opportunities for creating virtual social networks. Correspondingly, social media is increasingly being trialled as a platform for smoking cessation interventions because their interactive nature facilitates modelling, shared experiences and support (Naslund et al., 2017). It is also a resource for those who have limited access to others going through the same experience off-line. However, one of the biggest challenges of social media interventions is retention (Naslund et al., 2017). Moreover, it is not clear whether artificially induced online communities facilitate the development of a shared social identity that extends beyond the virtual world to enable normative change in social settings associated with relapse.

In-group normative change via communication

Normative change may require more than increased exposure to alternative behaviours. As social norms, whether subjective, injunctive, descriptive or in-group, are context dependent, they are dynamic, negotiated and are necessarily communicative in nature (Hogg & Reid, 2006; Lapinski & Rimal, 2005). Moreover, norms can be inferred or explicitly stated through verbal and non-verbal signals (Hogg, 2006). Communication scholars have developed norm-based communication campaigns based on social marketing principles, termed the 'Social Norm Approach' (SNA). The SNA is prefaced on the notion of conformity and shaping behaviour by correcting potential misperceptions about the prevalence and support for a behaviour (Burchell et al., 2013). Lapinski & Rimal (2005) argue that group settings can invoke incongruent norms because what people are doing differs from what is being communicated about what ought to be done. Furthermore, perceiving what others do as common does not mean that others will automatically copy the behaviour (Rimal & Real, 2005). These insights led to the development of the Theory of Normative Social Behaviour (Lapinski & Rimal, 2005), which is a dynamic model positing that descriptive norms (i.e., perceptions about what people do) are directly linked to behaviour, but are modified through other factors, such as injunctive norms (i.e., what people think others believe ought to be done), group identity and outcome expectations. The Theory of Normative Social Behaviour has since been expanded to incorporate mass media as a communication channel directly influencing descriptive norms (Mabry & Mackert, 2014).

Existing anti-smoking campaigns that have broad population reach (i.e., not targeted specifically to youth) have been effective at reducing overall smoking prevalence among

young people (Durkin et al., 2012). Nevertheless, smoking cessation rates remain low in this population, and anti-smoking messages do not always cut-through because young adults do not identify with the messages that are portrayed (e.g., Devlin et al., 2007).

Study 3 demonstrated that very few studies of social norms in relation to anti-smoking messaging and smoking cessation measured descriptive norms or utilised the Theory of Normative Behaviour. However, the results of Study 4 suggested that descriptive non-smoking norms were related to self-efficacy to resist smoking, suggesting that this approach could be harnessed in future anti-smoking campaigns. As was established in Study 1, 'attempting quitters' tend to withdraw from socialising while trying to quit, resulting in few opportunities for norms to be renegotiated to support rather than hinder cessation. Communication strategies that attempt to normalise quitting behaviours and to offer guidance on how others may support smokers may increase confidence among those trying to quit. This is an alternative perspective from the typical anti-smoking messages which are usually from the non-smokers perspective on 'why' quitting is important (e.g., harmful, socially disapproved) and 'how to quit' (e.g., manage cravings, use cessation aids).

Additionally, a key finding of social norm communication literature that is relevant to the findings of this thesis is that the most effective campaigns feature a reference group that is most appropriate for the target audience (Burchell et al., 2013). Moreover, the most appropriate reference group is the one that the target group currently identifies with rather than groups who are deemed aspirational or unlike themselves. Anti-smoking campaigns have been developed for young people using 'identity-based branding', which use context-specific settings (e.g., bars) and peer crowds (e.g., 'hipsters') to attempt to de-normalise

smoking and increase anti-smoking sentiment (Moran, Walker, Alexander, Jordan, & Wagner, 2017). Cross-sectional studies indicate reductions in smoking rates among those exposed to the campaign who identify with the peer crowd featured in the campaign (e.g., Kalkhoran, Lisha, Neilands, Jordan, & Ling, 2016; Ling, Holmes, Jordan, Lisha, & Bibbins-Domingo, 2017; Ling et al., 2014; Nguyen, Lisha, Neilands, Jordan, & Ling, 2019; Walker et al., 2018). However, the emerging research has not yet established whether these types of campaigns facilitate quit attempts among established smokers or whether identities are maintained or evolve in response to changing norms. Furthermore, they have only just begun to explore multiple peer crowd affiliations (Navarro, Stalgaitis, Walker, & Wagner, 2019). Therefore, while there are patterns of tobacco (and related products) use associated with some peer crowds more than others (Moran, Villanti, Johnson, & Rath, 2019) which helps with targeting messages (Comello & Farman, 2016), the relationship with behaviour change warrants further research. This thesis has shown that social identity is complex and responses to identity threat can produce counter-responses.

Social normative change within broader behaviour change models

The focus of this dissertation was on how smoking cessation among emerging adults was influenced by various types of social norms (i.e. descriptive, injunctive and in-group norms) as well as social identity (i.e. psychologically belonging to an in-group) and the broader social context (e.g. mass media campaigns, innovations in cigarette-like products such as e-cigarettes). However, this is only one component of behaviour change, and it is important to acknowledge that there are many more components that also contribute to behaviour change. As posited in one of the most complex model of behaviour change in the context of smoking cessation, the Theory of Triadic Influence (TTI; Flay et

al., 2009), there are many other variables to consider. The TTI posits multiple layers of influence, from distal to proximal, across three streams (i.e., personal, social, and cultural-environmental), combined into a conceptual model that is linked together through mediating pathways and feedback loops. As such, the social stream variables which share a conceptual overlap with the variables described in the social normative theories used in this thesis (e.g., others' behaviours and attitudes, perceived norms, social normative beliefs) may also share a relationship with many other variables that were beyond the scope of the individual studies (e.g., social competence [personal], information/opportunities [cultural/environmental]).

Study 4 was the first foray into testing the relationship between social and personal stream variables. The decision to use variables from more comprehensive social norm theories than the variables specified in the TTI, resulted in Study 4 having more precise definitions of social norms. Study 4 also included social identity, which is absent from the TTI framework. The results of Study 4 demonstrated the merit in using precise social norm definitions as the results varied by social norm type. It also highlighted that social identity as a non-smoker was an important contributor to the relationship between non-smoking norms and self-efficacy to resist smoking. These results suggest that there is opportunity for further research to map the more precise definitions of social norms onto the TTI framework, to expand the social stream to incorporate social identity, and to further explore how social norm and social identity variables relate to the variables in the other streams of influence.

Strengths and limitations of the research program

The strengths and limitations of each study were discussed in the previous chapters and are summarised more broadly here. The overall research program has strengths and limitations arising from the choice of research design, measurement and sampling frame and these should be considered when interpreting the results and conclusions. The use of a mixed-method approach was a strength as it provided the best opportunity to match the study design with each of the research aims given the limited time and resources available. Furthermore, using multiple methods allowed for the development of complementary evidence, strengthening trust in the findings of the overall thesis.

Research design

Focus groups are a useful method of obtaining exploratory information about an individual or groups' experience of a behaviour. This is useful for the generation of hypotheses that might be subsequently tested, and likely highlights nuanced influences on perceptions and behaviour. Synthesising the literature using a systematic review can increase the generalisability of the findings because a review includes a range of methods and samples. In this dissertation a scoping review was included that involved all studies that met the inclusion criteria, regardless of strength of study design, which was not formally assessed. Consequently, the heterogeneity in measures, design and analysis made it difficult to reach conclusions about the relationships between various types of norms and smoking cessation. The cross-sectional online survey was hypothesis-driven and provided a more precise examination of the relationship between social norms, social identity and beliefs associated with quitting smoking. Nonetheless, the results were correlational and causation cannot be assumed. A longitudinal study that measured change in quitting

behaviour over time would have strengthened the evidence and provided more insight into the ordering of effects.

Measurement

Both the focus group study and the cross-sectional online study relied upon self report data and the accuracy of responses to questions relating to retrospective and hypothetical behaviour cannot be guaranteed. Self-report data are also subject to social desirability bias, which could have been more pronounced in the focus groups because of the way that information is shared based on what others have already said. Efforts were made to reduce the potential for bias by encouraging diversity of responses and ensuring that the opportunity to speak first was shared among participants. Potential biases arising from having a non-smoker moderator were minimised by using a semi-structured moderator guide containing open-ended questions.

All measures used in the online survey were derived from the literature however some required modification to suit the aims of the study. The modified measures have not undergone validity testing to ensure that they are capturing the intended constructs and to test that they are understood by the target sample. Brief versions of measurement tools were necessary because a lengthy questionnaire would have significantly compromised the ability to achieve a sufficient sample size and may have resulted in declining data quality over the course of the questionnaire. However, the full multi-factorial versions of the measures may have increased the robustness of the results.

Sampling frame

Emerging adulthood is a narrowly defined age group (18 to 25 years) and is a hard to reach population in health research. Furthermore, limiting the sample to current smokers

and ex-smokers, who comprise 15% and 5% of the population respectively (Australian Institute of Health and Welfare, 2017), created further challenges for recruitment. Therefore, a small sample derived from non-probability self-selection was the only viable option. Ex-smokers were especially difficult to recruit for the online study. This is likely to have resulted in an under-representation of certain segments of the population, limiting the generalisability of the findings and potentially introducing bias arising from the inclusion of people who were willing and able to participate and who may differ from others in fundamental ways, such as self-efficacy for quitting smoking. Despite small samples, the results were consistent across the studies, increasing the confidence in the conclusions drawn from the thesis.

Future research directions

The results of this thesis suggest there are many opportunities for further research at the intersection of social norms and social identity change to facilitate smoking cessation among emerging adults. The possible format and focus of this research is discussed below.

Longitudinal research tracking the evolution of normative change in relation to social identity

This thesis confirms that smoking cessation involves a process of adapting to, and changing, the social environment. However, longitudinal studies are needed to better understand the dynamic nature of normative change and the processes that occur within a peer group and the interrelationship between in- and out-groups to influence smoking cessation in emerging adults. Using the smoking and non-smoking norm measures, developed in Study 4, and tracking changes in these across time would provide a better test of the relationship between normative change and increased self-efficacy to resist smoking

in social settings. Longitudinal studies of smoking cessation that have measured norms typically have long intervals between waves of data collection (e.g., Rennen et al., 2014; Swayampakala et al., 2018) making it difficult to capture the variation in exposure to different types of norms across different settings and social groups. Therefore, a study utilising a method such as ecological momentary assessment[1] may be more useful because it provides the capacity to measure behaviour and context simultaneously (Stone & Shiffman, 1994). This approach has been used to explore smoking lapses in the past (Bolman et al., 2018; Roberts et al., 2015).

Investigating norm transgressions and barriers to the integration of new norms

Social norms are integral to relationships because they provide the rules that maintain cohesion in social settings. Smoking, itself, may be considered a transgression of population normative expectations in countries such as Australia, where smokers are increasingly stigmatised. However, smoking can be a defining feature of some groups, and is common among groups of disadvantaged people. In this context, not smoking may be considered a norm transgression (Hefler & Carter, 2019; Stead, Macaskill, Mackintosh, Reece, & Eadie, 2001). There is very limited research investigating how young adult smokers living in environments where smoking is highly normative are able to quit (Hefler & Carter, 2019; Hefler & Chapman, 2015). It is important that future research investigate whether concerns about stigma (Brown-Johnson et al., 2015), ostracism (Cavazza, Pagliaro,

[1]Ecological momentary assessment "allows subjects and patients to report repeatedly on their experiences in real-time, in real-world settings, over time and across contexts." (p.3; Shiffman, Stone, & Hufford, 2008)

& Guidetti, 2014), fear of negative evaluation (Berg, 2013), and lack of social support (Collins, Emont, & Zywiak, 1990; Garey et al., 2017; Macnee & Talsma, 1995; Morgan et al., 1988) reinforce group norms associated with smoking. These effects could be compared to psychological processes such as resilience and positive social support (e.g., Bond, Brough, Spurling, & Hayman, 2012; Tsourtos et al., 2019; Ward et al., 2011), and provide guidance on the achievement of behaviour change that does not involve rejecting, or being rejected by, smoking peers. Outcomes of this research would help with the development of resources to mitigate social influences that reduce confidence in behaving differently to expectations within any peer setting.

Investigating in-group and out-group perceptions in relation to social identity change

A key aspect of Social Identity Theory is how out-groups are perceived relative to an in-group. Therefore, furthering the understanding of young adult smokers' perceptions of smoking in-groups and non-smoking out-groups is important. This involves, first, establishing who is considered an out-group and how this is impacted by context. Second, social identity change is unlikely to occur among those who hold negative perceptions of out-groups (McCool et al., 2013) so addressing this is imperative. Negative perceptions may arise from how distinctive and dissimilar the groups are from one another (Iyer et al., 2009). Third, it is important to know whether a 'non-smoking' identity is considered aspirational to young adult smokers, who potentially have multiple identities to draw from (Tombor, Shahab, Herbec, et al., 2015). Exploratory qualitative research could be undertaken with smokers to find out more about what characterises an out-group; attitudes to and beliefs about out-group members, and whether there are opportunities to reduce the distinction between the groups. Experimental research could be undertaken to test how

smokers differ in their willingness to adopt non-smoking-related identities based on how they react to representations of non-smokers that vary on characteristics that are most similar and most distinct from smokers. This would help to identify where to target resources to reduce the perceived gap between smokers and non-smokers. However, a sophisticated approach to identity manipulation may be needed to investigate this further. For example, identity-based vignettes could be used which incorporate different social contexts to test which alternative social identities are most appealing (e.g., Dillard, Magnan, Köblitz, & McCaul, 2013).

Expanding on social network analysis to identify trigger points for change

For emerging adults, the complexity of social identity (Tombor, Shahab, Herbec, et al., 2015) and the importance of diversity in one's social network, highlight the need to focus on the coexistence of multiple group memberships even within one domain like smoking. Social identity theory posits that people are members of multiple social groups (Tajfel & Turner, 1979). Techniques have been developed to elicit, from the participants perspective, memberships to psychologically significant social groups (Haslam et al., 2008), which has contributed to research on understanding how social identities are differentiated (Miller, Brewer, & Arbuckle, 2009) and how they may be incompatible (Iyer et al., 2009). Emerging research is investigating the composition of social networks in terms of social identity and the smoking status of network members in order to better understand the role of others in quitting (Bathish et al., 2017; Beckwith et al., 2019; Bray et al., 2016; Burgess-Hull, Roberts, Piper, & Baker, 2018). This work could be extended to young adults, factoring in the heterogeneity of tobacco use across different social contexts. It could also be applied to studies utilising online social networks (Naslund et al., 2017) as

cessation tools to test whether social identity is a critical factor in improving retention rates and facilitating smoking cessation outside of the virtual setting.

Facilitating normative change through anti-smoking mass media campaigns

There are many opportunities to use mass media communication to facilitate the acceptance and adoption of pro-quitting norms. The burgeoning research on peer crowds and identity-based messages show promise as a prevention strategy; tailoring a campaign to a specific peer crowd (e.g., 'hipsters') in a context-specific setting (e.g., bar) can reduce smoking rates among those who identify with the crowd (e.g., Kalkhoran et al., 2016; Ling et al., 2017; Ling et al., 2014; Nguyen et al., 2019; Walker et al., 2018). However, identity-based campaigns have been shown to be more influential on occasional smokers than established daily smokers (Hoek et al., 2011). Another identity-building approach that has shown promise is the 'Stoptober' campaign[2]. This is a population-based approach to increasing the acceptability of quitting (Troelstra, Harting, et al., 2019). Evaluation data suggests that a limitation of this campaign is that smoking cessation is less likely for those in environments where pro-smoking norms persist (Troelstra, Kunst, et al., 2019). Therefore, it is worth investigating whether identity threat is a factor in campaigns aiming

[2]Stoptober, launched in 2012 by Public Health England, is a 28-day campaign run each October. Participants sign up to the campaign and pledge not to smoke for 28 days, starting from the 1st of October, with the aim being that they stay quit beyond the campaign. Free resources and support available from Public Health England (https://www.gosmokefree.co.uk/stoptober/)

to promote identity change, particularly for established, marginalised smokers who have limited social mobility (Hefler & Carter, 2019).

One strategy that may help to reduce identity threat is to create a more inclusive identity by framing the message from the smoker's perspective. This involves utilising ingroup members (i.e., 'smokers') to support outgroup behaviour (e.g., remaining in a non-smoking area while others move to an area where smoking is allowed) to reduce the perceived gap between smokers and non-smokers. Developing new campaign material can be expensive, therefore, utilising existing advertisements is recommended as a more cost-effective strategy (Durkin et al., 2012). There are some existing advertisements that attempt to bridge the gap between smoker and non-smoker from the smokers' perspective. One advertisement features a young adult asking those around him who smoke: "please don't smoke around me while I'm quitting because it makes it so much harder". Another is a print advertisement containing the phrase "No Judgements. Just help" along with examples of judgements (e.g. no dirty looks, no lectures). Interestingly, Phillip Morris, a tobacco company invested in getting people to switch from tobacco to e-cigarettes, recently developed a campaign called "Hold my light: smoke-free with a little help from my friends", which also portrays a smoker receiving verbal support from friends to help them to quit. The extent that these campaigns can change within-group norms is worthy of further exploration from a SIT perspective because receptiveness to the message may depend on how the audience relates to the message, including whether they identify with the protagonist and whether their own friends are expected to behave similarly to those in the advertisement. One way to investigate these relationships further is to analyse the conversations that occur among groups of people following campaign exposure.

Interpersonal communication stimulated by exposure to campaign messaging is a key driver of health behaviour change (Southwell & Yzer, 2009; van den Putte, Yzer, Southwell, de Bruijn, & Willemsen, 2011) and is implicated in increasing the accuracy of normative perceptions regarding a behavior (Hornik & Yanovitzky, 2003). Conversations about quitting following campaign exposure have been found to be an important predictor of campaign success (Jeong & Bae, 2018). Furthermore, recent studies have demonstrated that coding the content of naturally occurring conversations following campaign exposure can lead to a more nuanced understanding of the relationship between an effective campaign message and behavior change (Brennan et al., 2017; Brennan, Durkin, Wakefield, & Kashima, 2016). The research on interpersonal communication could be expanded to explore whether norm perceptions and social identities are topics of conversation that arise from exposure to mass media campaigns.

Final comments

Emerging adult smokers have the most to benefit from quitting but face unique challenges that are not well understood. Smoking is a highly social activity for this age group and is used as a sign of affiliation despite broader social norms indicating that smoking is unacceptable. This thesis has expanded on the current understanding of the relationship between social norms and smoking cessation. The results show that normative change contributes to successful cessation but is not easy to achieve because norms are linked to social identity. From a social group perspective, non-smoking behaviours are visible and open to judgement because they are actions that are undertaken instead of smoking. Consequently, quitting smoking can be understood as a process involving the negotiation of normative change rather than purely individual change. Building on this

perspective, this thesis demonstrated that social identity change can facilitate normative change. Specifically, the social identity of an attempting quitter is of great importance because it represents a transition period that is often absent from social settings but requires behavioural choices that sets them apart from their smoking peers. In summary, this thesis highlights the importance of others in facilitating good outcomes for those who want to quit smoking. This may be achieved through increased exposure to others experiencing similar challenges, whether through expanded social networks or enhanced communication strategies.

CHAPTER 7: REFERENCES

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APPENDIX A: Supplementary Table 1 (Study 1)

Supplementary Table 1 (Study 1).

Development of codes and mapping of codes into clusters

Initial coding: extracting data where participants mentioned others (i.e. what others do and think; perception of self by others) and developing initial codes.	
Questions from moderator guide for <u>smokers</u> (ex-smokers)	Examples of initial codes include…
<u>Current</u> (past) experiences with smoking: How often (did) you smoke, when and where (did) you smoke? How common <u>is</u> (was) it to smoke when you <u>are</u> (were) with friends (how many of your friends smoke(d); how many currently smoke)?	Smoking in the company of others; early experiences of smoking with others; sharing cigarettes; drinking and smoking; perceived disapproval of smoking
Smoking cessation: experience, perceptions, external influences: <u>Have you ever tried to</u> (when did you) quit smoking? How did you do it? (Before you stopped, could) <u>Can</u> you imagine a time when you <u>will</u> (would) no longer be smoking? <u>Is</u> (was) this related to age/life stage, social support, number of quit attempts? <u>Would</u> (did) you discuss with others or go it alone? How important <u>is</u> (was) approval from others when <u>considering</u> quitting smoking?	Support from others when quitting; hindrance from others when quitting; resuming smoking when with others; judgement from others when quitting; Observations of others quitting; discussing quitting with others

Subsequent coding: re-reading transcripts; re-coding based on inductively identified patterns; analysing and interpreting codes to form clusters of overlapping concepts	
Clusters	Example codes within clusters
Differences in perspectives about smoking	
Acceptance of smokers	Proportion of smokers to non-smokers in social groups; ignore discomfort about not wanting to smoke to fit in
Social disapproval of smoking	Smokers looked down upon; smoking less to avoid upsetting others; smoking no longer the norm
Policy	Segregating and criticising smokers through smoke-free laws; advertising; plain packaging

Differences in perspectives about quitting	
Judgement and expectations about quitting	Expectation from others to quit; fear negative judgement about not quitting or failing to quit successfully
Social support for quitting	Learning from others' quitting experiences; discussing quitting with others; observing others struggle to quit
Social disapproval of quitting	Group becomes segregated into smokers and non-smokers; friends undermining quit attempts
Socialising and smoking	
Norms around sharing cigarettes	Sharing cigarettes among friends; resisting cigarette offers; avoiding buying cigarettes; smoke cues
Smoking fulfils a social function	Social shortcut; smoking goes with drinking alcohol; smoking helps to develop bonds with others
Final stage: analysing clusters and sub-codes to identify interpretable and higher level themes	
1) Managing the division between smoker and non-smoker groups	
2) Navigating others' expectations about quitting smoking can be isolating when attempting to quit smoking	
3) Encountering normative in-group smoking-related behaviours when attempting to quit	

APPENDIX B: Supplementary Table 1 (Study 3)

Supplementary Table 1 (Study 3).

Summary of articles included in the analysis

Source	Sample	Method	Message conditions	Theory[i]	Measures	Results
			Group 1: *Formative (experimental) studies – general population*			
Bresnahan & Zhang (2016)	Adults (n=143; mean age 31.65 years, SD=9.30); 45.2% smokers China, local sample	Lab experiment Exposure: 1 of 4 normative conditions; Each condition contained 1 of 2 descriptive norms (high vs low smoking prevalence), and 1 of 2 injunctive norms (approval vs disapproval of smoking)	New message; paragraph containing manipulated conditions. 1) Descriptive norm: 70%/30% of people your age admitted that they smoked on social occasions 2) Injunctive norm: approval/disapproval for smoking. The remainder of the message stated that smokers are at risk of health effects from smoking.	*Social Norm Theory* TNSB (6); FT (4)	*Quitting outcomes* Smoking status; Smoking resistance scale *Social norms* Norms: none *Message receptivity* None *Other* Group identity (perceived similarity, aspiration); Outcome expectancy (benefits to self, benefits to others, anticipatory socialisation)	Descriptive norms (30% prevalence) were associated with greater smoking resistance when smoking was disapproved. Smoking resistance increased when smokers were exposed to disapproval message. Smoking status not specified, but perceived similarity to coworkers and high smoking prevalence led to weaker smoking resistance, whereas low smoking prevalence led to stronger smoking resistance. Perceived similarity to coworkers and smoking approval led to weaker smoking resistance; no association for disapproval condition. Anticipatory socialisation associated with low smoking prevalence and weaker smoking resistance; associated with disapproval message and stronger smoking resistance. *Also noteworthy:* Participants who believed that smoking was self-beneficial had decreased smoking resistance when exposed to the approval message. Smoking resistance did not change regardless of injunctive norm message if participants did not hold beliefs that smoking was self-beneficial.

Lee & Paek (2014)	University Student smokers (n=310) Korea & US; local sample	Lab experiment Exposure: 1 of 3 normative conditions: descriptive, injunctive, subjective; 1 message in each condition	New; print ads 1) Descriptive norm (University majority, do not smoke in the presence of non-smokers) 2) Injunctive norm (University majority, disapprove of smoking in the presence of non-smokers) 3) Subjective norm (important others think I should not smoke in the presence of non-smokers)	*Social Norms Theory* FT (4); TPB (3) *Other theory* Guilt from not conforming to social norms, which is influence by cultural orientation (collectivist vs individualist)	*Quitting outcomes* Intentions to quit *Social norms* Norms: none *Message receptivity* None *Other* Guilt arousal; fixed factor: culture (collectivist [Korea] or individualist [US] orientation)	Message condition not related to quit intention *Also noteworthy:* Positive relationship between guilt and quit intentions in all 3 message conditions; stronger for Korean smokers. Korean smokers felt guiltier than US smokers regardless of message condition
Lee & Paek (2013)	Adult male smokers (n=302; M=42 years, SD=10.52) Korea; local sample	Lab experiment Exposure: 1 of 3 conditions: descriptive, injunctive, subjective; 1 message in each condition	New; print ads 1) Descriptive norm (Korean majority, do not smoke in the presence of others) 2) Injunctive norm (Korean majority, disapprove of smoking in the presence of others) 3) Subjective norm (important others, disapprove of smoking in the presence of others)	*Social Norms Theory* FT (4); TPB (3) *Other theory* Guilt from not conforming to social norms	*Quitting outcomes* Intentions to quit *Social norms* Norms: descriptive, injunctive, subjective norm perceptions *Message receptivity* None *Other* Guilt Arousal	-Negative relationship with quit intention: Injunctive norm perception for injunctive norm condition -Positive relationship with quit intention: Subjective norm perception in subjective norm condition *Also noteworthy:* Guilt had stronger relationship with intention to quit than any norm condition

Pegors, Tompson, O'Donnell,& Falk (2017)	Smokers (n=40), mean age 32.9 years (SD=13.1), range 19-64 years US, local sample	Lab experiment: fMRI brain scan Session 1: baseline survey; Session 2: tasks in fMRI scanner (view anti-smoking messages) and pre- and post- self-report measures. Participants viewed all images; Session 3: Follow-up telephone interview Tested differences in representations of message content and subsequent behaviour change.	New messages; Each image included 'Stop smoking. Start living.' Images varied in the presence or absence of valence (neutral/ negative), social norms and health outcomes: -11 neutral social images (social scenes with family, co-workers, friends) -12 negative social images (social exclusion from family, co-workers and friends) -18 negative health (individuals in the hospital or a casket, smoking related symptoms such as yellow teeth, neck stoma) -19 neutral health (physical activity)	*Social Norms Theory* FT (1) *Other Theory* Social network composition	*Quitting outcomes* Intentions to quit; smoking behaviour (number of cigarettes per day) *Social norms* Norms: Social network composition – proportion of smokers in network (indirect descriptive norm) *Message receptivity* This ad makes me want to quit; pleasantness	-27 participants smoked fewer cigarettes per day at follow-up compared to previous session. On average, there was a 25.3% (SD=36.5%) decrease in smoking behaviour. -Univariate: smoking reduction associated with representing valence information but not content type. Further analysis showed that smoking reduction was associated with negative health information and neutral social information. No effect for social network composition. -Multivariate: smoking reduction less likely when negative social content was strongly represented; no effect for valence or health outcomes. Effect was stronger for those with a lower ratio of smokers to non-smokers in their social network. *Also noteworthy:* The average ratio of smokers to non-smokers was 0.55, meaning that there were 0.55 smokers in a participants' recent interaction network for every 1 non-smoker. Multivariate: An interaction effect was present for health messages: participants with larger numbers of smokers in their social networks were more likely to maintain or reduce smoking when health information was strongly represented.
Murphy-Hoefer, Hyland & Higbee (2008)	University students (n=1011; M=18.5 years, range 18-24); 36% current smokers US; local sample	Lab experiment Exposure: 1 of 3 conditions: norms, health and tobacco industry; Each condition had 4 messages, 1 for each execution style: humour, sarcasm, testimonial, drama.	Pre-existing and coded TV ads 1) Social norm (portrayed smoking as a bad decision and an uncommon habit) 2) Health condition (shows that smoking hurts the family unit and causes health problems, diseases and deaths) 3) Tobacco industry manipulation (portrays the tobacco industry as being deceitful)	*Social Norms Theory* TPB/TRA (3)	*Quitting outcomes* Smoking status; change in intentions to quit from pre-exposure to post-exposure *Social norms* Norms: none *Message receptivity* Ad persuasiveness assessed by 3 questions: how likely to (1) catch my attention, (2) influence my smoking, (3) talk about ad with friend	Each condition produced an increase in intentions to quit. Health consequences ads ranked highest in perceived effectiveness and were the most likely to change people's intentions to quit after viewing them, compared to tobacco industry manipulation and social norm ads *Also noteworthy:* Occasional smokers more likely than frequent smokers to report intentions to quit after viewing any of the ads.

Rhodes, Roskos-Ewoldsen, Edison & Bradford (2008)	University students (n=166); 42% smokers US; local sample	Lab experiment Exposure: all 4 conditions: norms, environmental smoke regulation, danger of environmental smoke, tobacco industry; 1 of 3 messages in each condition	Pre-existing and coded TV ads: 1) NORM (social disapproval of smoking) 2) ETS-R (environmental tobacco smoke-regulation) 3) ETS-D (Dangers of environmental tobacco smoke) 4) IATT (Tobacco industry attack)	*Social Norms Theory* FT (4); TPB (3)	*Quitting outcomes* Smoking status; intentions to quit because of ad *Social norms* Norms: (Subjective) norm accessibility (expectations of smoking from parents, friends, best friend, boy/ girlfriend, roommate(s), and brothers/ sisters.) *Message receptivity* Ad perceptions (message was distorted, overblown, exaggerated, boring; while watching I felt manipulated, exploited); ad persuasiveness (convincing, persuasive) *Other* Attitude accessibility; ad processing (central, peripheral)	Message condition not related to quit intention *Also noteworthy:* Accessible attitudes increased central processing; biased ad perception produced counter-arguments leading to intention to continue smoking. Accessible pro-smoking norm increased peripheral processing which was unrelated to quit intentions. Pro-smoking norm buffered against central processing. Non-smokers' perceived ads as less biased and more convincing than smokers.
Amonini, Pettigrew, & Clayforth (2015)	Phase 2: smokers (n=375), 18-54 years; Australia, regional sample	Phase 2: lab experiment; Exposure: 1 of 5 anti-smoking ads (3 types: shame [1 ad], guilt [1 ad], health concerns [3 ads]) – guided by phase 1 which identified the strongest themes for current smokers in terms of major concerns and triggers for attempting to quit.	New and pre-existing TV ads. Phase 2 ads: shame (animatic used to depict various situations of people hiding their smoking from others), guilt (pre-existing ad that communicated the emotional pain children would feel if a parent developed lung cancer), health concerns (3 pre-existing ads conveying the risk of lung cancer and stroke).	*Social Norms Theory* None; social unacceptability of smoking experienced as shame was identified through focus groups *Other theories* Self-congruency theory	*Quitting outcomes* Phase 2: quit intentions *Social norms* Norms: none *Message receptivity* Phase 2: reactions to the ad (believable, relevant, should try to stop smoking, made you feel like you did not want to smoke in the future, effectiveness in stopping smokers from smoking, likeable), message take-out. *Other* Gender, age, location	-Phase 2: The Shame message performed as well as the other messages (guilt and health) for believable, thinking about stopping smoking, feeling like stopping smoking in the future, effectiveness), and performed better for relevancy and likeability

Wong, Nisbett & Harvell (2017)	University students, smokers (n=193, mean age= 20.02 years (SD=1.58) US; Local sample	Lab experiment Exposure: 1 of 3 conditions; mortality salience manipulation: health-focused, social-focused, control – no message)	Pre-existing, coded TV ads; representing health-focused and social-focused mortality salience. Participants randomly assigned a condition, primed according to condition, then viewed 2 ads that depicted the condition they were assigned, i.e. 1) health-focused (smoker turns into a rotting corpse while puffing on a cigarette) or 2) social-focused: social exclusion (smoker gets turned down for a date or abandoned by friends because s/he smokes around them).	*Other Theory* Terror Management Health Model	*Quitting outcomes* Intentions to quit *Social norms* Norms [implicit IN and SN]: Priming condition: describe thoughts and emotions relating to alienation and social rejection by family, friends and peers. *Message receptivity* Anger towards the ads – combined scores: made them feel angry, irritated, annoyed, aggravated; Evaluation scale - combined scores: not effective-effective, stupid-clever, not persuasive-persuasive, bad-good *Other* Smoking addiction; smoking-based self-esteem (i.e. smoker self-concept); health-related death anxiety about smoking; attitudes towards smoking	-High smoking-based self-esteem smokers in the social-focused condition reported higher quitting intentions compared to health-focused and control conditions. For low smoking-based self-esteem smokers, both health- and social-focused conditions were associated with higher quit intentions than control condition. -Intentions to quit were greater among those in the social-focused condition compared to the health-focused condition. Among those in the social-focused condition, the less anger and the more positively they evaluated the ads, the greater their intent to quit smoking. *Also noteworthy:* Anger towards the ads and negative evaluation of the ads corresponded to lower quitting intentions.

Martin & Kamins (2010)	University students, smokers (n=198; age 18-27 years) US; Local sample	Lab experiment Exposure: 1 of 3 conditions; mortality salience manipulation: health effects, social exclusion, control- no message)	Pre-existing and coded TV ads 1) 2 health effects ads (physical mortality salience – smokers suffer from life-threatening diseases such as lung cancer and often die prematurely) 2) 2 social exclusion ads – smoking is a barrier to achieving life's social goals such as being savvy, attractive, and mature and can result in exclusion from particular social groups.	*Other Theory* Terror Management Theory	*Quitting outcomes* Short and long-term quitting intentions *Social norms* Norms: none *Message receptivity* None *Other* Smoking self-esteem; mortality salience; health risk perception	-Short-term quitting intentions: High smoking self-esteem participants in social exclusion condition had higher short-term quitting intentions than those in health effects and control conditions. For low smoking self-esteem participants, quit intentions were greatest for those in the social exclusion condition, followed by the control condition and then the health effects condition. -Long-term quitting intentions: most likely for those in social exclusion condition, which was significantly different to health effects condition and control condition. *Also noteworthy:* There was no difference between health effects and control conditions for both short and long term quit intentions.
Strasser, Cappella, Jepson, Fishbein, Tang, Han & Lerman (2009)	Adult smokers (n=199, M=43.2, SD=11.97, age range 18-65 years) US; Local sample	Lab experiment Exposure: 1 of 4 message conditions; 4 messages in each condition	Pre-existing and coded TV ads, classified as: 1) High message sensation value (MSV) and high argument strength (AS) 2) High MSV and low AS 3) Low MSV and high AS 4) Low MSV and low AS	*Social Norms Theory* IM/TRA (3)	*Quitting outcomes* Intention to quit *Social norms* Norms: 4 belief items weighted by 4 motivation items (no further details provided) *Message receptivity* None *Other* Fagerström Test for Nicotine Dependence; sensation seeking; attitude towards quitting smoking; physiological assessments	Social norms measure was positively associated with quit intentions, as was self-efficacy and beliefs about positive consequences. Message condition was not a predictor of intention to quit. *Also noteworthy:* Message condition and cognitive co-variates had few significant relationships (e.g. social norms, attitudes, beliefs)

Falomir & Invernizzi (1999)	High school students, all smokers (n=153, median age=16.7 years) Switzerland; local sample	Lab experiment Exposure: control (no message) or treatment (persuasive message condition) – message about smokers being victims of the tobacco industry and society	New; persuasive anti-smoking message originating from a high status source ("a group of university professors"). The message was presented as "an analysis of the socio-economic reasons why people smoke"	*Social Norms Theory* TRA/TPB (3); SIT (1)	*Quitting outcomes* Future quit intentions *Social norms* Norms: subjective: how many friends approve of smoking *Message receptivity* None *Other* Smoker identity: seen as a real smoker by self and friends; smoking behaviour; attitude towards giving up smoking; perceived lack of behavioural control	Positive attitude towards quitting was greater when message was presented to those with weak smoker identity. Strong smoker identity associated with subjective norm: when confronted with a message (compared to control) perception of support for smoking from friends is higher, and quit intentions are lower. *Also noteworthy:* Full sample: Smoker identity, attitude and subjective norm all negatively associated with quit intentions. Light smokers: quit intentions negatively associated with subjective norms; Heavy smokers: quit intentions negatively associated with attitude and smoker identity only.
Group 2a: *Evaluative studies measured at more than 1 point in time*						
Solomon, Bunn, Flynn, Pirie, Worden & Ashikaga (2009)	Adolescent smokers (n=2030, grades 7-10, M=15 years) US; Regional sample	Longitudinal telephone survey (3yr) Exposure: 2 control states (no exposure); 2 intervention states (population exposure)	New; mass media campaign (radio, TV) shown throughout the year Campaign message: adolescent protagonist with 5 educational objectives around stopping smoking, including increased confidence in resisting smoking, decrease negative expectations, increase positive expectations, have realistic perceptions of smoking prevalence, increase perceptions of peer approval	*Social Norms Theory* Social Cognitive Theory (5)	*Quitting outcomes* Intentions to smoke; smoking status *Social norms* Norms: Perceived prevalence of smoking; perceived prevalence of quitting; friends approval for smoking; friends approval for quitting *Message receptivity* None *Other* Self-efficacy to resist smoking; outcome expectations	Small effect after adjusting for baseline smoking status: combined influence of slightly greater cessation among adolescents who reported smoking in the past 30 days at baseline and slightly less progression to regular smoking for light/occasional smokers. The effect was strongest in year 1, with no further effects observed in subsequent years. *Also noteworthy:* Mediating variables had no bearing on results.

Hafstad & Aarø, Engeland, Andersen, Langmark & Stray-Pedersen (1997)	Adolescents (n=6234; 14-18 years) Norway; Regional sample	Longitudinal classroom/ postal survey (3yr) Exposure: Control county (no exposure); intervention county (population exposure)	New; mass media campaign (print, radio, TV) – 3 week exposure per year Campaign message: see 3 related studies described below (Hafstad and colleagues).	*Other Theory* Interpersonal communication	*Quitting outcomes* Smoking status *Social norms* Norms: none *Message receptivity* None *Other* Number of cigarettes, future smoking expectations, gender; campaign discussion	Change in smoking status over time. Campaign exposure had greatest impact on reducing recruitment of new smokers (both males and females), and increased quitting among females only
Rennen, Nagelhout,van den Putte, Janssen, Mons, Guignard, . . . Willemsen (2014)	Adult smokers (n=3865, 18 years and over) France, Netherlands & Germany; National samples	Longitudinal telephone and online survey (2 waves across 3 years) Population exposure	Mass media anti-tobacco campaign, plus other tobacco control strategies that varied across four countries. Campaign messages: Key theme in France was secondhand smoking, in The Netherlands was secondhand smoking and smoking cessation and in Germany was smoking cessation.	*Social Norms Theory* None stated	*Quitting outcomes* Baseline: Quit intention within 6 months; quit attempt past year; follow-up: quit attempt and/or success *Social norms* Norms: Social unacceptability: uncomfortable smoking in public, important people, society disapprove of smoking *Message receptivity* None *Other* Awareness of warning labels on cigarette packages; awareness of smoking restrictions at work	Smokers who were more aware of anti-tobacco information more often reported feeling uncomfortable about smoking, but there was no association with important people disapproval and societal disapproval (except for France). *Also noteworthy:* Social unacceptability variables were not predictors of quit success. Important people disapproval predicted quit attempts in The Netherlands. Direct relationship between campaign and quit outcomes not tested.

Hammond, Fong, Zanna, Thrasher, & Borland (2006)	Adult smokers (n=9058, 18 years and over) Canada, US, UK & Australia; National sample	Longitudinal telephone survey (2 waves across 2 years) Population exposure	Mass media anti-tobacco campaign, plus other tobacco control strategies	*Social Norms Theory* None stated; social denormalisation rationale developed from prior tobacco control initiatives	*Quitting outcomes* Smoking status; quit attempt in past 12 months; intentions to quit; successfully quit at follow up *Social norms* Norms: Social denormalisation index (perceptions of social acceptability of smoking) *Message receptivity* None *Other* Noticed smoking promotions, pack warning labels; indexes for industry denormalisation, heaviness of smoking, environmental tobacco smoke.	Noticing anti-tobacco advertising was associated with social denormalisation beliefs. Social denormalization beliefs were associated with quit intentions and abstinence.
Troelstra, Harting & Kunst (2019)	Smokers (N=1127) The Netherlands, national sample	Baseline survey pre-intervention (September 2016), Follow up survey 3 months post intervention	'Stoptober' campaign – national 28-day smoking cessation intervention created through mass media channels to trigger quitting and actively support a social movement around stopping smoking Intervention also includes support package during the intervention	*Other Theory* Social Contagion Theory	*Quitting outcomes* Smoking status *Social norms* Norms: Social norm towards non-smoking, social pressure to smoke *Message receptivity* None *Other* Age, gender, education, former campaign participation, quit attempt past year, heavy smoker, addicted smoker, determination to quit, confidence in quitting, positive and negative attitude towards non-smoking, self-efficacy, habit, non-smoking identity	69.3 reported not smoking during Stoptober, 71.8% had stopped smoking at the 3 month follow-up. For respondents who quit smoking, from baseline to follow-up, there was a decrease in social pressure to smoke and increases in social norm towards non-smoking and non-smoker identity. There was no change in these social measures for those who still smoked at the 3 month follow-up. *Also noteworthy*: Large (84%) drop out rate at follow-up; likely that attrition was selective so quit rate was revised down to 50%.

Group 2b: *Evaluative studies measured at 1 time point only*						
Lee, Fong, Dewhirst, Kennedy, Yong, Borland, . . . Omar (2015)	Adult smokers (n=2006, 18 years and over) Malaysia; National sample	Cross-sectional face-to-face survey Population exposure	Mass media anti-tobacco campaign: "TAK NAK", meaning ‘‘Say No’’ (print, radio, TV) – 12 month exposure Message: preventing uptake and encouraging quit attempts. TV ads pertained to health risks using fear appeals (e.g. cancer) or secondary health and cosmetic issues (e.g. wrinkles).	*Social Norms Theory* None stated; social norms rationale developed from research on culture and previous mass media research	*Quitting outcomes* Intention to quit *Social norms* Norms: Malaysian society disapproves of smoking *Message receptivity* Used the information (e.g. talked about campaign with family) and found campaign personally relevant; thoughts about the harm of smoking; fear appeals from TAK NAK	Campaign impact (exposure, discussed campaign and receptivity) was associated with quit intentions. Mediator variables (thoughts about harm, fear appeals and social norms) were also associated with quit intentions and campaign impact.
Amonini, Pettigrew, & Clayforth (2015)	Phase 3: Smokers and recent quitters (n=200), 35-54 years. Australia, regional sample	Phase 3: Cross-sectional telephone post-intervention survey (3 weeks post exposure); population exposure	New TV ad Phase 3: new ad developed from the shame animatic used in phase 2, called ‘How you’re seen’. TV broadcast for 4 weeks in 2012, 1091 TARPs	*Social Norms Theory* None; social unacceptability of smoking experienced as shame was identified through focus groups *Other theories* Self-congruency theory	*Quitting outcomes* Phase 3: have successfully quit or reduced amount smoked in past 4 or 5 weeks *Social norms* Norms: none *Message receptivity* Phase 3: relevant. *Other* Gender, age, location	-Phase 3: 1 in 2 respondents (54%) reported that they had either successfully quit (2%), attempted to quit (16%) or cut down number of cigarettes smoked (36%). *Also noteworthy:* 78% recalled the ad, 72% perceived the ad as personally relevant; 94% took out relevant message

Hoek, Newcombe & Walker, (2011)	Young people (n=939, 12-24 years) New Zealand; National sample	Cross-sectional telephone post-intervention survey Population exposure Sample for analysis: 796 who recalled campaign	New; mass media campaign (print, radio, TV) – rate of exposure not stated. Campaign message: "Smoking - Not Our Future" was designed to promote smoke-free behaviours and identities. Elements of the campaign included youth role models challenging personal and social norms relating to smoking.	*Social Norms Theory* SIT (1); Stereotype Priming Theory (2)	*Quitting outcomes* Smoking status: non-susceptible or susceptible non-smokers and current smokers; quit attempt in past 12 months *Social norms* Norms: none *Message receptivity* Campaign engagement (ads were believable, stood out, cool, made me think, annoying); perceptions of smoking conveyed by the ads	The campaign was more effective with non-susceptible non-smokers than current smokers. The mean level of agreement with 'these ads have put me off smoking' was below the midpoint for current smokers but was above the midpoint for respondents with a quit attempt in the past 12 months.
Hafstad, Stray-Pedersen & Langmark (1997)	Adolescents (n=3504; 14-15 years) Norway; Paper 1 of 3; Regional sample	Cross-sectional classroom post-exposure survey Population exposure	New; mass media campaign (print, TV) – 3 week exposure Campaign message: social norm statements about girls' capacity for thinking and decision making followed by messages regarding the health consequences of smoking	*Other Theory* Interpersonal communication	*Quitting outcomes* Smoking status; intention to quit: Considered, decided or managed to stop smoking (smokers) *Social norms* Norms: none *Message receptivity* Affective: positive, negative, or none; campaign impression, campaign discussion *Other* Gender	Discussing the campaign was strongly associated with intentions to quit smoking, as was positive affective response to the campaign.

Hafstad, Aarø & Langmark (1996)	Adolescents (n=5051, 15-16 years) Norway; paper 2 of 3; Regional sample	Cross-sectional postal post-exposure survey (2nd wave) Population exposure	New; mass media campaign (print, TV) – 3 week exposure Campaign message: social norm statements designed to arouse cognitive dissonance by claiming a typical girl smoker also has characteristics associated with other negative behaviour	*Other Theory* Interpersonal communication	*Quitting outcomes* Smoking status; intention to quit: Considered, decided or managed to stop smoking (smokers) *Social norms* Norms: none *Message receptivity* Affective: positive, negative, or none; campaign impression, campaign discussion *Other* Gender	Campaign discussion with peers and positive affective reaction was associated with intentions to quit among smokers. Campaign discussion was not predictive of quitting (decided or managed to stop) but positive affective reaction was predictive of quitting.
Hafstad & Aarø (1997)	Adolescents (n=4,994, 15-16 years) Norway, Paper 3 of 3; Regional sample	Cross-sectional postal post-exposure survey (3rd wave) Population exposure	New; mass media campaign (print, TV) – 3 week exposure Campaign message: social norm statements designed to highlight the burden of smokers on society	*Other Theory* Interpersonal communication	Smoking status; intention to quit: Considered, decided or managed to stop smoking (smokers) *Social norms* Norms: none *Message receptivity* Affective: positive, negative, or none; campaign impression, campaign discussion *Other* Gender	Campaign discussion with peers and positive affective reaction was associated with intentions to quit among smokers. *Also noteworthy:* There was evidence of counter-reactions, but both positive and negative affective responses were related to discussion of the campaign.

Group 3: *Qualitative studies*						
Devlin, Eadie, Stead & Evans (2007)	High school students (n=18 friendship pairs, 12 focus groups, age range 11 to 14 years) England, local sample	Eighteen friendship pairs and 12 focus groups were conducted with regular and experimental smokers	Stimuli: adverts representing different types of message appeal: social norms, industry manipulation and fear	*Social Norms Theory* TRA/TPB (3)	Discussion explored themes relating to quitting smoking and social norms	Three smoker types identified: resigned smokers, contented experimenters, and reluctant experimenters. Social norm advertisements were most appealing to reluctant experiments (most ambivalent about smoking, mostly smoked because of peer influence); least appealing to resigned smokers and reluctant experimenters (smoking was normalised among their peer group) who were more concerned about conforming to existing expectations around smoking than trying to gain acceptance through smoking. Consequently, social norm advertising was perceived as not reflecting their reality. Fear appeals evoked strong negative responses but were easily discounted. Tobacco industry messages were too complex and inconsistent with their experiences. *Also noteworthy:* Self-exemption was common for both social norms and fear appeal type advertisements.
Troelstra, Kunst, Harting (2019)	23 Stoptober participants (30 to 60 years old, mostly female)	Semi-structured interviews	'Stoptober' campaign – national 28-day smoking cessation intervention created through mass media channels to trigger quitting and actively support a social movement around stopping smoking	*Other Theory* Social Contagion Theory	Discussion explored themes relating to quitting smoking and social norms	Campaign familiarized, normalized and motivation to participate in mass quit attempt. Normalising smoking cessation strengthened social support and self-efficacy to quit (for those who were able to quit). Some respondents found a disconnect between the broader campaign messaging and their personal experiences within their own social network where there was sometimes a lack of social support and strong pro-smoking social norms.

[i]Key social norm theory references:

Social Identity Theory (SIT); Tajfel, H. & Turner, J. C. (1986). The social identity theory of intergroup behaviour. In S. Worchel & W. G. Austin (Eds.), Psychology of intergroup relations. Chicago: Nelson-Hall.

Stereotype Priming Theory; Pechmann, C., 2001. A comparison of health communication models: Risk learning versus stereotype priming. Media Psychology 3, 189–210.

Theory of Planned Behaviour (TPB)/ Theory of Reasoned action (TRA)/ Integrated model of behavioural prediction (IM); Ajzen I. The theory of planned behavior. Organ Behav Hum Decis Process, 1991: 50(2): 179–211. Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention, and behavior. Reading, MA: Addison-Wesley. Fishbein, M., Triandis, H. C., Kanfer, F. H.,

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Focus Theory (FT); Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct. Advances in Experimental Social Psychology, 24, 201–234.

Social Cognitive Theory; Bandura, A. (1986). Social foundations of thought and action. Englewood Cliffs, NJ: Prentice Hall.

Theory of Normative Social Behaviour (TNSB); Rimal, R. N., & Real, K. (2005). How behaviors are influenced by perceived norms: A test of the theory of normative social behavior. Communication Research, 32, 389–414.

APPENDIX C: Supplementary Table 1 (Study 4)

Supplementary Table 1 (Study 4).

Questions and statements for each measurement scale

Measurement scale questions/statements	Response options
Social Identity	
To what extent do you agree or disagree with the following statements…	Strongly disagree Somewhat disagree Neither agree or disagree Somewhat agree Strongly agree
a. I feel committed to smokers	
b. I am glad to be a smoker	
c. Being a smoker is an important part of how I see myself	
d. I identify with smokers	
e. I have a lot in common with the average smoker	
f. I am similar to the average smoker	
g. Smokers have a lot in common with each other.	
h. Smokers are very similar to each other	
Consider the following terms and select the one that ranks the HIGHEST in describing people who are trying to, but have unsuccessfully, stopped smoking cigarettes for good [Next question: Insert word in brackets based on highest ranked response to this question]	Attempting quitter Relapsing quitter Struggling quitter Recovering smoker Social smoker Off and on smoker
To what extent do you agree or disagree with the following statements…	Strongly disagree Somewhat disagree Neither agree or disagree Somewhat agree Strongly agree
a. I feel committed to [attempting quitters]	
b. I am glad to be a[n] [attempting quitter]	
c. Being a[n] [attempting quitter] is an important part of how I see myself.	
d. I identify with [attempting quitters]	
e. I have a lot in common with the average [attempting quitter]	
f. I am similar to the average [attempting quitter]	
g. [attempting quitters] have a lot in common with each other.	
h. [attempting quitters] are very similar to each other	

Consider the following terms and select the one that ranks the HIGHEST in describing people who have smoked cigarettes in the past but who have not smoked any cigarettes, even a puff, for one month or more [Next question: Insert word in brackets based on highest ranked response to this question]	Former smoker Ex-smoker Non-smoker Quitter Successful quitter Abstainer
To what extent do you agree or disagree with the following statements…	
a. I feel committed to [former smokers]	Strongly disagree Somewhat disagree Neither agree or disagree Somewhat agree Strongly agree
b. I am glad to be a [former smoker]	
c. Being a [former smoker] is an important part of how I see myself.	
d. I identify with [former smokers]	
e. I have a lot in common with the average [former smoker]	
f. I am similar to the average [former smoker]	
g. [former smokers] have a lot in common with each other.	
h. [former smokers] are very similar to each other	

Descriptive norms – smoking and non-smoking	
Thinking about important others who you have socialised with in the past month, how common is it for them to…[Order randomised]	Not at all common Slightly common Moderately common Very common Extremely common
Smoke when seeing someone smoking and enjoying it	
Smoke when happy and celebrating	
Accept a cigarette when offered by a friend or partner	
Smoke when with friends at a party, bar or nightclub where alcohol is available	
Smoke over coffee with friends, or other informal social occasions, while talking and relaxing	
Move to a "no-smoking section" while friends stay and smoke	
Stay in a "no-smoking section" while friends go off to smoke	
Say "no" to offers of cigarettes that are not wanted	
Ask others to not smoke	
Use non-smoking strategies (e.g. e-cigarette, chew gum) when around smokers	

Self-efficacy to resist smoking in social settings	
Please rate your confidence in doing the following if the situation arose in the next week. [Order randomised]	Not at all confident Slightly confident Moderately confident Very confident Extremely confident
Avoid smoking when I see someone smoking and enjoying it	
Avoid smoking when I am happy and celebrating	
Avoid accepting a cigarette when offered by a friend or partner	
Avoid smoking when with friends at a party, bar or nightclub where alcohol is available	
Avoid smoking over coffee with friends, or other informal social occasions, while talking and relaxing	
Avoid areas where people are smoking	
Move to a "no-smoking section" while friends stay and smoke	
Stay in a "no-smoking section" while friends go off to smoke	
Say "no" to offers of cigarettes that you don't want	
Avoid friends who smoke	
Ask others to not smoke	
Spend time with non-smoking friends	
Use non-smoking strategies (e.g. e-cigarette, chew gum) when around smokers	
Tell others about my effort to quit smoking	
Ask important others for support to help me quit smoking	
Give advice on quitting to friends who want to stop smoking	