



## Research Paper

## Barriers and facilitators of maintained smoking abstinence following release from smoke-free prisons: A qualitative enquiry

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## ARTICLE INFO

## Keywords:

Smoke-free policy  
Prisoners  
Tobacco  
Motivation  
Social support

## ABSTRACT

**Background:** The prevalence of smoking among people entering prisons is high. Despite increasing adoption of prison smoke-free policies, relapse to smoking after release from prison is nearly universal, and policy to effectively mitigate this is largely absent. Informed by a risk environment framework, we aimed to identify key barriers and facilitators to maintaining smoking abstinence among former smokers released from smoke-free prisons.

**Method:** Twenty-one people released from smoke-free prisons in Queensland, Australia, were followed up from a larger survey of 114 former prisoners. Semi-structured interviews were used to explore the perceived barriers and facilitators of maintained smoking abstinence.

**Findings:** Identified barriers to continued abstinence included pre-release intention to resume smoking; normalisation of smoking in home or social environments, resumption of smoking as a symbolic act of freedom and resistance from and to a restrictive environment; a perception that smoking provides stress relief to their difficult lives, and the use of tobacco/smoking to cope with cravings experienced on release for illicit substances. A number of interviewees were unable to provide clear reflective reasons for relapse. For those who did manage to remain abstinent for a period of time, identified facilitators included an awareness of the health and financial benefits of smoking abstinence, the use of intrinsic motivation, distraction from nicotine cravings using alternative activities, and social support from family and peers.

**Discussion:** Interventions promoting continued smoking abstinence among people exiting smoke-free prisons should focus on targeting the perceived individual- and environmental-level barriers to maintained smoking abstinence while simultaneously promoting perceived facilitators, so as to reduce smoking-related health and economic disparities in this marginalised population.

## Background

Tobacco smoking is a major cause of illness and death globally (World Health Organization, 2013), responsible for approximately seven million deaths a year (World Health Organization, 2018). Despite overall decreases in tobacco use among the general population in most countries over recent decades (GBD 2015 Tobacco Collaborators,

2017), high levels of tobacco smoking persist among certain sub-groups of the population. For example, 74% of people entering Australian prisons in 2015 were current smokers (AIHW, 2016), a rate six times that among the Australian general community (AIHW, 2017). One explanation for this is that sub-groups of the general population in whom rates of smoking are elevated, are overrepresented in prisons (AIHW, 2015; Baker et al., 2006), including people who are socio-economically

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disadvantaged (Twyman et al., 2017), Indigenous people (AIHW, 2013, 2014), people with mental illness (Fazel & Seewald, 2012), and people with substance use problems (Butler, Levy, Dolan, & Kaldor, 2003). Internationally, there is evidence of elevated rates of smoking-related illness and mortality among people in prison (Binswanger, Krueger, & Steiner, 2009; Wilper et al., 2009), and among people recently released from prison (Binswanger et al., 2007, 2016; Rosen, Schoenbach, & Wohl, 2008). These poor health outcomes are further compounded by entrenched social and financial disadvantage experienced by those released from prison (Binswanger et al., 2011; Cutcher, Degenhardt, Alati, & Kinner, 2014).

Smoke-free policies have been introduced in prisons around the world, including in New Zealand (Bonita & Beaglehole, 2013), Canada (Collier, 2013), most states of the United States (US; Kennedy, Davis, & Thorne, 2015) several European countries (Baybutt, Ritter, & Stöver, 2014; Hartwig, Stöver, & Weilandt, 2008) and most recently in England and Wales (Woodall & Tattersfield, 2017). In Australia, smoke-free policies have been implemented in all prisons in the Northern Territory, New South Wales, Tasmania, Queensland, and Victoria (Butler & Yap, 2015). While these policies seem to result in health benefits for people in prison (Binswanger et al., 2014), evidence from the US suggests that the majority of former smokers resume smoking upon release from smoke-free prisons (Clarke et al., 2013; Frank et al., 2016; Lincoln, Tuthill, Roberts, Kennedy, & Hammett, 2009). This finding is reflected in our recent study of people released from smoke-free prisons in Queensland, Australia (Puljević, de Andrade, Coomber, & Kinner, 2018): 74% of participants resumed smoking on the day of release, and 98% relapsed within two months of release. Furthermore, the only quit smoking support available to many Australian prisoners is the purchase of nicotine lozenges in some prisons (Puljević, Coomber et al., 2018), and we are unaware of any formal strategies assisting people released from prison to maintain smoking abstinence, internationally. These high rates of smoking relapse upon release from prison, combined with a lack of interventions in place to prevent relapse, indicate a missed opportunity to extend the benefits of prison smoke-free policies into the community (de Andrade & Kinner, 2016).

While smokers entering smoke-free prisons experience forced abstinence as a result of smoke-free policies, studies suggest that many wish to stop smoking, such as 70% of a sample of incarcerated males in Ohio, USA (Kauffman, Ferketich, Murray, Bellair, & Wewers, 2011). Furthermore, while in prison, the majority of former smokers pass the typical duration of nicotine withdrawal (Shiffman et al., 2006), such that people exiting smoke-free prisons have a head-start on smoking cessation. While these findings highlight a need for further understanding of why people released from prison return to smoking following release, we are aware of only one study that has attempted to qualitatively explore this issue. This study was conducted with 60 former smokers released from smoke-free prisons in New York in 2016 (Valera, Bachman, & Rucker, 2016). Common barriers to maintained post-release smoking abstinence described by these participants included lifetime exposure to smoking, perceived role of cigarettes in relieving stress, the availability of cigarettes in the community, negative influences of families and peers, and stressful housing situations. Facilitators of maintained abstinence included the availability of smoking cessation medication, and associated financial benefits (Valera et al., 2016).

Reference to “barriers and facilitators” is common in literature describing factors that hinder or assist individuals’ attempts to maintain abstinence from drug use (e.g. Gueta, 2017; Nyamathi et al., 2007; Wells et al., 2017). Broadly, such positions try to understand why negative health behaviours persist by drawing on general ‘ecological’ models of how people interact with their environment and how they are impacted by multi-level psychological, social, and environment factors (Golden & Earp, 2012; Rhodes, 2009). Whilst more general ecological approaches provide a sensible methodological and theoretical nod to how and why the lived experience of people impacts health-related

behaviour, there is also a strong tendency for these to be ‘more likely to describe interventions focused on individual and interpersonal characteristics, rather than institutional, community, or policy factors’ (Golden & Earp, 2012). This is perhaps not surprising as such a positioning around the individual is common, if not the norm, among public health rationalisations and interventions for health promotion and behaviour change (Rhodes, 2009).

By way of initial ecological complementarity, but also in some contrast to ecological approaches in practice, the framing rationale for Rhodes’s ‘risk environment’ framework (Rhodes, 2002; Rhodes, Singer, Bourgeois, Friedman, & Strathdee, 2005) is one that seeks to purposively redress this imbalance and provide a conceptual and practical approach to consider how several interacting environmental-level barriers and facilitators at the macro and micro levels (e.g., the societal and local policy context) produce structural and relational influence on health behaviours such as drug use (McNeil & Small, 2014; Rhodes et al., 2005). A risk environment can thus be understood as a space where intersecting social, economic, physical, cultural, and policy factors interact to increase the potential of risk and harm (Rhodes, 2002, 2009). The risk environment approach is considered to have had particular success in improving understanding of why specific groups – despite being aware of their risky behaviours and the risks pertaining to them, and even being motivated to desist, continue to engage in risky behaviours (Strathdee et al., 2010). As such, there is an increasing body of research, particularly in relation to substance use and risk, in disparate settings where the application of the risk environment approach has added value to understanding a wider array of barriers and facilitators than the narrower ecological approaches focussing on individually located challenges (e.g. Green et al., 2009; Moore, 2004; Small, Kerr, Charette, Schechter, & Spittal, 2006; Strathdee et al., 2010). The risk environment framework has been used extensively in literature that aims to understand the impact of social, structural, and environmental risk factors on re-initiation of illicit drug use by former prisoners (Binswanger et al., 2012; Burgess-Allen, Langlois, & Whittaker, 2006), such as a lack of social support (Binswanger et al., 2012) or as a means to understanding why some demographics persist in smoking cigarettes (Bauld et al., 2017; Wells et al., 2017).

In this light we chose to draw on the conceptual framework of the risk environment to assist in understanding how the prison itself, the policy around smoke-free prisons, and a return to the community after release from prison can be understood as revealing specific, sometimes overlapping structural, circumstantial and personally situated barriers and facilitators to continued abstinence that the person released from prison enters into. An improved awareness of the broader obstacles and enablers of continued tobacco abstinence among those released from smoke-free prisons may assist correctional authorities and public health policy stakeholders to develop targeted, evidence-based interventions to assist former smokers to sustain smoking abstinence upon release from prison. Based on semi-structured interviews with ex-smokers recently released from smoke-free prisons in Queensland, Australia, this qualitative study thematically explores both the perceived and apparent barriers and facilitators of maintained smoking abstinence.

## Method

Participants in this study represent a subset of participants from a larger, cross-sectional study that used a survey to quantitatively investigate rates of smoking relapse among 114 former smokers released from smoke-free prisons in Queensland (Puljević, Coomber et al., 2018). While our quantitative study reports a rapid rate of smoking relapse following release from prison (Puljević, Coomber et al., 2018), this study uses a qualitative design to explore some of the perceived reasons why participants relapsed to smoking, with a view to inform targeted policy responses aiming to reduce smoking-related harms among people who experience incarceration. In this case, qualitative findings are used to complement and provide further insight to survey

findings, allowing for an expanded understanding of the issue at hand (Johnson, Onwuegbuzie, & Turner, 2007).

#### Participant recruitment

Participants were recruited from the larger survey sample (Puljević, Coomber et al., 2018). Participants were eligible to take part in the survey if (1) they were daily smokers on entry to prison, (2) they had been released from prison > 24 h and < 2 months ago, (3) they were on parole and reporting in person to a Probation and Parole office, and (4) their most recent period of imprisonment was longer than one week ( $\geq 8$  days), to provide sufficient exposure to the smoke-free policy.

At conclusion of the survey, participants were invited to provide contact details for participation in semi-structured, qualitative interviews investigating perceived reasons for their relapse to smoking after release from prison. Participants who provided their contact details were contacted by telephone several weeks after survey completion and invited to return to their local Probation and Parole office (where data collection for the survey occurred) to take part in the qualitative interview. Participant recruitment for the qualitative sub-study was discontinued when it was judged that data saturation had been reached (Dworkin, 2012; Malterud, Siersma, & Guassora, 2016; Saunders et al., 2017). This was based on a judgement of the fulfilment of the study's relatively narrow aim, combined with the authors' familiarity with related data from the broader survey (Malterud et al., 2016), such that no new data or themes were emerging from ongoing data collection and interim analysis.

#### Data collection

Interviews were conducted in private rooms within Probation and Parole offices, and took approximately 40 min to complete. Participants were provided with a \$30 supermarket voucher as a reciprocity payment for their time. Interviews were voice-recorded with participant consent, and then transcribed for analysis. Ethical clearance for the study was granted by Griffith University's Human Research Ethics Committee (2015/581).

#### Approach

The semi-structured qualitative interview guide was developed through analysis of, and reflection on, survey data collected during the larger study (Puljević, Coomber et al., 2018) in conjunction with a review of the existing literature (Puljević & Segan, 2018). Open-ended interview questions (included as a supplementary file) explored participants' experiences of forced smoking abstinence while incarcerated and of resuming smoking following release, and the factors they perceived to either assist or hinder continued smoking abstinence following release from smoke-free prisons.

#### Data analysis

We used the protocol for thematic analysis as outlined by Braun and Clarke (2006) to identify themes that emerged in the qualitative data and that also pertained to the specificity of the risk environments of prison and immediate post-release. Consistent with the risk environment approach (Rhodes, 2009), we were as minded towards specific structural limiters and enablers as we were of individualised perceptions of motivation or preference. Thematic analysis is considered a useful method for capturing and exploring the complexities of meaning that exist within textual datasets (Braun & Clarke, 2006). Due to the nature of the study and the authors' familiarity with this area (and subsequent possible preconceptions), a deductive approach was used (Braun & Clarke, 2006) to develop themes and a reflexive approach was adopted throughout analyses, in order to sustain awareness of the researchers' biases and/or familiarity with literature in this area that may

**Table 1**  
Participant characteristics (n = 21).

Characteristic	Number
Age (years)	
21–30	8
31–40	9
41–50	2
50+	2
Sex	
Male	16
Female	5
Ethnicity	
Indigenous Australian	3
Caucasian Australian	18
Lives in disadvantaged area (SEIFA) <sup>a</sup>	9
Lives with smoker(s)	12
Current number of cigarettes per day	
1–10	15
11–20	4
20+	2
Pre-release intention to remain abstinent after release	12
Intend to quit smoking in the future	18
Moderate to high nicotine dependence <sup>b</sup>	8
High risky alcohol use after release from prison (AUDIT-C) <sup>c</sup>	6
History of illicit drug use	14

<sup>a</sup> Socio-economic Indexes for Areas (SEIFA) score of  $\leq 3$  (Queensland Government Statistician's Office, 2011).

<sup>b</sup> Fagerström Test for Nicotine Dependence score  $\geq 5$  (Fagerstrom & Schneider, 1989).

<sup>c</sup> AUDIT-C: Alcohol Use Disorders Identification Test Consumption score  $\geq 4$  (Bradley et al., 2007).

have predisposed the identification of emergent themes (Braun & Clarke, 2006; Mauthner & Doucet, 2003).

First, after extensive familiarisation with the raw data, the primary researcher identified recurring patterns of responses or meaning in the data. Second, after extensive re-reading of the data, these patterns were then critically analysed in order to collate them into major themes. These codes and themes were then discussed extensively with co-authors to resolve a few minor discrepancies in coding and to ensure consistency. Data were coded using NVivo 11.

## Findings

#### Participant demographics

Twenty-one people who had relapsed to smoking following release from smoke-free prisons took part in this study (see Table 1). Participants ranged in age from 21 to 63 (median age 34), and the majority of participants were male (n = 16) and self-identified as Caucasian Australian (n = 18). Although all participants had resumed smoking following their release from smoke-free prisons, the majority (n = 12) had intended to remain abstinent following release from prison, and almost all (n = 18) described intending to quit smoking in the future.

#### Barriers and facilitators of post-release smoking abstinence

Our thematic analyses of participants' interviews identified several perceived barriers to, and facilitators of, maintained smoking abstinence post-release (see Supplementary Table 2). Although no one clear single barrier/facilitator stood out as more prominent in influence than the others, several distinct intersects and interactions between barriers and facilitators were noted. Furthermore, while some identified hindrances to abstinence seem to have only influenced participants' decisions to have 'the first cigarette' after release from prison, others were identified as likely to influence continued smoking after the first post-release cigarette.

### Barriers to post-release smoking abstinence

#### Resistance to forced abstinence

All interviewees were daily smokers prior to their incarceration, and upon entry to prison, were exposed to enforced smoking abstinence due to the prisons' smoke-free policy. As a result, although many expressed a desire to quit smoking in the future, several (n = 9) described intending to resume smoking following release from prison as a self-conscious demonstration of resistance to the smoke-free policy and the subsequent structural constraint on smoking that was forced upon them whilst incarcerated. In the simplest of terms, these participants primarily rationalised their relapse to smoking as a purposeful act of defiance against an illegitimate authority, because they did not choose to quit—their temporary period of abstinence was obligated by their policy-infused environment. Such a positioning is not inconsistent with experimental research carried out by Francis et al. (2005) where low practitioner empathy and confrontational 'encouragement' to smoking abstinence was met with greater levels of resistance. or the broader evidence base that suggests empathetic interventions such as motivational interviewing are met with greater success (Lindson-Hawley, Thompson, & Begh, 2015).

*"I didn't want to quit smoking. I was forced to. So as soon as I got out, I started again. I'll quit smoking when I'm in my grave. They don't have matches there... Unless I go to hell"*- 63 year old male

*"Well I started smoking again just specifically for the point that I didn't want to quit. No one will ever stop using any drug if they're forced to."*- 33 year old male

However, despite this, more than half (n = 12) of participants described how they did intend to remain quit from smoking following release from prison, but then relapsed for a variety of reasons. Thus, it is likely that even for those claiming to be acting in terms of purposive resistance to the smoke-free policy, other factors would have also played a role in their relapse. These reasons will now be explored in further detail.

#### Celebrating freedom

A closely related and commonly-cited reason for participants' relapse was the symbolic and expressive celebration of their release from prison and the various expressive constraints, such as smoking, that they experienced while incarcerated. For many of those in the sample, a smoke-free prison was a new experience – smoking had been allowed in previous incarcerations so the experience of prison itself, not just forced abstinence, was new for these smokers. Smoking commonly assists with coping with prison life (Butler, Richmond, Belcher, Wilhelm, & Wodak, 2007), and being unable to smoke meant for many that prison was just that bit more stressful than it might otherwise have been. Upon release then, it is perhaps not surprising that some participants chose to smoke a cigarette as a means of celebrating freedom from incarceration and its conventional and newly imposed constraints. In this way, we can see how resistance as an act of defiance and celebration of freedom are two sides of the same symbolic coin.

*"The first cigarette felt pretty good. It was good to be out and it was good to be able to smoke. It was a clear distinction, like you know you can smoke now. It was a celebration of freedom."*- 50 year old male

*"My mate came to fetch me, I got in his car, and I rolled up a smoke and lit it, right there in the prison car park. It was my little celebration."*- 33 year old male

Several participants reported intending to only smoke one or two cigarettes on the day of release from prison as a means of celebrating, but then ended up resuming daily smoking. Most of these participants regretted their continuation of smoking.

*"I wanted to stay quit but I also wanted to have that first smoke when I got out just for the freedom side of it, just for like a celebration for the*

*day. I didn't think I'd actually end up keeping smoking."* – 34 year old male

*"Yeah I thought to myself 'Why not just have one because you're out?' I planned to just have one. But then one turned into two and four and six and now I'm smoking ten a day again."*- 28 year old female.

Just as routine and diversion (see below) can be useful structural methods for alleviating addiction-related stresses, it would appear sensible for post-release interventions to focus on enabling celebration without smoking, so that people released from prison do not necessarily see smoking as a significant way of demonstrating resistance to the authorities who cannot see or feel this reaction.

#### Normalised resilient smoking in home environments

A number of local situational factors relevant to participants' home or social environments were commonly described by the interviewees as meaningful barriers to their continued smoking abstinence and as enablers of smoking. Several participants, for example, described how it was difficult to stay quit when surrounded by a high number of smokers in their home, their social networks, or in their work environments.

*"I think the main reason why I went back to smoking on the day I got out is because the girl who fetched me had some... To be honest, maybe if she didn't have cigarettes with her, I wouldn't have smoked."* - 50 year old male

*"When I'm at work, pretty much everyone smokes, and we keep going out for smokos (smoking breaks) together... And then when I get home, my partner smokes too. It's basically impossible to stay quit."*- 38 year old female

*"I actually thought I was going to stay quit. And then they were all smoking when I got out of prison, and before I know it, I'm having a cigarette. The missus, my little brother, my nephew, they were all just standing around smoking and I said 'Alright, give me a smoke.'" - 34 year old male*

With such a context prevalent for so many, these participants believed that attempting to remain abstinent from smoking was pointless or futile because they were typically surrounded by smokers. With smoking normalised for so many around them, these interviewees felt that being embedded in that context and not smoking was too difficult, or that relapse was inevitable.

*"I didn't even bother making a plan to stay quit. I know that my son smokes, his mother smokes, everyone smokes. I knew it would be impossible to stay quit."*- 36 year old male

#### Resumption, ritual and routine activity

A second situational barrier in this context was participants' almost automatic association of smoking with routine activities associated with their home and other environments. Although these habitual associations may be linked psychologically to the addictive properties of nicotine in some cases, this theme clearly demonstrates the powerful influence of the mix of environmental cue, ritual and routine activity on aspects of individual agency.

*"My motivation to stay quit was a lot stronger the second time I got out of prison. But I think even though the addiction to the nicotine and everything may be gone after spending several weeks as a non-smoker in prison, those physical habits and life outside, they are still there when you get out."* – 26 year old male

*"I was sort of only going to have that one cigarette when I got out (of prison), you know, as a celebration, but after that I had another one. I just kept on going and then it becomes that ritual again of smoking, you know, waking up in the morning and having a smoke and my favourite smoke is after a meal, or in the morning when I get in the car. I don't even think about it."* – 33 year old male

### Alleviating stress, managing life

Another commonly articulated barrier to staying quit was participants' belief in the stress-relieving properties of smoking. Individuals released from prison commonly experience various social and financial challenges in the days following release (Cutcher et al., 2014), and these participants chose to engage in smoking in the hope of experiencing a sense of relief from these external stressors. Besides understanding stress as an environmentally-imposed factor in its influence on health behaviours, the belief that smoking reduces stress may also be used as a psychological rationalisation to justify engaging in a harmful behaviour (e.g. Fotuhi et al., 2013). This will be considered in further depth below.

*"I tried to stay quit but then my daughter stressed me out so I just started up smoking again... You know, I think that all of us who get out of jail, we smoke because none of us live picture perfect lives, we're all a lot more stressed than other people."* - 38 year old female

*"I don't know what happened on that day I started [smoking] again, I think it was just the overwhelming part of it all... when you're getting out and going back home and you don't have money and all the neighbours are staring and all that. It felt like a walk of shame. I was feeling so stressed so I thought that having a smoke would take away the anxiety."* - 37 year old female

Ultimately we identified a variety of pushes and pulls, resistance, celebration, ritual, environmental enablers and associational cues which combined and overlapped with the circumstantial stresses of everyday life that make staying abstinent a particular challenge for this group. For many, this also combined with the challenges presented by other forms of substance use.

### Smoking as a lesser evil of other forms of substance use

Several interviewees explained that they chose to smoke cigarettes as a substitute for other illicit drugs. A majority of interviewees (n = 14) had long histories of illicit drug use, and many were prohibited from using illicit drugs and/or alcohol as a condition of their parole order. As a result, tobacco was the only substance that many interviewees were allowed to use. Some interviewees also described smoking a cigarette as almost an essential co-activity to drinking alcohol – further evidence of the way that association, ritual and environmental connectivity assimilate in a context of co-substance consumption.

*"I was smoking before I realised it. I always smoke when I drink... When I drink, I smoke. I don't even think about it."* - 50 year old male

For those dependent on other drugs the need for 'something' helpful to relieve problem symptoms was a rational response, and on occasion this was also a directed response from health care practitioners.

*"I started with the cravings for the meth, and my drug counsellor said 'Go have a smoke instead of using the drugs' so now whenever I have a craving I just have a cigarette instead. They call it harm reduction. It's much better to smoke a cigarette than to use meth."* - 38 year old female

### Making sense of the senseless

Although there were a range of specific structural and circumstantial factors that influenced most interviewees' return to smoking, several individuals explained that they were at a loss to articulate any specific reason for their relapse, even when they were aware of the harmful effects of smoking or wished to quit smoking. Although this may in part reflect the addictive properties of nicotine, combined with the habitual nature of smoking, these participants' bemusement may also reflect an unconscious preference to avoid reflection on the known self-destructive behaviour they were re-engaging with (Fotuhi et al., 2013).

*"Realistically I thought I wouldn't go back to smoking but I just fell into it*

*I guess. I didn't really think about it, I just did it. And I know that when I walk out of here now, I will smoke. I don't like smoking, it doesn't appeal to me at all. I know I'm soaking my body in something poisonous. I know what I'm doing to my body. But I just keep doing it and I don't know why. It's just stupid."* - 50 year old male

*"I meant to only have one, you know, and that first cigarette was horrible, so disgusting, but then I started smoking a second one. I have no idea why..."* - 34 year old male

*"The first cigarette made me feel sick, but I had another one. I don't know why, I really don't know. I can't answer. It's so weird to explain. I don't feel like smoking but then I'm having one because I can, I don't know. It's stupid."* - 36 year old male

### Facilitators and enablers of smoking abstinence

Although all interviewees had eventually returned to smoking, many described factors that enabled the maintenance of their smoking abstinence for a few days or weeks following release.

#### 'Knowing' the Benefits

Even though all interviewees were aware of the health benefits of smoking abstinence, several described increased awareness of these felt benefits as a result of the smoking abstinence that they experienced during incarceration.

*"I've never had any fitness at all, but after I was quit for so many weeks in prison, now that I've come out I've been walking around everywhere, and the not smoking helped. It's really good to feel fit."* - 50 year old male

*"Before prison my chest was wheezy and it was hard to breathe. I was on steroids for my lungs, and it felt like I had pneumonia. But after being in prison, my chest was much better... my chest was so much less wheezy."* - 38 year old female

Despite this, all interviewees had returned to smoking.

#### Financial benefit

In addition to felt health benefits were felt financial benefits. Increasing government-imposed taxation of cigarettes has inflated the financial impact of smoking over recent decades, with these high costs particularly salient among people released from prison, who typically experience financial difficulties during this time (Binswanger et al., 2014).

*"I've cut down (smoking) since I got out of prison. It's so damn expensive. I just haven't got enough money. It's about \$50 a pouch now and I just don't have that kind of money."* - 63 year old male

*"The only thing that really bothers me about my smoking is the cost of it. It's so expensive to smoke."* - 26 year old male

And yet, a return to smoking was ubiquitous. These aspects perhaps provide an opportunity for transition but are not, on their own, sufficient to provide a longer lasting behavioural 'turning point' (Moyle & Coomber, 2018).

#### Intrinsic motivation, distraction and 'support'

Similar to how a lack of intention was considered a barrier to continued smoking abstinence, several participants described how their ability to use intrinsic motivational thoughts to remain abstinent assisted in the maintenance of smoking abstinence for a period of time.

*"I was not at all tempted to smoke for the first three days after I got out. No cravings at all. I just kept thinking to myself 'Nope, I'm not going to do it, I'm a non-smoker now.'" - 35 year old male*

*"I'm smoking less now because I'm telling myself that I don't need to smoke. I know that I can get through this without having to rely on something to relieve the stress. So yeah, I soldier on through it and find better ways of coping with stress."* - 21 year old male

A few participants explained that they were able to remain abstinent from smoking for a short while by distracting themselves whenever they felt like smoking. Linking to above barriers, these participants were attempting to normalise smoking abstinence in their home environments through psychological and physical engagement with routine activities or rituals that provide an alternative to smoking, such as exercise or hobbies.

*“In those first few days after I got out, I was tempted to smoke so many times, but I just did other things like I exercised and found other things to do, like I do crafts and make candles and stuff like that. That’s what I try to do when I’m stressed now, I make candles.”*- 28 year old female

Finally, a few participants reported social support as a facilitator of continued smoking abstinence; these participants had friends or family members who were assisting or encouraging them to quit smoking or even reduce their tobacco consumption. This finding reinforces the potential of intimate and broader social networks in influencing individuals’ decisions to engage in or attempt to avoid risky health behaviours.

*“My best friend, she’s helping me to limit how much I smoke. So last week she only gave me five [cigarettes] every day, and this week she’s giving me four.”*- 28 year old female

## Discussion

This qualitative study found that people released from smoke-free prisons in Queensland experience both structurally specific as well as intuitively perceived barriers that impede quitting smoking, as well as facilitators that may encourage their continued abstinence from smoking. The implications of these findings are clear; structural interventions that aim to promote continued smoking abstinence among former smokers released from smoke-free prisons, implemented at opportune moments, would benefit from targeting the perceived barriers to smoking abstinence, while simultaneously promoting the perceived facilitators. Using existing evidence tied to these identified barriers and facilitators, we will now describe the features of environmentally-informed strategies likely to be effective in promoting maintained smoking abstinence among this population.

A majority of the themes that emerged during analyses relate to environmental, structural and social factors that influenced participants’ return to smoking after release from prison, such as the alleviation of stress caused by others, the normalisation of smoking in the home and community environment, the perception of social support, and the cost of cigarettes. The risk environment (Rhodes, 2002, 2009) for these released prisoners thus segues from the prison environment to familial- and other community-based contexts, and the framework’s prioritisation of the micro- (e.g., family, close friends), meso- (e.g., prison-based) and macro- (e.g., societal) level factors recognised to shape drug-related behaviours remain pertinent (Boyd, Fast, Hobbins, McNeil, & Small, 2017; Rhodes, 2002). In the case where the majority of participants are returning to home environments where they will be living with smokers and where, despite widespread implementation of public smoke-free policies that denormalise smoking, it is still considered to be a normalised behaviour (Parker, Williams, & Aldridge, 2002), it is not surprising that most individuals returning to this risk environment resume smoking. As long as enforced tobacco abstinence does not address the environmental or social triggers that influence smoking in a way that can sustain abstinence after release, rates of smoking relapse after release from smoke-free prisons will continue to be high (Clarke & Reddy, 2018). As such, we recommend the provision of interventions promoting smoking cessation among those released from smoke-free prisons that clearly acknowledge the role of exogenous factors on individual behaviour, thus permitting a more effective targeting of policy approaches and interventions aiming to reduce

smoking-related harms. Examples of such environmentally-cognisant interventions may include innovative collaboration with existing community organisations who engage with people exiting prisons and who may be well-placed to assist former smokers in navigating and coping with structural triggers that tempt the resumption of smoking, or hosting of peer-based groups (Stead & Lancaster, 2005) promoting collaborative sharing of learned coping strategies that address environmental constraints to smoking abstinence in the post-release context.

A further, and perhaps complementary, evidence-based (Lindson-Hawley et al., 2015) approach to promoting smoking abstinence in this context is the provision of motivational interviewing (Rollnick & Miller, 1995). With several participants intending to return to smoking after release as a purposeful demonstration of their resistance to the imposed smoke-free policy, rather than choosing to quit smoking as the result of an internally-mediated health behaviour change (Thibodeau, Seal, Jorenby, Corcoran, & Sosman, 2012), the provision of motivational interviewing is likely to be a viable strategy to increase intention to remain abstinent in this context. Evidence shows that this style of counselling can be highly effective in enhancing individuals’ intrinsic motivation to make behaviour change (Lindson-Hawley et al., 2015), and a randomised controlled trial conducted in the US provides evidence for the effectiveness of motivational interviewing in promoting smoking abstinence among people released from smoke-free prisons, even among those who described no intention to remain abstinent post-release (Clarke et al., 2013). Although motivational interviewing may be considered individually rather than environmentally focused in its client-centred style (Rollnick & Miller, 1995), motivational interviewing sessions may also assist individuals to understand and prepare for environmental-level triggers that may prompt a resumption of smoking, and can thus be considered as complementary, or even as an enhancement to, strategies which may typically be more environmental in focus. For example, in assisting clients to resolve ambivalence around remaining abstinent from smoking following release from prison, session facilitators would benefit from assisting clients to consider environmental-level factors which may influence their individual decision to smoke, such as the perception that smoking alleviates stress, or that it is not possible to remain abstinent from smoking in a home environment where smoking is normalised. In this way, the provision of brief sessions of motivational interviewing delivered shortly before, at the time of, and after release from prison is likely to create a continuity of motivational reinforcement that would allow the opportunity for individuals to consider the benefits of smoking abstinence before release, and to thus make an internally-adjudicated decision to attempt to remain abstinent from smoking upon release, as well as to consider and reinforce personalised strategies to cope with structural-level triggers to resume smoking encountered in the post-release environment. This style of motivational intervention is also likely to promote a social identity shift in individuals transitioning from perceiving themselves as a ‘smoker’ to re-evaluating themselves as a ‘non-smoker’ (Vangeli & West, 2012). Further features of this potentially effective intervention will be described in subsequent text.

The celebration of freedom (from literal structural constraint and the psychological response to that) was another commonly-provided explanation for why participants chose to resume smoking upon release from prison. The prison environment by nature prohibits a number of behaviours, and smoke-free policies now prohibit the act of smoking too — a behaviour which is legal in the community. Upon release, it is understandable that many individuals would engage in a previously-disallowed behaviour as a means of marking or celebrating their transition out of incarceration. Brief motivational intervention sessions provided prior to release from prison should thus emphasise that isolated smoking lapses (i.e., one “freedom” cigarette) often result in full smoking relapse (Brandon, Tiffany, Obremski, & Baker, 1990; Ockene et al., 2000; Shadel et al., 2011), and so should be avoided, but also that lapses are a customary part of quitting smoking (Zhu, Tedeschi,

Anderson, & Pierce, 1996) and should not mean that the participant should abandon attempts to achieve long-term cessation.

Although consensus on how to effectively reduce the number of smokers in individuals' social networks has been elusive (Creswell, Cheng, & Levine, 2015; Piasecki & Baker, 2001; Westmaas, Bontemps-Jones, & Bauer, 2010), pro-cessation interventions considering the micro-level (e.g., family and friends) of the risk environment (Rhodes, 2002) may benefit from encouraging cessation among both former prisoners and their close family and friends, and should encourage pro-cessation social support—an approach supported by existing prison-based and community-based literature (Puljević & Segan, 2018). As a result, motivational interviewing sessions provided to those exiting smoke-free prisons should address strategies that inspire intrinsic motivation to remain abstinent even when surrounded by smokers, and should encourage participants to discuss their cessation plans with family and friends before release from prison.

To explore the issue of perceived stress in this context further; upon release from prison, many people encounter stressful situational challenges to successful community re-entry, such as finding stable housing and employment (Baldry, McDonnell, Maplestone, & Peeters, 2003; Porter, 2014), financial difficulties (Binswanger et al., 2014), mental illness (Thomas et al., 2016), difficulties in social relationships (Massoglia, Remster, & King, 2011), or dealing with substance use disorders (Farrell & Marsden, 2008; Winter et al., 2015). Several studies specifically describe individuals released from prison using smoking as a form of stress relief (Thibodeau, Jorenby, Seal, Kim, & Sosman, 2010; Valera et al., 2016; van den Berg et al., 2016). However, recent evidence demonstrates that the common perception that smoking relieves stress or anxiety is false; it is in fact smoking cessation that is associated with reduced anxiety and stress, and improved quality of life (Taylor et al., 2014). As such, we recommend that brief motivational interviewing sessions (provided both before and after release from prison) should incorporate the promotion of stress-coping skills, such as meditation-based interventions (Himmelstein, 2011), and should provide education about the stress-relieving properties of smoking cessation.

Several participants also described using smoking as a substitute for other illicit drugs. Previous studies in this area have found that people with a history of risky illicit substance use are less likely to plan to remain abstinent from smoking after release from prison (Indig & Haysom, 2012), less likely to remain abstinent from smoking (Howell, Guydish, Kral, & Comfort, 2015), and less likely to attempt to quit smoking again following relapse (Frank et al., 2016). Contrary to the popular notion that attempts to quit smoking hinder any concurrent attempts to cease use of other drugs, there is evidence that smoking cessation often has a positive effect on substance use outcomes (Apollonio, Philipps, & Bero, 2016; McKelvey, Thrul, & Ramo, 2017), and that risk of mortality from tobacco use is much higher than from use of any other substance (Hurt et al., 1996; Rehm, Taylor, & Room, 2006). As a result, pre- and post-release intervention sessions could assist participants in developing strategies to avoid smoking while using other drugs, and to understand the increased risk of mortality from tobacco use versus other drugs. Drug counselling staff training programs should also be revised to ensure that the message around the relative harms of tobacco versus other drug use reflects the above evidence.

Although we have specifically recommended an intervention comprising brief sessions of behavioural counselling, there is also evidence for the effectiveness of other smoking cessation interventions in this context; such as the provision of nicotine replacement therapy (Puljević, de Andrade, Carroll, Spittal, & Kinner, 2017; Stead et al., 2012), or, more in line with harm reduction approaches, e-cigarettes. While current evidence around e-cigarettes is limited (Hartmann-Boyce et al., 2016), customised e-cigarettes are available for sale in some prisons in the US (Curry, Lee, & Rogers, 2014) and the United Kingdom (McNeill et al., 2015), and may represent an effective means of reducing tobacco-related harms among people in or released from prison

(Hartmann-Boyce et al., 2016), especially among those who are not yet ready to quit smoking completely.

### Limitations

This study is, to the best of our knowledge, the first outside of the US to describe perceived barriers and facilitators of maintained smoking abstinence among people released from smoke-free prisons. While this study makes a novel contribution to the field, it has some limitations. First, as prescribed by the principle of reflexivity, quality of the data is dependent on the rapport between the researcher and participants (Bell, Fahmy, & Gordon, 2016), and as a result, in some cases poor rapport may have resulted in inaccurate or limited responses. Furthermore, although some may question the generalisability of qualitative findings (Atieno, 2009), the contextual nature of the qualitative findings suggests that they are likely to resonate in other similar settings (Pearson, Parkin, & Coomber, 2011). Future research should continue to explore this issue in other jurisdictions, as well as former smokers' perceptions of smoking cessation support, such as nicotine replacement therapy, so as to complement the implementation of smoke-free policies with evidence-based interventions promoting and facilitating smoking cessation among people leaving smoke-free prisons.

### Conclusion

The majority of former smokers exiting smoke-free prisons resume smoking upon release, meaning that the health and economic benefits of continued smoking abstinence are largely lost upon return to the community. The perceived barriers and facilitators of maintained smoking abstinence described in this study may assist in the development of targeted interventions promoting continued post-release smoking abstinence. We recommend the provision of brief sessions of motivational interviewing, delivered both pre- and post-release, which simultaneously incorporate brief modules encouraging pro-cessation social support, discouraging post-release lapses to smoking as a celebration of freedom, training in stress-coping skills, and provision of co-ordinated treatment for smoking and other substance use. There is a clear need for such targeted interventions to extend the benefits of prison smoke-free policies into the community, and to promote the improvement of health outcomes among a population marked by health inequalities and entrenched social disadvantage.

### Role of funding source

Professor Stuart A. Kinner is supported by NHMRC Senior Research Fellowship APP1078168. No other funding sources to declare.

### Conflict of interest

The authors declare no conflicts of interest.

### CRediT authorship contribution statement

**Cheneal Puljević:** Data curation, Formal analysis, Methodology, Project administration, Writing - original draft, Writing - review & editing. **Ross Coomber:** Data curation, Formal analysis, Methodology, Writing - review & editing. **Dominique de Andrade:** Data curation, Methodology, Writing - review & editing. **Stuart A. Kinner:** Data curation, Methodology, Writing - review & editing.

### Acknowledgements

The authors gratefully acknowledge participants and Queensland Corrective Services, especially Probation and Parole office staff members, for their assistance with the collection of data for this study.

## Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.drugpo.2019.03.018>.

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