Abstract

INTRODUCTION

A large Australian university introduced a campus wide smoke-free policy in 2012. Almost one year after implementation, reasons for non-compliance among people observed smoking on-campus was examined.

METHODS

Six smoking locations on campus were identified after a campus-wide audit of smoking indicators (i.e. discarded cigarette butts packets and people observed smoking). At these locations those observed smokers were interviewed. Interview responses were examined to elicit underlying themes.

RESULTS

Fifty people were seen smoking during the observation period. Those smokers interviewed comprised staff (27%) and students (73%)aged between 18 and 24 (45.9%). The majority of the students were international students (51.8%). All respondents acknowledged their awareness of the smoke-free policy. Five explanatory themes for non-compliance emerged: *defiance* against the policy's perceived threat to self-governance; inconvenience to travel off campus to smoke; smoking as a physiological *necessity*; *unintentional non-compliance* through unawareness or confusion of policy boundaries; and ease of *avoidance* of detection or exposing others to cigarette smoke.

CONCLUSION

Creating a culture of compliance at the University remains a significant challenge, especially considering the size of the campus, the high proportion of international students and the logistics associated with monitoring smoking behaviour in outdoor areas and on-campus student housing.

INTRODUCTION

Restrictions on tobacco use in public places are becoming increasingly widespread in many middle and high income countries (Borland et al., 2006; Hyland, Barnoya, & Corral, 2012). Since 1987, Australia has been a leader in tobacco control policy through its implementation of smoke-free workplaces, restaurants and other indoor and outdoor public venues (Swanson & Durston, 2008). Strong evidence to support such action has been clearly documented in the scientific literature. Reductions in smoking prevalence and consumption (Chapman, Borland, Scollo, Brownson, & et al., 1999; Fichtenberg & Glantz, 2002) and lower exposure to second hand smoke (Callinan, Clarke, Doherty, & Kelleher, 2010; Fong et al., 2006; Pickett, Schober, Brody, Curtin, & Giovino, 2006) have provided global momentum for the introduction smoke-free laws in a variety of settings (Hyland , Barniya & Corral, 2012).

As large workplaces, universities and other post-secondary institutions provide ideal settings for the implementation of public health initiatives such as smoke-free policies (Howat, Hallett, Kypri, Maycock, Dhaliiwal & McManus, 2010) It is estimated that about 15% of higher degree granting institutions in the United States have implemented campus wide smoke-free policies, and there is increasing interest in such policies (Lee, Goldstein, Klein, Ranney & Carver, 2012). This increased interest is associated with the evidence of the effectiveness of policy/environmental interventions in supporting the reduction in smoking prevalence (Australian Institute of Health and Welfare, 2010), rather than simply focussing on the individual smoker.

Universities are significant employers of continuing, casual and contract staff across a range of professional, academic and trade roles. Additionally university students are undergoing important developmental transitions, which may make them particularly vulnerable to socio-

cultural influences that shape health behaviour and associated trajectories (Hallett, Howat, Hallett, Kypri, Maycock & Dhaliiwal, 2010; Howat, Hallett, Kypri, Maycock, Dhaliiwal & McManus, 2010). Previous research has found smoking among tertiary students to be largely opportunistic and predicted by perceived social norms, accessibility to permitted smoking areas and exposure to peer smoking (Seo, Macy, Torabi, & Middlestadt, 2011). It is not surprising that efforts that address the reciprocal interactions between people and their environment appear more effective in reducing smoking rates and promoting broad normative changes than individual approaches (Fong et al., 2006; Murphy-Hoefer et al., 2005; Thompson, McLerran, Livaudais, & Coronado, 2010).

While smoke-free policies are recognised as one of the most effective ways to eliminate exposure to second-hand smoke and reduce smoking rates, implementation does not automatically result in a smoke-free environment (Campaign for Tobacco-Free Kids., Institute for Global Tobacco Control., & International Union Against Tuberculosis and Lung Disease, 2011). Ecological approaches to tobacco control such as smoke-free policies are heavily reliant on a systematic process of planning, implementation and appropriate enforcement (Fennell, 2012; Hahn et al., 2012). Although difficult to measure, as there is no established measuring instrument (Fallin, Murray, Johnson, Riker, Rayans & Hahn, 2012), issues associated with compliance remain one of the biggest challenges for stakeholders (Fennell, 2012). This is perhaps partly explained by the limited understanding of the factors that increase compliance with smoke-free policies in a university context.

There have been studies published that measure compliance with smoking regulation within a university setting (Berg et al., 2011; Fallin et al, 2012; Hahn et al., 2012; Mamudum, Veeranki, He & Dadkar, 2012) but there has been little consideration of the reasons for non-

compliance. Compliance Theory, in particular Goal Framing Theory (GFT) provides a framework to consider reasons for non-compliance (Lindenberg & Steg, 2007). The categories of goals sought to achieve compliant or non-compliant behaviours include: a) Hedonic (to feel better); b) gain (preserve or increase resources); and c) onrmative (to do what is appropriate). These three categories can be incompatible, yet co-exist and interact on an individual's decision not to comply with smoking regulations. People can seek several different goals simultaneously but a certain behaviour occurs when one goal takes precedence (Etienne, 2011), such as choosing to smoke and not comply with the policy. A smoke-free policy requires smokers to undertake an unpleasant behaviour while non-compliance will bring pleasure and/or relief. The new social norm of compliance can be supported by regular surveillance, permanent signage, and a threat of monetary fines.

A large university based in Perth, Western Australia, amended its by-laws to implement a smoke-free policy from 1 January 2012. This ban encompassed the entire university grounds (116 hectares) of the main campus, including student housing. The stated purpose of the policy implementation was to align the University's safety and health practises with contemporary health research and provide a duty of care under the Occupational Safety and Health Act 1984 (Curtin University, 2013). More than 37,000 individuals were affected by the restrictions at the campus: 5,481 staff and on-site workers; and 32,000 students attending classes on-campus – including 7,582 (23.7%) international students. At any one time, 1,175 students live on Bentley campus in student housing – with approximately 80% of these being international students.

Before implementing the smoke-free policy, an online survey was conducted (n=969) to establish attitudes to the impending policy. It was found that most staff and students (80.1%)

had been exposed to environmental tobacco smoke on campus. There was good support for buildings across campus to be smoke free (91.3%) but less support for all outdoor areas (65.7%). However, most respondents reported that at that the policy would have a positive effect on staff (70.4%) and students' (74.7%) quality of life (Burns et al., 2013).

Policy Implementation

Prior to the introduction of the total smoke free policy, a university website was introduced and 'smoking anywhere on the university is prohibited' banners were placed around the campus (approximately 1500). The website provided information on campus cessation courses for staff and links to off campus quit programs. These activities continued when the policy was introduced, along with the ongoing distribution of flyers, posters, advertising in university magazines, newsletters, handbook and the University's promotional days. To support compliance with the policy, security patrol the campus and approach smokers to inform them of the by-laws. They have the authority to issue warnings and fines to repeat offenders of up $100.00 per infringement.

This research examined compliance with the smoke-free policy campus almost one year after implementation and to understand reasons for non-compliance among people observed smoking on-campus.

METHODS

Data collection

Procedure

Data collection involved three components: 1) an environmental audit; 2) direct observation; and 3) intercept interview.

Over a five day period, two researchers undertook a campus-wide audit of smoking indicators (i.e. intact discarded cigarette butts and packets and individuals seen smoking) to determine the most suitable locations for data collection. 'Hot spots' were identified as locations where 500 or more smoking indicators were found. Direct on campus observation of smoking behaviour and intercept interviews were then conducted by six trained researchers working in pairs over a two hour period from 12-2pm on a Wednesday in week 12 of semester 2, October 2012. This time was chosen to reflect common class free time for students across the University.

Individuals observed smoking on campus were approached upon completion of their cigarette and invited to participate in an intercept interview. Participants were required to be aged 18 or older and seen to be smoking by researchers. Eligible respondents were provided with written and verbal information about the purpose of the study, participation requirements and rights associated with confidentiality, respondent refusal and withdrawal. Verbal consent was obtained from all eligible respondents prior to administering the survey. Human Research Ethics was obtained for this study (SPH-28).2011.

Researchers collected basic demographic details of participants and explored concepts associated with compliance through questions relating to: smoking behaviour on campus; awareness and acceptance of the smoke-free policy; experiences and responses to enforcement measures; future intentions regarding compliance; and suggested university support mechanisms for smokers. The audit checklist and intercept survey were informed by a systematic review of existing instruments and best practice guidelines for measuring compliance with smoke-free policies (Campaign for Tobacco-Free Kids. et al., 2011). The survey instrument was reviewed by an expert panel prior to administration.

Data analysis

Initially, the primary analyst reviewed all surveys to gain an overall feel for the data. Raw qualitative data was then entered into a word processing document and organised into topic areas based on the questions asked of respondents. This allowed for easier identification of emerging themes from the data. Words and phrases were examined to elicit underlying meanings and from this, descriptive codes were assigned to organise the data into coherent patterns (Charmaz, 2006). At this stage of analysis, data were no longer organised by topic questions. Instead, codes with similar meanings were organised into more abstract conceptual categories (Charmaz, 2006). Coding and categorisation of data were reviewed by project investigators to ensure interpretations accurately depicted true meanings in the data. Descriptive statistics are used to describe the demographic data.

RESULTS

Analysis of observational and survey data revealed clear patterns in the characteristics associated with high level smoking sites across campus and respondent reasoning for non-compliance with the smoke-free policy.

Smoking hot spots

Six hot spot locations were identified during the audit period (see Figure 1). All sites contained physical structures for seating or leaning against (e.g. benches, low wall or wall) (n=6) and areas to dispose of cigarettes (e.g. garden beds and other receptacles) (n=6) . Five out of the six locations were characterised by reduced visibility due to garden beds or walls and four out of six sites were considered to be ‘isolated’ from the main campus area. Three hot spot locations were situated close to student computer labs. The high prevalence of

smoking indicators found during the observational period indicates smoking on campus grounds continues to be an issue.

Participants

A total of fifty people were seen smoking during the two hour observation period. The majority of smokers were male (82%; n=41) and estimated to be aged between 20-29 years (64%; n=32). Approximately half of smokers were 'with a friend' (52%; n=26) at the time of observation and in many cases the person accompanying them was also smoking (42%; n=21).

Of those 50 individuals observed smoking, 37 agreed to participate in the intercept survey. Demographic characteristics of participants and reported smoking behaviour are shown in Table 1. The majority of participants were male (83.8%; n=31) and aged between 18 and 29 years (59.4%; n=22). Thirty two respondents (86.5%) reportedly smoked more than one cigarette per day while on campus.

Awareness and acceptance of smoke-free policy

All respondents acknowledged their awareness of smoke-free policy at the time of being surveyed. Despite this, a large proportion (86.5%; n=32) continued to smoke 'regularly' on campus (once or more per day). Varying levels of acceptance and support were described, from those who considered the policy to be "*fair*" and "*appropriate*" in light of recognised health and environmental benefits, to the majority who considered a campus-wide ban to be "*stupid*", "*extreme*" and "*discriminating*". In the latter case, opposition in a context of legality (e.g. "*Smoking is just as legal as alcohol" and "not illegal and shouldn't be made to feel like*

an outcast") and strong preferences for designated smoking areas to replace a total ban were made.

Non -compliance with smoke-free policy

Since the policy was introduced, half of respondents had been asked to stop smoking (51%; n=19) by campus security. Various responses to verbal enforcement were described, including moving away from the person and continuing to smoke (21.0%; n=4), relocating to the edge of campus (15.8%; n=3), refusing to stop smoking (15.8%; n=3) and extinguishing their cigarette upon request (15.8%; n=3).

Responses from intercept surveys revealed five thematic clusters that offered insight into the underlying reasons for non-compliance with the smoke-free policy based on the personal accounts of smokers. Table 2 lists the thematic clusters.

Defiance

Accounts of defiance were reported by respondents who held no intention of complying with the smoke-free policy. Strong disapproval of the university's *"extreme policy"* and "*blanket ban*" approach and perceptions of the policy as an "*impingement on human rights*" emerged from survey responses. Shared sentiments such as: "*unfair";* "*do what I want*"; "*it's my choice*"; and *"it's none of their business"* reflected respondents' intentions to continue smoking on campus in response to a policy that was seen to threaten individual choice and autonomy.

Reluctance to leave campus

Several sub-themes that served to reduce respondents' willingness to abstain from smoking on campus were identified from survey responses. The inconvenience associated with travelling off campus to smoke was a common justification for non-compliance. The distance required to walk off campus was raised as a strong deterrent for both staff and students through comments such as "*It's too much effort to walk to edge of campus*". A related issue was the time taken to travel off campus, with "*time away from work*" and limited time between classes (e.g. "*Breaks are too short to walk off campus*") considered valid reasons for non-compliance. Reluctance to comply was also revealed through perceptions of the smoke-free policy as a "*security issue*". Particularly for those who were on campus at night, including those living in student accommodation, the policy was seen as "*dangerous*" and something that jeopardised personal safety.

Smoking necessity

A theme of necessity emerged from respondents who considered their smoking addiction as the overriding reason for non-compliance. A distinction in the level of personal control maintained over decision-making and behaviour was apparent in the way that these respondents spoke about their intentions to continue smoking. Whereas non-compliance in a context of defiance or reluctance represented a position of 'will not', non-compliance in relation to addiction represented a position of 'cannot': "*The addiction overrides everything".* For three respondents, the policy provided little incentive to overcome a long term addiction: "*Being a long term smoker, it's not really a deterrent*". Intentions to continue smoking on campus were also described in relation to smoking as an important coping mechanism for maintaining mental health and functioning (e.g. "*It's a stress reliever*"; "*(I'll smoke) until I graduate"; and "We need to keep ourselves awake"*).

Unintended non-compliance

Despite all respondents acknowledging their awareness of the smoke-free policy at the time of being surveyed, several stated they "*didn't know*" for some time after implementation. A level of uncertainty surrounding policy boundaries was also evident as people chose to withdraw to the edges of the campus in order to smoke: "*We thought this was off campus - this is the only reason we are smoking here. We came here specifically to get off grounds*". Unintended non-compliance was particularly common at the bus station, with a number of students regarding this as an area off campus and a space where many others are seen smoking: "*The bus stop is not campus. I see so many people smoke around here*".

Avoiding detection

Efforts to be "*discrete*" to avoid both detection and exposing others to second hand smoke was a final reasoning provided for non-compliance. Since the policy had been in place, half of the sample (49%; n=18) had reportedly never been asked to stop smoking while on campus. Perceived likelihood of detection was therefore low: "*There is nowhere else to go. No one has ever stopped me here. Security goes by and no one has ever stopped me*". In most cases, respondents referred to specific times and/or locations where they could smoke without being detected: "*(I'll smoke) on a weekend or night – knowing I wouldn't get caught*". Three respondents also justified their history, and future intentions to smoke on campus, through concerted efforts to avoid smoking around other people.

DISCUSSION

This study contributes a unique insight into the factors associated with non-compliance with smoke-free policies in an Australian university context. Firstly, common characteristics found in relation to popular smoking sites and individuals observed smoking on-campus provide

useful information for future targeted strategies. Although alterations to structural features associated with smoking hot spots (i.e. walls, garden beds, seating) are likely to be impractical, increased educational, monitoring and enforcement strategies near known 'hot spot' locations such as student computer labs may have a positive influence on social norms governing current patterns of non-compliance.

The high proportion of international students observed smoking on campus was also important. In countries such as Australia, which have a long history of tobacco control, past research has shown that smokers are likely to adapt, accept and comply with smoke-free policies in various settings (Borland et al., 2006). In comparison, countries lacking comprehensive and effective tobacco control policies have higher rates of non-compliance (Lambros Lazuras, Zlatev, Rodafinos, & Eiser, 2012). International students and some cohorts of domestic students are likely to be influenced by cultural traditions and beliefs whereby smoking is a normative and socially accepted behaviour (Borland et al., 2006; Passey, Gale, & Sanson-Fisher, 2011). International students comprised 23.7% of the on-campus 2012 student population but are over-represented in this sample of visible smokers (58.1% of sampled students). Many of these students come from countries with minimal tobacco control policies, which is likely to impact on compliance, especially considering that many enrolled international students reside in student housing on-campus.

Findings from surveys with staff and student smokers suggest that non-compliance with the University's smoke-free policy could not be explained by a lack of awareness. While several respondents indicated a level of misunderstanding in relation to policy boundaries, there was a clear disjuncture between policy awareness and the majority who expressed strong intentions to continue smoking on campus. Based on this, it could be assumed that

educational and awareness raising strategies alone are insufficient to create a culture of compliance with campus-wide policies.

This appears consistent with the growing literature dedicated to understanding the mechanisms that improve adherence to smoke-free environments. While adequate and timely communication and awareness raising strategies have been identified as critical to the successful implementation of smoke-free policies (Hahn et al., 2012; Plaspohl, Parrillo, Vogel, Tedders, & Epstein, 2012), these actions should comprise only one part of comprehensive policy agenda. Simply implementing a smoke free policy on a university campus should not be seen as the end of the process but rather the success of any policy rests with appropriate maintenance and enforcement (Ballie, Callaghan & Smith, 2011). Clear and continual communication and education, in combination with consistent advocacy and enforcement strategies and tobacco cessation and support services, have been recognised as essential in creating a culture of compliance (Fennell, 2012; Hahn et al., 2012).

Compliance issues are documented in other environments For example hospital staff report that their hectic work pace inhibits their ability to leave the hospital grounds, leaving them no alternative but to use smoking spots' (Schultz, 2011), and smokers are still seen congregating outside entrances to workplaces, despite these numbers reducing as social norms around not smoking become increasingly pervasive (Chapman & Freeman, 2009; Walsh, Paras, Stacey & Tzelepis, 2011).

A major finding of this study was the greater understanding of the reasons underlying non-compliance based on the personal rationalisations of staff and student smokers. While studies have examined various indicators of compliance with smoke-free policies in different settings

(Borland et al., 2006; Fichtenberg & Glantz, 2002; Foley, Proescholdbell, Herndon Malek, & Johnson, 2010; Fong et al., 2006; Lazuras, Eiser, & Rodafinos, 2009; Lazuras, Zlatev, Rodafinos & Eiser, 2012; Lee, Ranney, & Goldstein, 2013; Plaspohl et al., 2012; Verdonk-Kleinjan, Rijswijk, de Vries, & Knibbe, 2013), less attention has been directed to exploring the specific factors affecting smokers' motivations and intentions to comply. Five explanatory themes for non-compliance emerged from our study: 1) *defiance* against the policy's perceived threat to self-governance, 2) *reluctance* to travel off campus to smoke, 3) smoking as a physiological *necessity*, 4) *unintentional non-compliance* through initial unawareness or confusion of policy boundaries and 5) ease of *avoidance* of detection or exposing others to cigarette smoke. Similar themes have been reported in the workplace environment, with compliance related to policy attitudes, confidence in one's ability to comply, social influence and risk perceptions of enforcement (Verdonk-Kleinjan et al., 2013). Given the real and perceived barriers to personal compliance reported in our study, these variables may translate well to the university context. From a policy-making perspective, strategies that aim to build favourable attitudes towards smoke-free policies, increase compliance and/or quitting self-efficacy, mobilise social support through positive behavioural norms and strengthen enforcement procedures may therefore serve to improve compliance with smoke-free campus policies.

Limitations

The small sample size of 37 may be considered a limitation of this study, however, it does provide a 'snapshot' of all of the visible smokers during an identified high-activity timeslot in identified high-risk locations. Guest, Bunce and Johnson (2006) noted that, while the literature has identified that sample size recommendations for non-probabilistic, purposive phenomenological studies can range from five to 25 participants, saturation occurs within the

first 12 interviews. Student smokers in this study were from three of the five Faculties of the University which may be reflected by the proximity of the targeted observation areas to those Faculties. Further research to determine if these Faculties do have a higher prevalence of student smokers would direct targeted interventions.

CONCLUSION

The recent wave of smoke-free universities and colleges in Australia and overseas seems logical, given the success of similar action in other workplaces, restaurants and other public spaces. Creating a culture of compliance at the University remains a significant challenge, especially considering the size of the campus, the high proportion of international students and the logistics associated with monitoring smoking behaviour in outdoor areas and on-campus student housing. However the potential benefits given the size and scope of the university setting remain significant. Further research is needed to examine the direct impact of smoke-free university policies on smoking behaviour and to identify a best practice strategic framework to strengthen student and staff willingness to comply with smoke-free campus policies.

Author Contribution

JJ (Jonine Jancey) and NB (Nicole Bowser) and SB (Sharyn Burns) designed and coordinated the study. The manuscript was developed by JJ, NB, SB, GC (Gemma Crawford), LP (Linda Portsmouth) and JS (Jenny Smith).JS, NB, JJ, SB interpreted the data. All of the authors contributed to the submitted version of the paper.

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Conflict of Interest

None of the authors have any conflict of interest

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