Community knowledge, attitudes and behaviours about environmental tobacco smoke in homes and cars

Jeff Dunn, Susan Greenbank, Michelle McDowell, Catherine Mahoney, Paul Mazerolle, Stefano Occhipinti and Suzanne Steginga

Introduction

Exposure to environmental tobacco smoke (ETS) in adults increases the risk of cardiovascular and lung disease and cancer; low birth weight babies in pregnant women; and in children is related to respiratory and middle-ear infections and sudden infant death syndrome (SIDS).[1-3] The World Health Organization's air quality guidelines advise that there is no safe level of exposure to ETS with short-term exposure sufficient for negative health effects to occur.[4] As a result, many countries have introduced legislative changes prohibiting smoking in public places.

In 2006, Queensland legislation was extended to prohibit smoking in indoor environments in non-licensed and licensed premises with outdoor smoking areas, in licensed premises restricted to 50% of the total outdoor area and smoking not permitted in any areas where food or drink are consumed.[5] While this is the most comprehensive Australian tobacco control legislation, private places such as cars and homes are outside its scope. Given that the home is the primary source of ETS exposure[6,7] and the motor vehicle the most dangerous and concentrated source of ETS,[8,9] smoking behaviour in private places is a key target for tobacco control. Recently, South Australia became the first Australian state to pass legislation prohibiting smoking in cars when children under the age of 16 are present and the former Parliamentary Secretary for the Australian Government Health Minister called on other Australian states and territories to follow South Australia's lead.[10] Public debate has since ensued raising concerns about individual autonomy and government control, for example: "When the Government and anti-smokers buy my car, pay my rego and insurance for me. That will be the day they or anyone has the right to tell me what to do with my

Abstract

Objective: to assess knowledge, attitudes and behaviours about environmental tobacco smoke (ETS) in cars and homes in Queensland.

Method: 1,026 randomly selected Queensland residents (84% response) participated in a computer assisted telephone survey to assess knowledge, attitudes and behaviours about ETS in cars and homes; and attitudes towards restrictions on smoking in a range of contexts.

Results: Most respondents are aware of the negative health effects of ETS and have smoking bans in their cars (75.8%) and homes (76.8%), however bans are less prevalent for smokers (cars: 37.9%; homes: 51%; p=0.000). For cars/homes, most smokers who did not have smoking bans would not smoke at all around pregnant women (67.7%/53.7%); fewer would refrain for children ≤ 2 years (48.2%/35.1%); non-smoking adults (31.3%/17.9%); and children 13-17 years (30.9%/21.2%). Parent smokers are less likely to not smoke at all around children ≤2years (p=0.000) compared to non-parent smokers. Most respondents support car/home smoking bans for children ≤ 2 years (80.5%/66.1%); children 13-17 years (78.2%/64.7%); and pregnant women (80.5%/67%).

Conclusions: There is strong community support for legislation targeting ETS in cars and homes, however this varies by context, smoking and parental status.

Key words: ETS, passive smoking, legislation, policy, attitudes, behaviour

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So what?

Multi-level interventions including legislative change, community education, and evidence based interventions for parent smokers are needed to reduce ETS in private settings.

own property".[11] In this context, a detailed understanding of current community attitudes, knowledge and behaviours with regards to ETS in private settings, and especially that of smoking subgroups, is essential.

Community attitudes towards smoking in private places in Australia are generally negative and becoming more so. In a study comparing Australia, the UK, Canada and the US, Australian smokers had the highest percentage of smoke-free home policies in 2002 (34%) and the highest net change by 2003 (43%).[12] In New South Wales between 2002 and 2005, the number of smoke-free homes increased from 46.9% to 73%[13] and smoke-free car policies increased from 42.8% to 60.7%. In Western Australia, 80% of smokers and 87% of non-smokers support smoke-free motor vehicles when children under 18 years are inside.[14] However, attitudes vary between smokers and non-smokers with smokers, those potentially most affected by legislative control, significantly less likely to adopt smokefree home and car policies.[7,15,16]

To date in Queensland there has been no research to identify community attitudes, knowledge and behaviours with regards to ETS exposure in cars and homes. More broadly, the contexts in which smoking in cars and homes may be considered more or less harmful has not been well examined with regard to: the age of children present; presence of pregnant women; or whether in the light of advice that ETS is harmful, smokers indicate they would change their future behaviour. Accordingly, this study assessed: knowledge and attitudes and self report of behaviours with regards to ETS in cars and homes in the presence of smokers and non-smokers, children of different ages and pregnant women; and attitudes to legislation about ETS.

Method

Participants

A probability sample of Queensland adults was generated using random digit dialling methods. Quota sampling was undertaken to ensure a 50% gender division and an equal division between the Brisbane metropolitan region and the rest of the state. Interviews were completed over a four-week period in March 2006, yielding a sample of 1,026 Queensland residents (84% participation). The research protocol was approved by the University of Queensland Ethical Review Committee.

Materials

Smoking behaviour

Respondents were asked if they had smoked at least 100 cigarettes in their entire life and for smokers, how frequently they currently smoke cigarettes with a five-option rating scale of daily, at least weekly; less often; not at all but have smoked in the past 12 months, and have not smoked in the past 12 months. Smokers were defined as those who reported smoking at least 100 cigarettes during their life and who had smoked to some degree during the past 12 months.[17]

Smoking behaviour and smoking rules

Two eight-item single response itemised rating scales examined rules regarding smoking behaviour in (a) the car and in (b) the home. Items included 'smoking inside my car/home is not allowed when there are pregnant women in my car/home', 'smoking is allowed in my car if the windows are open' and 'there are no restrictions on smoking in my car/home'. If smoking participants indicated that there were no smoking restrictions in their car and/or home, that they allowed smoking in their cars when the windows were down, or that smoking was allowed in certain rooms of their house were asked additional questions about whether they would change their smoking behaviours in the car and in the home when in the presence of six specific populations: by themselves, in the presence of other adult smokers, adult non-smokers, people aged 12 and under, people aged 13-17 and pregnant women. Response categories to the consumption of cigarettes while in the presence of these populations were: smoke the same, smoke fewer cigarettes or not smoke at all. Smokers who reported having some form of smoking ban in their cars or homes were assumed not to smoke in these settings.

Knowledge about environmental tobacco smoke

Respondents were asked if they thought smoking in the car or the home increases the risk of disease for (a) children and (b) adults and if so, which diseases and then further to identify unprompted any health problems they believed to be increased as a result of ETS exposure.

Contextual smoking behavioural intention change

Smokers who indicated they did not have any car and/or home smoking restrictions were presented with the following statement: passive smoking contributes to a number of health conditions in non-smokers such as cancer, heart disease, chest infections, asthma, cot death etc. After this statement these respondents were asked whether they would continue to smoke (yes or no) in the presence of the specified populations from the previous smoking behaviour question.

Smoking restrictions

Respondents were asked if they agreed with the introduction of laws to prohibit smoking in the car/home in the presence of children aged 12 and under; aged 13 to 17; pregnant women; adult non-smokers; and adult smokers on a four-point Likert scale (1 = agree strongly to 4 = disagree strongly with an unread

option of I don't know). Two multiple response items (yes/no) assessed reasons for approval of the implementation of (a) car and (b) home smoking laws. Example reasons included in the questionnaire were: to protect your own health, to prevent a fire/bushfire and to protect the health of family/friends. Two items assessed the respondents' views regarding when such laws should be implemented in the (a) car and (b) home (now or as soon as possible and within 5-10 years).

Results

Of the sample, 51.3% were female; ages ranged from 18 to over 80 years of age; 50% of the sample lived in a metropolitan area. More than 76% of the sample had at least a senior high school education and 47% worked full time with a median annual income of $40,000-$60,000. Approximately 40% of respondents were parents of children under 18 years. A total of 94 smokers were parents of children under 18 years of age. According to ABS data the current sample was slightly older and slightly more likely to live in Brisbane than population estimates. Prior to statistical analyses, these sample data were weighted to reflect the composition of the Queensland population with respect to age, gender (50.12% female) and residential status (46% living in Brisbane) and all remaining estimates reported in these results reflect the weighting. Consistent with population based figures, 20.8% of respondents were smokers,[18] 28.2% were ex-smokers (had not smoked within the past 12 months) and 51% were non-smokers.

Smoking behaviour and smoking rules

Most respondents reported total smoking bans in their cars (75.8%) and homes (76.8%), but this was less so for smokers than for non-smokers for cars (37.9% vs. 85.9%, $\chi^2=270.8$, $p=0.000$) and for homes (51.0% vs. 83.4%, $\chi^2=132.1$, $p=0.000$). Of the smokers who had no ban on smoking in their cars or homes, most would not smoke at all when there were pregnant women present; fewer refrained for children ≤12 years; less than a third would not smoke at all in the car and home around children aged 13-17 years or around non-smoking adults (see Table 1). Female smokers were less likely than male smokers to not smoke at all around a pregnant woman in the home (38.7% vs 66.7%, $\chi^2=8.55$, $p=0.036$). Parent smokers were less likely than non-parent smokers to not smoke at all around children aged ≤12 years (22.2% vs. 65.4%, $\chi^2=10.5$, $p=0.005$).

Knowledge of the health effects of environmental tobacco smoke

Most respondents agreed that smoking in the car increases the risk of disease in children (90.3%) and adults (88.2%). Diseases most frequently identified as increased in children included asthma (38.2%), cancer (66.0%), breathing difficulties (39.0%) and lung disease (43.5%). In adults, asthma (32.0%), cancer (70.6%) breathing difficulties (41.8%), lung disease (43.5%) and heart disease (21.7%) were most frequently identified. Less than 7% of respondents identified chest infections, allergies/skin irritations, brain defects/learning problems, cold/flu, premature birth, ear infections, stroke, macular degeneration, gangrene and chronic obstructive pulmonary disease. Less than 1% of respondents identified passive smoking to increase the risk of SIDS. Differences in the identification of diseases between smokers and non-smokers were found only for lung disease in children ($\chi^2=5.0$, $p=0.015$) and adults ($\chi^2=6.9$, $p=0.005$) where non-smokers had slightly better knowledge and for cold/flu in children ($\chi^2=12.3$, $p=0.035$) where smokers had slightly better knowledge.

Contextual smoking behavioural intention change

Informing smokers that passive smoking contributes to illness in non-smokers led the majority of smokers who did not have smoking bans in their cars or homes and who did not already refrain from smoking around the following populations to respond that they would refrain from smoking in the car in the presence of non-smoking adults (73.1%), children ≤12 years (77.3%), children aged 13-17 years (69.2%) and pregnant women (69.2%). These results were similar for refraining from smoking in the home in the presence of non-smoking adults (59.2%), children ≤12 years (60.5%) and pregnant women (60.7%). Less than half of smoking respondents would refrain from smoking in the presence of children aged 13-17 years in the home (44.2%).

Table 1: Smoking behaviour change in cars and homes according to the types of people present.

Smoking in presence of others	Same		Fewer		Not at all	
	Car	Home	Car	Home	Car	Home
You were by yourself	90.3	91.8	6.2	4.7	3.5	3.5
Other adult smokers present	91.9	83.7	6.5	8.9	1.7	7.5
Adult non-smokers present	30.8	33.3	37.9	48.7	31.3	17.9
People under 12 years present	15.5	23.1	36.3	41.7	48.2	35.1
People aged 13-17 present	41.7	44.0	27.4	34.9	30.9	21.2
Pregnant women present	13.9	15.9	18.5	30.4	67.7	53.7

Responses in percentages

Smoking restrictions

Most respondents agreed that laws should prohibit smoking in cars when non-smoking adults (63.8%), children ≤12 years (80.5%), children aged 13-17 years (78.2%), or pregnant women are present (80.5%). Non-smokers were more likely than smokers to agree that there should be smoking laws in cars when adult non-smokers are present (χ^2=31.0, p=0.000), when children ≤12 years (χ^2=3.9, p=0.032), and children aged 13-17 years are present (χ^2=14.1, p=0.000). Non-smokers were also more likely than smokers to agree that laws should prohibit smoking when a smoker is alone (χ^2=16.9, p=0.000) and when other adult smokers are present (χ^2=22.8, p=0.000; see Table 2).

Similarly, non-smokers were more likely than smokers to agree that smoking should be prohibited in homes when children aged ≤12 years (χ^2=35.0, p=0.000), children aged 13-17 years (χ^2=42.4, p=0.000), and pregnant women are present (χ^2=30.6, p=0.000). Non-smokers were also more likely than smokers to agree that smoking should be prohibited when other adult smokers (χ^2=30.8, p=0.000) and adult non-smokers are present (χ^2=62.3, p=0.000).

Most respondents believed that laws prohibiting smoking should be implemented as soon as possible in cars (72.2%) and homes (71.9%). Smokers were less likely to support laws prohibiting smoking in the car being introduced now or as soon as possible (61.7%) than were non-smokers (74.2%, χ^2=12.3, p=0.015). Smokers were less likely to support laws prohibiting smoking in the home to be introduced now or as soon as possible (57.8%) than were non-smokers (74.2%, χ^2=14.1, p=0.007). Smokers' attitudes to smoking restrictions were not related to education, income and geographic location.

Discussion

Most Queenslanders are aware that passive smoking is harmful and agree that smoking in cars/homes should be restricted now or as soon as possible. While smokers are less supportive of such restrictions, the majority of smokers also support bans for smoking in cars when children under 18 years and pregnant women are present. Borland et al.[19] suggest that increased regulation of smoking in public areas provides social conditions that increase awareness of the harms of ETS and decrease tolerance to such exposure in private settings. Thus, it is likely that negative attitudes towards ETS have been enhanced in Queensland due to the recent tobacco legislation restricting smoking in licensed and unlicensed premises.

Although in this study general awareness of the health effects of ETS was high, knowledge was less than optimal, for example, less than 1% of respondents reported passive smoking to increase the risk of SIDS. These results suggest that improvements are needed in community health literacy about the impact of ETS. We found few differences in awareness of the health effects of passive smoking between smokers and non-smokers. Problematically, many smokers, one-third or more, who did not currently have smoking bans in their cars and homes, still would not refrain from smoking in these contexts after being advised of the negative health effects of ETS. Given the social desirability of reporting a change in behavioural intention after such a prompt, this is a likely underestimate of the number of smokers who would not change their behaviour on the basis of knowledge about health risks. Thus, more in depth interventions may be needed to change smoking behaviours in cars and homes for those smokers who currently do not practice such restrictions.[20]

Conclusion

There is widespread public support in Queensland for legislation to restrict smoking in cars and homes in the presence of children and pregnant women. Legislative change should be accompanied by community wide education programs about the risks of ETS and evidence-based interventions to reduce ETS targeting parent smokers.

Table 2: Attitudes of smokers and non-smokers towards laws that prohibit smoking in cars and in homes in different contexts (percentages).

	Cars				Homes			
Statement of Agreement	**Agree**		**Disagree**		**Agree**		**Disagree**	
	NSmok	Smok	NSmok	Smok	NSmok	Smok	NSmok	Smok
A smoker is alone	35.5	20.7[c]	64.5	79.3	24.1	8.7[c]	75.9	91.3
Other adult smokers present	41.8	23.8[c]	58.2	76.2	30.0	11.1[c]	70.0	88.9
Adult non-smokers present	69.0	48.3[c]	31.0	51.7	57.3	26.6[c]	42.7	73.4
People under 12 yrs present	82.9	76.9[a]	17.1	23.1	71.4	49.8[c]	28.6	50.2
People aged 13-17 present	81.6	69.7[c]	18.4	30.3	70.5	46.4[c]	29.5	53.6
Pregnant women present	82.0	78.0[b]	18.0	22.0	72.0	51.9[c]	28.0	48.1

Note: As the percentages for the unsure response for this question were less than 2% they are not shown in this table and therefore the response percentages do not add up to 100%.

(a) p<0.05 difference between smokers and non-smokers for agree.

(b) p<0.01 difference between smokers and non-smokers for agree.

(c) p<0.001 difference between smokers and non-smokers for agree.

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Authors

Jeff Dunn, Susan Greenbank, Michelle McDowell, Catherine Mahoney, Paul Mazerolle, Stefano Occhipinti, Suzanne Steginga

Correspondence

Suzanne Steginga, Programs and Research, The Cancer Council Queensland, PO Box 201, Spring Hill Queensland 4004.
Fax: (07) 32582310; e-mail: suzannesteginga@cancerqld.org.au