BMJ open

Public support for tobacco control policy extensions: An analytical cross-sectional study

Journal:	*BMJ Open*
Manuscript ID:	bmjopen-2011-000784
Article Type:	Research
Date Submitted by the Author:	20-Dec-2011
Complete List of Authors:	Rosenberg, Michael; University of Western Australia, Health Promotion Evaluation Unit Pettigrew, Simone; University of Western Australia, Health Promotion Evaluation Unit Wood, Lisa; University of Western Australia, School of Population Healrh Ferguson, Renee; University of Western Australia, Health Promotion Evaluation Unit Houghton, Stephen; University of Western Australia, Centre for Child and Adolescent Related Disorders
Primary Subject Heading:	Health policy
Secondary Subject Heading:	Smoking and tobacco
Keywords:	Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PUBLIC HEALTH, Health & safety < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

Title: Public support for tobacco control policy extensions: An analytical cross-sectional study

Authors:

Michael Rosenberg, Associate Professor
Health Promotion Evaluation Unit, School of Sport Science, Exercise and Health
The University of Western Australia
M408, 35 Stirling Highway, Crawley WA 6009
(e) michael.rosenberg@uwa.edu.au
(t) 08 6488 4654
(f) 08 6488 1039

Simone Pettigrew, Professor **(Corresponding author)**
Health Promotion Evaluation Unit, School of Sport Science, Exercise and Health,
The University of Western Australia
M408, 35 Stirling Highway, Crawley WA 6009
(e) michael.rosenberg@uwa.edu.au
(t) 08 6488 4654
(f) 08 6488 1039

Lisa Wood, Associate Professor
Centre for the Built Environment and Health, School of Population Health,
The University of Western Australia, Perth, Australia.

Renee Ferguson, Research Associate
Health Promotion Evaluation Unit, School of Sport Science, Exercise and Health,
The University of Western Australia, Perth, Australia.

Stephen Houghton, Winthrop Professor
Centre for Child and Adolescent Related Disorders,
The University of Western Australia, Perth, Australia.

Keywords

Smoking bans, open spaces, plain packaging, public support.

Word Count

2,235

Article Summary

1) Article Focus:

- This study assessed public support in Australia for progressive tobacco control policies in the form of plain packaging of cigarettes and smoking bans in outdoor locations.
- The results can inform policy makers' efforts to develop and implement new tobacco control policies.

2) Key Messages

- Around a quarter of all respondents and a third of smokers disagreed with the introduction of plain packaging. The majority was supportive or neutral on the issue.
- A majority of respondents supported smoking bans at a broad range of venues including parks, zoos, and community events. Support was strongest among parents and for smaller outdoor venues.
- The results indicate that new regulations relating to plain packaging and smoking bans in outdoor locations are likely to receive considerable public support.

3) Strengths and Limitations

- The large sample (n=2,005) and use of random digit dialling provide robust results relating to the likely responses of Western Australians to new tobacco control policies.
- Further research is needed in other countries to assess the extent to which the results reflect prevailing community views elsewhere.

ABSTRACT

Objectives: Policy makers seeking to introduce new tobacco control measures need to anticipate community support to assist them in planning appropriate implementation strategies. This study assessed community support for plain packaging and smoking bans in outdoor locations in Australia.

Design: Analytical cross-sectional survey.

Setting and participants: 2,005 Western Australian adults participated in a computer-assisted telephone interview. Random household telephone numbers were used to obtain a representative sample.

Outcome measures: Support for plain packaging of cigarettes and smoking bans at outdoor venues by demographic characteristics

Results: Around half of the survey respondents supported plain packaging and almost a further quarter reported being neutral on the issue. Only one in three smokers disagreed with the introduction of a plain packaging policy. A majority of respondents supported smoking bans at five of the six nominated venues, with support being strongest among those with children under the age of 15 years. The venues with the highest levels of support were those where smoke-free policies had already been voluntarily introduced by the venue managers, where children were most likely to be in attendance, and that were more limited in size.

Conclusion: The study results demonstrate community support for new tobacco control policies. This evidence can be used by public policy makers in their deliberations relating to the introduction of more extensive tobacco control regulations.

INTRODUCTION

Tobacco control policies to date have encompassed various elements including cessation assistance, taxation, restrictions on tobacco advertising, tobacco packaging regulations, and designation of non-smoking areas.(1) Most tobacco control policies have considerable public support across varying countries and among both smokers and non-smokers.(2-9) As the evidence base relating to the harms associated with second-hand smoke grows and tobacco consumption becomes increasingly de-normalised in many countries, some governments are stepping up their efforts to further discourage smoking at a population level.(10, 11) Two areas of possible tobacco control policy extension include plain packaging of cigarettes and smoking bans in outdoor locations.(1, 2, 11)

Recent research indicates that plain packaging may reduce demand for cigarettes.(12, 13) In a world first, legislation has been passed in Australia that requires plain packaging to be phased in on all cigarette packages during 2012.(14) There has been considerable support for plain packaging among key stakeholders, including public health advocates and the three primary political parties.(1, 15) However, anecdotal evidence suggests that the issue is more contentious among the general public, an outcome that is at least partly attributed to concerted efforts by the tobacco industry to incite public opposition to the change.(15) Research is therefore necessary to gauge levels of support for plain packaging to assist governments in planning appropriate implementation strategies.

Restrictions on smoking in public places have been found to be effective in terms of achieving compliance among smokers and reducing exposure to second-hand smoke.(4) Bans can normalise non-smoking in certain locations in a relatively short period of time.(8, 16)

While numerous countries have implemented smoking bans in workplaces, restaurants, and bars,(16, 17) and in some cases the outdoor areas adjacent to these locations,(11) other outdoor locations remain mostly unregulated. To date there appears to have been little research on the extent of support for bans in outdoor locations characterised by open spaces that are not adjacent to buildings. In their review of the few studies that have explored this issue, Thomson, Wilson, and Edwards noted that there are typically high levels of community support, but that further research is needed to more comprehensively assess the extent of support for such bans and how this may vary in different contexts.(18)

Evidence of support for new tobacco control policies is useful for governments attempting to ensure that legislative changes are aligned with community attitudes.(2, 9, 17) In addition, information relating to variations in attitudes among different stakeholder groups can assist in ensuring that new policies are effectively communicated to enhance acceptance and compliance.(2, 19) To this end, the present study investigated public support for plain packaging of cigarettes and smoking bans at a range of outdoor venues. Australia, the context of the study, is acknowledged to be one of the world leaders in tobacco control interventions.(6, 7, 17) Anti-smoking attitudes have become more prevalent over the last decade,(11) and the proportion of the adult population classified as regular smokers has decreased to 19%.(20) These outcomes have been attributed to ongoing public education campaigns and other tobacco control strategies implemented since the 1970s.(11, 21) The purpose of the study was to investigate whether the population is amenable to further policy extensions. The study received clearance from the UWA Human Ethics Committee and there were no competing interests to declare.

METHOD

Sample and Survey Design

Data for this study were collected via a household telephone survey in November, 2010. Respondents were residents of Western Australia aged 18-69 years. Telephone numbers were randomly selected from an electronic household telephone directory. The adult in the house with the next birthday was invited to participate in the survey. Up to 10 call backs were made to each household to maximise the response rate, resulting in a response rate of 60% amongst eligible households. The final sample comprised 2,005 respondents, 66% of whom resided in the Perth Metropolitan area and the remainder in country areas. To adjust for any differences from the general population, the sample was weighted to the age and location distribution of the Western Australian population aged 16-69 years according to 2006 census data.(22)

The survey instrument comprised a range of questions relating to lifestyle and attitudes to smoking. One item asked respondents whether they agreed, disagreed, or had no feelings about the introduction of plain packaging on cigarettes. The Australian Government had announced its intention to introduce plain packaging in April 2010,(15) and it was likely that many respondents were aware of this at the time of the survey. Other survey items asked respondents whether they supported, did not support, or had no feelings either way about smoke-free policies in six outdoor venues: the Perth Zoo, the South Perth Foreshore Family Zone (a riverfront venue for music festivals), the Perth Royal Show (an annual agricultural event), Adventure World (a theme park), Kings Park (a national park located adjacent to the city centre), and Rottnest Island (a holiday resort island located 20 kilometres from the mainland). The purposefully selected venues represented a wide range of locations, including

some that had elected to be smoke free[1] and others that had no smoking policies at the time of data collection. Some of the venues were family oriented, while others attracted the general population. Some were permanent fixtures, while others were annual or seasonal events.

Statistical Analyses

Data analysis comprised descriptive statistics to ascertain attitudes towards the two proposed tobacco control policies. The Chi Square statistic was used to determine significant association between policy support and participant characteristics (age, gender, smoking status, and having a child under 15 years of age). Multinomial logistic regression models were used to generate odds ratios for agreement/no agreement with the proposed policies, adjusting for respondents who 'had no feelings either way' and the participant characteristics explored in the descriptive analyses. All statistical analyses were performed using SPSS 19.0.

The study was funded by the Western Australian Health Promotion Foundation. All authors contributed substantially to the study. MR, LW, and RF conceptualised the design and implemented data collection. MR, RF, SP, and SH were involved in data analysis and interpretation. All authors contributed to the literature review and writing of the article. Other than the results presented below, no additional data are available.

RESULTS

The sample comprised 1,016 males (50.7%) and 989 females (49.3%), with 29.3% (n=588) aged 16-29 years, 42.0% (n=842) aged 30-49 years and 28.7% (n=575) aged 50-69 years. Almost two-thirds of respondents (63.5%; n=1,273) had no children under 15 years of age, and around half (53.5%; n=1,073) had completed post-secondary education. Current smokers

[1] These venues had recently received sponsorship funding from the Western Australian Health Promotion Foundation to facilitate the introduction of smoke-free policies.

comprised 12.3% (n=344) of the sample, ex-smokers 22.6% (n=473), and those who had never smoked 59% (n=1,189). A significantly higher proportion of males than females were current smokers (21.9% vs 12.3%; $p < 0.00$).

When asked about their support for the introduction of plain packaging, 50.6% (n=1,015) of respondents agreed with the initiative, 26.6% (n=533) disagreed, and 22.8% (n=457) reported that they had no feelings either way. Approximately one-third of current smokers (33.7%; n = 116) agreed with the introduction of plain packaging, 37.8% (n=130) disagreed, and 28.5% (n=98) were neutral. Non-smokers (including ex-smokers) were 2.7 times (95% CI; 2.0 – 3.6) more likely than smokers to agree, while smokers were 2.6 times (95% CI 1.9 – 3.6) more likely to have no feelings either way. Males were more likely than females to agree with plain packaging (53.3% vs 47.8%; OR = 1.4, 95% CI; 1.1 – 1.7) and less likely to have no feelings either way (21.3% vs 24.4%; OR = 0.9, 95% CI; 0.7 – 1.2). Compared with respondents aged 16-29 years (42.0%), respondents aged 50-69 years of age (55.1%) were 2.0 (95% CI; 1.5 – 2.7) times more likely to agree with the introduction of plain packaging.

As can be seen in Table 1, support for smoking bans was strong for four of the six specified outdoor locations. Those who had never smoked and those with children under 15 years of age demonstrated the highest levels of support for smoking bans at all six venues. Of note is that support was strong among smokers for some venues, especially the South Perth Foreshore and the Zoo.

Table 1: Support for outdoor smoking bans by venue and respondent characteristics

Venue	Total (n=2005) %	Male (n=1016) %	Female (n=989) %	Non-Smoker (n=1189) %	Ex-smoker (n=472) %	Smoker (n=343) %	No child under 15 (n=1273) %	Child under 15 (n=732) %
Perth Zoo[a,b,c]	85	81	89	90	84	68	83	88
South Perth Foreshore Family Zone[a,b,c]	82	80	84	85	82	72	80	85
Perth Royal Show[b]	80	77	83	96	78	60	77	84
Adventure world theme park[a,b,c]	77	74	81	83	77	58	75	81
Kings Park[b]	52	52	54	62	49	26	52	53
Rottnest Island[b]	43	42	44	51	40	19	42	45

Significant associations at the $p < 0.01$ level for each venue are represented as "a" for gender, "b" for smoking status, and "c" for having a child under 15.

Table 2 provides the odds ratios for the variables of gender, age, parental status, and smoking status. Respondents' smoking status was the strongest indicator of likely support, with significant and large differences in the odds ratios of ex-smokers and non-smokers compared with smokers for each of the venues. Independent of smoking status, females were more likely than males to support the Perth Zoo, the South Perth Foreshore, and the Perth Royal Show becoming smoke free venues. Independent of smoking status, gender had little impact on support for smoke free venues, with the exception of females who were 1.3 times more likely than males to support the Zoo being a non-smoking venue. Similarly, age was observed to have little independent effect on support for smoke free venues, with the exceptions of Adventure World, where a smoking ban was supported significantly more by respondents aged 30+ years, and Kings Park, where respondents aged 30-49 years were less likely to support a smoking ban.

Respondents with children under 15 years of age were more likely than other respondents to support smoking bans at the South Perth Foreshore, the Royal Show, and Adventure World.

Females with children under 15 years of age were 1.6 (95% CI; 1.08 – 2.49) times more likely than other females to support smoking bans at the Zoo. No significant independent relationship was observed for parental status and support for the introduction of bans at Kings Park, the Zoo, or the South Perth Foreshore.

Table 2: Support for smoking bans at nominated outdoor venues

	Zoo *OR (95% CI)*	South Perth *OR (95% CI)*	Royal Show *OR (95% CI)*	Adventure world *OR (95% CI)*	Kings Park *OR (95% CI)*	Rottnest *OR (95% CI)*
Male	-	-	-	-	-	-
Female	1.5 (1.1 – 2.1)	1.7 (1.1 – 2.5	1.5 (1.1 – 2.0)	NS	NS	NS
16-29	-	-	-	-	-	-
30-49	NS	NS	NS	1.6 (1.1-2.3)	0.7 (0.6-1.0)	NS
50-69	NS	NS	NS	2.2 (1.5-3.3)	NS	NS
No Child under 15	-	-	-	-	-	-
Child under 15	NS	NS	1.9 (1.4 – 2.8)	1.4 (1.0-1.9)	NS	1.3 (1.0-1.7)
Smoker	-	-	-	-	-	-
Ex-smoker	3.1 (2.0-4.4)	NS	3.3 (2.3-4.8)	2.4 (1.7-3.5)	3.0 (2.2-4.1)	3.2 (2.3-4.6)
Never-smoked	7.2 (5.0 -10.3)	2.9 (1.8-4.6)	7.1 (5.1-9.9)	6.0 (4.3-8.4)	5.6 (4.2-7.4)	6.2 (4.6-8.4)

Along with respondent characteristics, it is likely that venue attributes influenced support levels. Table 3 lists various attributes of each outdoor location. Respondents were more supportive of smoke free policies for venues that already had smoking restrictions in place, were smaller in size, and had a family focus. In general, as venue size increased and the target population attending the venues became more representative of the general public, support weakened.

Table 3: Support for outdoor smoking bans by venue and venue attributes

Venue	% support	Venue attributes			
		Land size	Family or general population focus	Smoke free policy status	Frequency of event
Zoo	85	41 acres	Family	Smoking only permitted in dedicated smoking areas	Continual
South Perth Foreshore Family Zone	82	30 acres	Family	Total smoking ban	Annual
Royal Show	80	75 acres	Family	Total smoking ban	Annual
Adventure world	77	660 acres	Family	Total smoking ban	Summer only
Kings Park	52	1,003 acres	General	No policy	Continual
Rottnest	43	31,179 acres	General	No policy	Continual

DISCUSSION

The present study investigated public attitudes to potential tobacco control policy extensions, namely plain packaging requirements and smoking bans at outdoor venues. In terms of community support for plain packaging, approximately half of the survey respondents supported the initiative and almost a quarter were neutral. Of note is that only one in three current smokers, who constitute 19% of the adult population, disagreed with the policy. This suggests that there is unlikely to be substantial public backlash when plain packaging is introduced in Australia.

As governments increasingly legislate against smoking in workplaces and other indoor locations, extension to outdoor contexts is the next frontier. Smoking bans in outdoor settings may have multiple benefits in terms of reducing non-smokers' exposure to second-hand smoke, encouraging smokers to reduce their intake or quit, and avoiding instances of adults modelling tobacco consumption to children.(23) However, there is a need to better understand community support for such policy extensions to optimise implementation and compliance. Reflecting the findings of limited previous work in this area,(18) the results of the present study show majority support for smoking bans at five of the six nominated venues. The one exception was an island resort that is large in acreage and patronised by both local residents and tourists. The tendency for support to be highest among venues that already have voluntary smoking bans in place is aligned with previous research suggesting that support for bans increases post-implementation.(16, 17)

Past research has found women to be generally more supportive of smoking policies than men.(6, 7, 19) In the present study, women tended to be more supportive of smoking bans in outdoor venues, but men were more supportive of plain packaging. More advanced age has

been associated with greater support for smoking policies elsewhere,(19) and this was found to be the case for plain packaging and smoking bans at some of the nominated venues but not all. It thus appears that demographic attributes may have varying relationships to support levels in different national contexts, and that country-specific research needs to be undertaken to assess likely reactions to policy changes among different population segments.

While this study demonstrated support for further tobacco control measures, it is important to also consider the potential for unintended negative consequences. Chapman and Freeman (2008) cautioned that the de-normalisation of smoking can stigmatise smokers, potentially resulting in adverse outcomes such as under-reporting of smoking and reluctance to seek medical assistance for smoking-related conditions.(24) Another issue is individuals' right to autonomy, which may be compromised by ever-increasing smoking restrictions .(25) Smoking bans at outdoor venues may discourage smokers from attending community events, which may in turn prevent children of smokers from accessing such events. Empirical evidence is needed to determine the likelihood of these outcomes and to guide attempts to ameliorate any unintended consequences. Fortunately, many smokers responding to this survey were in favour of outdoor smoking bans, an outcome that may reflect their appreciation of the added incentive for quitting provided by increased restrictions on smoking.(6, 10)

In conclusion, the results of the present study demonstrate community support for more stringent tobacco control policies in Australia. This evidence may be of use to public policy makers in their deliberations relating to future extensions of existing regulations. Further research is needed in other countries to assess the extent to which the results reflect prevailing community views in other locations.

REFERENCES

1. Freeman B, Gartner C, Hall W et al. Forecasting future tobacco control policy: where to next? *Aust N Z J Public Health* 2010;34(5):447-50.

2. Blake KD, Viswanath K, Blendon RJ et al. The role of tobacco-specific media exposure, knowledge, and smoking status on selected attitudes toward tobacco control. *Nicotine Tob Res* 2010;12(2):117-26.

3. Brown A, Boudreau C, Moodie C et al. Support for removal of point-of-purchase tobacco advertising and displays: findings from the International Tobacco Control (ITC) Canada survey. *TobControl* Published Online First: 15 October 2011. doi :10.1136 / tobaccocontrol-2011-050153

4. Edwards R, Thomson G, Wilson N et al. After the smoke has cleared: evaluation of the impact of a new national smoke-free law in New Zealand. *Tob Control* 2008;17(1):e2.

5. Gallus S, Rosato V, Zuccaro P et al. Attitudes towards the extension of smoking restrictions to selected outdoor areas in Italy. *Tob Control* 2011 Published Online First: 25 May 2011. doi:10.1136/tc.2010.040774

6. Hitchman SC, Fong GT, Zanna MP et al. Support and correlates of support for banning smoking in cars with children: findings from the ITC Four Country Survey. *Eur J Public Health* 2011;21(3):360-5.

7. Li Q, Hyland A, O'Connor R et al. Support for smoke-free policies among smokers and non-smokers in six cities in China: ITC China Survey. *Tob Control* 2010;19 Suppl 2:i40-6.

8. Pacheco J. Trends-Public Opinion on Smoking and Anti-Smoking Policies. *Public Opin Quart* 2011;75(3):576-92.

9. Wong G, Pawson R, Owen L. Policy guidance on threats to legislative interventions in public health: a realist synthesis. *BMC Public Health* 2011;11:222.

10. Francis JA, Abramsohn EM, Park HY. Policy-driven tobacco control. *Tob Control* 2010;19 Suppl 1:i16-20.

11. Scollo M, Winstanley M. Tobacco in Australia: Facts and Issues. Melbourne: Cancer Council Victoria. 2008.

12. Gallopel-Morvan K, Moodie C, Hammond D et al. Consumer perceptions of cigarette pack design in France: a comparison of regular, limited edition and plain packaging. *Tob Control* Published Online First: 13 October 2011. doi:10.1136/tobaccocontrol-2011-050079

13. Moodie C, Mackintosh AM, Hastings G et al. Young adult smokers' perceptions of plain packaging: a pilot naturalistic study. *Tob Control* 2011 Sep;20(5):367-73.

14. Chapman S, Freeman B. From brand to bland--the demise of cigarette packaging. *BMJ* 2011;343:d4376.

15. Freeman B. Tobacco plain packaging legislation: a content analysis of commentary posted on Australian online news. *Tob Control* 2011;20(5):361-6.

16. Cooper J, Borland R, Yong HH et al. Compliance and support for bans on smoking in licensed venues in Australia: findings from the International Tobacco Control Four-Country Survey. *Aust N Z J Public Health* 2010;34(4):379-85.

17. Borland R, Yong HH, Siahpush M et al. Support for and reported compliance with smoke-free restaurants and bars by smokers in four countries: findings from the International Tobacco Control (ITC) Four Country Survey. *Tob Control* 2006;15 Suppl 3:iii34-41.

18. Thomson G, Wilson N, Edwards R. At the frontier of tobacco control: A brief review of public attitudes toward smoke-free outdoor places. *Nicotine Tob Res* 2009;11(6):584-90.

19. Doucet JM, Velicer WF, Laforge RG. Demographic differences in support for smoking policy interventions. *Addict Behav* 2007;32(1):148-57.

20. Australian Bureau of Statistics. Smoking and risk behaviours in Australia, 2007-08. Catalogue No 4841.0. Canberra2011.

21. Wood LJ, Rosenberg M, Clarkson J et al. Encouraging Young Western Australians to Be Smarter Than Smoking. *Am J Health Promot* 2009;23(6):403-11.

22. Australian Bureau of Statistics. CDATA01. Canberra, ACT: Australian Bureau of Statistics2006.

23. Thomson G, Wilson N, Edwards R et al. Should smoking in outside public spaces be banned? Yes. *BMJ* 2008;11:337.

24. Chapman S, Freeman B. Markers of the denormalisation of smoking and the tobacco industry. *Tob Control* [Review] 2008;17(1):25-31.

25. Chapman S. Should smoking in outside public spaces be banned? No. *BMJ* 2008;337:a2804.

Funding

Supported by The Western Australian Health Promotion Foundation

Data Sharing

Other than the results presented in the article, no additional data are available.

Competing Interests

None

Contributorship

All authors contributed substantially to the study. MR, LW, and RF conceptualised the design and implemented data collection. MR, RF, SP, and SH were involved in data analysis and interpretation. All authors contributed to the literature review and writing of the article.

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	3
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4-5
Objectives	3	State specific objectives, including any prespecified hypotheses	5
Methods			
Study design	4	Present key elements of study design early in the paper	6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	6
Bias	9	Describe any efforts to address potential sources of bias	*n/a*
Study size	10	Explain how the study size was arrived at	
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	n/a
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	7
		(*b*) Describe any methods used to examine subgroups and interactions	7
		(*c*) Explain how missing data were addressed	n/a
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	6-7
		(*e*) Describe any sensitivity analyses	n/a
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	7
		(b) Give reasons for non-participation at each stage	n/a
		(c) Consider use of a flow diagram	n/a
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	7-8
		(b) Indicate number of participants with missing data for each variable of interest	n/a
Outcome data	15*	Report numbers of outcome events or summary measures	8-11
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	7, 8-11
		(*b*) Report category boundaries when continuous variables were categorized	8,10
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	n/a
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	n/a
Discussion			
Key results	18	Summarise key results with reference to study objectives	12
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	2, 13
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	12-13
Generalisability	21	Discuss the generalisability (external validity) of the study results	13
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	7

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ open

Public support for tobacco control policy extensions in Western Australia: A cross-sectional study

Journal:	*BMJ Open*
Manuscript ID:	bmjopen-2011-000784.R1
Article Type:	Research
Date Submitted by the Author:	01-Feb-2012
Complete List of Authors:	Rosenberg, Michael; University of Western Australia, Health Promotion Evaluation Unit Pettigrew, Simone; University of Western Australia, Health Promotion Evaluation Unit Wood, Lisa; University of Western Australia, School of Population Healrh Ferguson, Renee; University of Western Australia, Health Promotion Evaluation Unit Houghton, Stephen; University of Western Australia, Centre for Child and Adolescent Related Disorders
Primary Subject Heading:	Health policy
Secondary Subject Heading:	Smoking and tobacco
Keywords:	Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PUBLIC HEALTH, Health & safety < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	3
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4-5
Objectives	3	State specific objectives, including any prespecified hypotheses	5
Methods			
Study design	4	Present key elements of study design early in the paper	6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	6
Bias	9	Describe any efforts to address potential sources of bias	*n/a*
Study size	10	Explain how the study size was arrived at	
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	n/a
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	7
		(*b*) Describe any methods used to examine subgroups and interactions	7
		(*c*) Explain how missing data were addressed	n/a
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	6-7
		(*e*) Describe any sensitivity analyses	n/a
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	7
		(b) Give reasons for non-participation at each stage	n/a
		(c) Consider use of a flow diagram	n/a
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	7-8
		(b) Indicate number of participants with missing data for each variable of interest	n/a
Outcome data	15*	Report numbers of outcome events or summary measures	8-11
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	7, 8-11
		(*b*) Report category boundaries when continuous variables were categorized	8,10
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	n/a
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	n/a
Discussion			
Key results	18	Summarise key results with reference to study objectives	12
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	2, 13
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	12-13
Generalisability	21	Discuss the generalisability (external validity) of the study results	13
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	7

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

Public support for tobacco control policy extensions in Western Australia: A cross-sectional study

Authors:

Michael Rosenberg, Associate Professor
Health Promotion Evaluation Unit, School of Sport Science, Exercise and Health
The University of Western Australia
M408, 35 Stirling Highway, Crawley WA 6009
(e) michael.rosenberg@uwa.edu.au
(t) 08 6488 4654
(f) 08 6488 1039

Simone Pettigrew, Professor **(Corresponding author)**
Health Promotion Evaluation Unit, School of Sport Science, Exercise and Health,
The University of Western Australia
M408, 35 Stirling Highway, Crawley WA 6009
(e) michael.rosenberg@uwa.edu.au
(t) 08 6488 4654
(f) 08 6488 1039

Lisa Wood, Associate Professor
Centre for the Built Environment and Health, School of Population Health,
The University of Western Australia, Perth, Australia.

Renee Ferguson, Research Associate
Health Promotion Evaluation Unit, School of Sport Science, Exercise and Health,
The University of Western Australia, Perth, Australia.

Stephen Houghton, Winthrop Professor
Centre for Child and Adolescent Related Disorders,
The University of Western Australia, Perth, Australia.

Keywords

Smoking bans, open spaces, plain packaging, public support.

Word Count

2739

Article Summary

1) Article Focus:

- This study assessed public support in Australia for progressive tobacco control policies in the form of plain packaging of cigarettes and smoking bans in outdoor locations.
- The results can inform policy makers' efforts to develop and implement new tobacco control policies.

2) Key Messages

- The majority of respondents were supportive or neutral towards the introduction of plain packaging. Around a quarter of all respondents and a third of smokers disagreed with the proposed policy.
- A majority of respondents supported smoking bans at a broad range of venues including parks, zoos, and community events. Support was strongest among parents and for smaller outdoor venues.
- The results indicate that new regulations relating to plain packaging and smoking bans in outdoor locations are likely to receive considerable public support.

3) Strengths and Limitations

- The large sample (n=2,005) and use of random digit dialling provide robust results relating to the likely responses of Western Australians to new tobacco control policies.
- Further research is needed in other countries to assess the extent to which the results reflect prevailing community views elsewhere.

ABSTRACT

Objectives: Policy makers seeking to introduce new tobacco control measures need to anticipate community support to assist them in planning appropriate implementation strategies. This study assessed community support for plain packaging and smoking bans in outdoor locations in Australia.

Design: Analytical cross-sectional survey.

Setting and participants: 2,005 Western Australian adults participated in a computer-assisted telephone interview. Random household telephone numbers were used to obtain a representative sample.

Outcome measures: Support for plain packaging of cigarettes and smoking bans at outdoor venues by demographic characteristics

Results: Around half of the survey respondents supported plain packaging and almost a further quarter reported being neutral on the issue. Only one in three smokers disagreed with the introduction of a plain packaging policy. A majority of respondents supported smoking bans at five of the six nominated venues, with support being strongest among those with children under the age of 15 years. The venues with the highest levels of support were those where smoke-free policies had already been voluntarily introduced by the venue managers, where children were most likely to be in attendance, and that were more limited in size.

Conclusion: The study results demonstrate community support for new tobacco control policies. This evidence can be used by public policy makers in their deliberations relating to the introduction of more extensive tobacco control regulations.

INTRODUCTION

Tobacco control policies to date have encompassed various elements including cessation assistance, taxation, restrictions on tobacco advertising and removal of point of sale displays, tobacco packaging regulations, and designation of non-smoking areas.(1) Most tobacco control policies have considerable public support across varying countries and among both smokers and non-smokers.(2-12) As the evidence base relating to the harms associated with second-hand smoke grows and tobacco consumption becomes increasingly de-normalised in many countries, some governments are stepping up their efforts to further discourage smoking at a population level.(13, 14) Two areas of possible tobacco control policy extension include plain packaging of cigarettes and smoking bans in outdoor locations.(1, 2, 14)

In line with work demonstrating that the visual characteristics of cigarette packages convey important information to consumers and influence their perceptions of the healthiness and desirability of the product (15), recent research indicates that plain packaging may reduce demand for cigarettes. In Australia, Wakefield and colleagues (16, 17) demonstrated that as branding symbolism is reduced on packages, associations of the types of people who would use the product and assessments of the appeal of the product become progressively more negative. Similarly, Hoek et al.'s (18) research with young adult smokers in New Zealand indicated that the brand information displayed on cigarette packages can be important for identity construction and communication for this age group, and hence that the minimisation of this information and the inclusion of more prominent health warnings can reduce the attraction of the product. Attitudinal research conducted in the US (19), Canada (20), the UK (15, 21), and France (22) has reached the same general conclusions.

In a world first, legislation has been passed in Australia that requires plain packaging to be phased in on all cigarette packages during 2012.(23, 24) There has been considerable support for plain packaging among key stakeholders, including public health advocates and the three primary political parties.(1, 25) However, anecdotal evidence suggests that the issue is more contentious among the general public, an outcome that is at least partly attributed to concerted efforts by the tobacco industry to incite public opposition to the change.(25) Research is therefore necessary to gauge levels of support for plain packaging to assist governments in planning appropriate implementation strategies.

Restrictions on smoking in public places have been found to be effective in terms of achieving compliance among smokers and reducing exposure to second-hand smoke.(4) They can also contribute to the prevention of smoking uptake among children and young people by reshaping the perceived social acceptability of smoking.(26) The ability of smoke-free policies to normalise non-smoking is evident in the dramatic increases in support for such policies that have occurred in numerous countries post implementation. (4, 27-29) Of note is that many of these policies have been introduced on the basis of research evidence despite only minority support pre-implementation.

While numerous countries have implemented smoking bans in workplaces, restaurants, and bars,(27, 30) and in some cases the outdoor areas adjacent to these locations,(14) other outdoor locations remain mostly unregulated. To date there appears to have been little research on the extent of support for bans in outdoor locations characterised by open spaces that are not directly adjacent to buildings. In their review of the few studies that have explored this issue, Thomson, Wilson, and Edwards(31) noted that there are typically high

levels of community support, but that further research is needed to more comprehensively assess the extent of support for such bans and how this may vary in different contexts.(31)

While high levels of community support are not a prerequisite for successful policy implementation due to the normalisation outcomes noted above, they are likely to be of value in facilitating policies through the relevant legislative processes and minimising the costs associated with community consultation and education. Evidence relating to levels of support for new tobacco control policies is useful for informing governments of (i) the extent to which legislative changes are aligned with community attitudes and (ii) any variations in attitudes among different stakeholder groups. This information can assist in ensuring that new policies are effectively communicated to enhance acceptance and compliance.(2, 32) Awareness of public attitudes is particularly important in the context of sophisticated lobbying and public relations activities by the tobacco industry (33) and the potential for media coverage to influence support for tobacco control policies. (34, 35)

To this end, the present study investigated public support for plain packaging of cigarettes and smoking bans at a range of outdoor venues. Australia, the context of the study, is acknowledged to be one of the world leaders in tobacco control interventions.(6, 7, 30) Attitudes to smoke-free policies have become more prevalent over the last decade,(14) and the proportion of the adult population classified as current daily smokers has decreased to 19% nationally and 12% in Western Australia.(36, 37) These outcomes have been attributed to ongoing public education campaigns and other tobacco control strategies implemented since the 1970s.(14, 38, 39) The purpose of the study was to investigate whether the population is amenable to further policy extensions.

The study was funded by the Western Australian Health Promotion Foundation. Clearance was obtained from the UWA Human Ethics Committee and no competing interests were declared.

METHOD

Sample and Survey Design

Data for this study were collected via a household telephone survey in November, 2010. Respondents were residents of Western Australia aged 18-69 years. Telephone numbers were randomly selected from an electronic household telephone directory. Although the directory included only landlines (i.e., mobile phone numbers are not listed), the rate of landline ownership in Australia has remained high over the last decade at around 88%. (40) The adult in the house with the next birthday was invited to participate in the survey. Up to 10 call backs were made to each household to maximise the response rate, resulting in a response rate of 60% amongst eligible households. The final sample comprised 2,005 respondents, 66% of whom resided in the Perth Metropolitan area and the remainder in country areas. To adjust for any differences from the general population, the sample was weighted to the age and location distribution of the Western Australian population aged 16-69 years according to 2006 census data.(41)

The survey instrument comprised a range of questions relating to lifestyle and attitudes to smoking. One item asked respondents whether they agreed, disagreed, or had no feelings about the introduction of plain packaging on cigarettes. The Australian Government had announced its intention to introduce plain packaging in April 2010,(25) and it was likely that many respondents were aware of this at the time of the survey. Other survey items asked

respondents whether they supported, did not support, or had no feelings either way about smoke-free policies in six outdoor venues: the Perth Zoo, the South Perth Foreshore Family Zone (a riverfront venue for music festivals), the Perth Royal Show (an annual agricultural event), Adventure World (a theme park), Kings Park (a national park located adjacent to the city centre), and Rottnest Island (a holiday resort island located 20 kilometres from the mainland). The purposefully selected venues represented a wide range of locations, including some that had elected to be smoke free[1] and others that had no smoking policies at the time of data collection. Some of the venues were family oriented, while others attracted the general population. Some were permanent fixtures, while others were annual or seasonal events. Almost all the venues, with the exception of the Royal Show, had an estimated 90% or more open space within the venue boundaries. Table 1 provides a description of each of the venues included in the study.

Data analysis comprised descriptive statistics to ascertain attitudes towards the two proposed tobacco control policies. The Chi Square statistic was used to determine significant association between policy support and participant characteristics (age, gender, smoking status, and having a child under 15 years of age). Multinomial logistic regression models were used to generate odds ratios for agreement/no agreement with the proposed policies, adjusting for respondents who 'had no feelings either way' and the participant characteristics explored in the descriptive analyses. All statistical analyses were performed using SPSS 19.0.

[1] These venues had recently received sponsorship funding from the Western Australian Health Promotion Foundation to facilitate the introduction of smoke-free policies.

Table 1: Venues and venue attributes

Venue		Venue attributes		
	Land size	Family or general population focus	Smoke-free policy status	Frequency of event
Zoo	41 acres	Family	Smoking only permitted in dedicated smoking areas	Continual
South Perth Foreshore Family Zone	30 acres	Family	Total smoking ban	Annual
Royal Show	75 acres	Family	Total smoking ban	Annual
Adventure world	660 acres	Family	Total smoking ban	Summer only
Kings Park	1,003 acres	General	No policy	Continual
Rottnest	31,179 acres	General	No policy	Continual

All authors contributed substantially to the study. MR, LW, and RF conceptualised the design and implemented data collection. MR, RF, SP, and SH were involved in data analysis and interpretation. All authors contributed to the literature review and writing of the article. Other than the results presented below, no additional data are available.

RESULTS

The sample comprised 1,016 males (50.7%) and 989 females (49.3%), with 29.3% (n=588) aged 16-29 years, 42.0% (n=842) aged 30-49 years and 28.7% (n=575) aged 50-69 years. Almost two-thirds of respondents (63.5%; n=1,273) had no children under 15 years of age, and around half (53.5%; n=1,073) had completed post-secondary education. The sample was

comprised of 12.3% (n=344) current smokers, 22.6% (n=473) ex-smokers, and 59% (n=1,189) who had never smoked. A significantly higher proportion of males than females were current smokers (21.9% vs 12.3%; $p < 0.00$).

Table 2 shows the overall and sub-group levels of support for a plain packaging policy. Around half the total sample were in agreement, a quarter disagreed, and a further quarter reported that they had no feelings either way. Agreement levels were lower among smokers, with approximately a third in agreement, a quarter neutral, and the remainder expressing disagreement. Non-smokers (including ex-smokers) were 2.7 times (95% CI; 2.0 – 3.6) more likely than smokers to agree, while smokers were 2.6 times (95% CI 1.9 – 3.6) more likely to have no feelings either way. Males were more likely than females to agree with plain packaging (53.3% vs 47.8%; OR = 1.4, 95% CI; 1.1 – 1.7) and less likely to have no feelings either way (21.3% vs 24.4%; OR = 0.9, 95% CI; 0.7 – 1.2). Compared with respondents aged 16-29 years (42.0%), respondents aged 50-69 years of age (55.1%) were 2.0 (95% CI; 1.5 – 2.7) times more likely to agree with the introduction of plain packaging.

Table 2: Support for plain packaging

		Gender*		Smoking Status**			Children**		Age**		
	Total	Male	Female	Non-Smoker	Ex-smoker	Smoker	No child under 15	Child under 15	16-29 Years	35-49 Years	50-69 Years
	(n=2005) %	(n=1016) %	(n=989) %	(n=1189) %	(n=472) %	(n=343) %	(n=1273) %	(n=732) %	(n=575) %	(n=842) %	(n=588) %
Agreed	51	53	48	55	52	34	49	53	55	53	42
Disagree	27	25	28	25	21	38	29	22	23	24	35
No feelings either way	23	21	24	20	26	29	22	25	22	23	23

* Significant associations at the $p < 0.05$ level
** Significant associations at the $p < 0.01$ level

As can be seen in Table 3, support for smoking bans was strong for four of the six specified outdoor locations. Those who had never smoked and those with children under 15 years of age demonstrated the highest levels of support for smoking bans at all six venues. Of note is that support was strong among smokers for some venues, especially the South Perth Foreshore and the Zoo.

Table 3: Support for outdoor smoking bans by venue and respondent characteristics

Venue	Total (n=2005) %	Male (n=1016) %	Female (n=989) %	Non-Smoker (n=1189) %	Ex-smoker (n=472) %	Smoker (n=343) %	No child under 15 (n=1273) %	Child under 15 (n=732) %
Perth Zoo[a,b,c]	85	81	89	90	84	68	83	88
South Perth Foreshore Family Zone[a,b,c]	82	80	84	85	82	72	80	85
Perth Royal Show[b]	80	77	83	96	78	60	77	84
Adventure world theme park[a,b,c]	77	74	81	83	77	58	75	81
Kings Park[b]	52	52	54	62	49	26	52	53
Rottnest Island[b]	43	42	44	51	40	19	42	45

Significant associations at the $p < 0.01$ level for each venue are represented as "a" for gender, "b" for smoking status, and "c" for having a child under 15.

Table 4 provides the odds ratios for the variables of gender, age, parental status, and smoking status. Respondents' smoking status was the strongest indicator of likely support, with significant and large differences in the odds ratios of ex-smokers and non-smokers compared with smokers for each of the venues. Independent of smoking status, females were more likely than males to support the Perth Zoo, the South Perth Foreshore, and the Perth Royal Show becoming smoke free venues. Independent of smoking status, gender had little impact on support for smoke free venues, with the exception of females who were 1.3 times more likely than males to support the Zoo being a non-smoking venue. Similarly, age was observed to have little independent effect on support for smoke free venues, with the exceptions of

Adventure World, where a smoking ban was supported significantly more by respondents aged 30+ years, and Kings Park, where respondents aged 30-49 years were less likely to support a smoking ban.

Table 4: Support for smoking bans at nominated outdoor venues

	Zoo *OR (95% CI)*	South Perth *OR (95% CI)*	Royal Show *OR (95% CI)*	Adventure world *OR (95% CI)*	Kings Park *OR (95% CI)*	Rottnest *OR (95% CI)*
Male	-	-	-	-	-	-
Female	1.5 (1.1 – 2.1)	1.7 (1.1 – 2.5	1.5 (1.1 – 2.0)	NS	NS	NS
16-29	-	-	-	-	-	-
30-49	NS	NS	NS	1.6 (1.1-2.3)	0.7 (0.6-1.0)	NS
50-69	NS	NS	NS	2.2 (1.5-3.3)	NS	NS
No Child under 15	-	-	-	-	-	-
Child under 15	NS	NS	1.9 (1.4 – 2.8)	1.4 (1.0-1.9)	NS	1.3 (1.0-1.7)
Smoker	-	-	-	-	-	-
Ex-smoker	3.1 (2.0-4.4)	NS	3.3 (2.3-4.8)	2.4 (1.7-3.5)	3.0 (2.2-4.1)	3.2 (2.3-4.6)
Never-smoked	7.2 (5.0 -10.3)	2.9 (1.8-4.6)	7.1 (5.1-9.9)	6.0 (4.3-8.4)	5.6 (4.2-7.4)	6.2 (4.6-8.4)

Respondents with children under 15 years of age were more likely than other respondents to support smoking bans at the South Perth Foreshore, the Royal Show, and Adventure World. Females with children under 15 years of age were 1.6 (95% CI; 1.08 – 2.49) times more likely than other females to support smoking bans at the Zoo. No significant independent relationship was observed for parental status and support for the introduction of bans at Kings Park, the Zoo, or the South Perth Foreshore.

Along with respondent characteristics, it is likely that venue attributes influenced support levels. Respondents were more supportive of smoke free policies for venues that already had smoking restrictions in place, were smaller in size, and had a family focus. In general, as venue size increased and the target population attending the venues became more representative of the general public, support weakened.

DISCUSSION

The present study investigated public attitudes to potential tobacco control policy extensions, namely plain packaging requirements and smoking bans at outdoor venues. In terms of community support for plain packaging, approximately half of the survey respondents supported the initiative and almost a quarter were neutral. This suggests that there is unlikely to be a substantial public backlash when plain packaging is introduced in Australia. Of note is that only one in three current smokers, who constitute 12% of the Western Australian adult population, disagreed with the policy. In the light of a primary aim of plain packaging policy being to discourage new adopters (14, 42), this may reflect high levels of regret for smoking initiation among current smokers. (43, 44)

As governments increasingly legislate against smoking in workplaces and other indoor locations, extension to outdoor contexts is the next frontier. Smoking bans in outdoor settings may have multiple benefits in terms of reducing non-smokers' exposure to second-hand smoke, encouraging smokers to reduce their intake or quit, and avoiding instances of adults modelling and normalising tobacco consumption to children.(45) However, there is a need to better understand community support for such policy extensions to optimise implementation and compliance. Reflecting the findings of limited previous work in this area,(31) the results of the present study show majority support for smoking bans at five of the six nominated venues. The one exception was an island resort that is large in acreage and patronised by both local residents and tourists. The tendency for support to be highest among venues that already have voluntary smoking bans in place is aligned with previous research suggesting that support for bans increases post-implementation.(27, 28, 30)

Past research has found women to be generally more supportive of smoking policies than men.(6, 7, 32) In the present study, women tended to be more supportive of smoking bans in outdoor venues, but men were more supportive of plain packaging. The reasons for women's lower support for plain packaging are not clear and would require further research to understand whether this outcome relates to weaker beliefs about the potential effectiveness of this approach or stronger involvement with brands per se.(46) More advanced age has been associated with greater support for smoking policies elsewhere,(32) and this was found to be the case for plain packaging and smoking bans at some of the nominated venues but not all. It thus appears that demographic attributes may have varying relationships to support levels in different national contexts, and that country-specific research needs to be undertaken to assess likely reactions to policy changes among different population segments.

Other areas of possible areas future research include (i) investigation of public support for plain packaging legislation once it has been fully implemented, (ii) analysis of venue management and community support for voluntary versus mandatory smoke-free policies in outdoor areas, and (iii) assessment of the impact of media coverage of proposed tobacco control policies on levels community support. In addition, further research analysing associations between smoke-free policies and children's normative beliefs about smoking (such as their estimates of peer or community prevalence and views on social acceptability) would be a valuable contribution to youth smoking prevention research.

Despite some variations in support for plain packaging and outdoor smoking bans by demographic characteristics, the overall levels of support for these policies suggest that it would not be necessary to differentially accommodate age and gender in communications strategies designed to educate the community about their introduction and implementation. However, the large variations in support by smoking status indicate that smokers are a specific communications audience that may require special consideration. For example, information relating to the types of outdoor venues affected by any new smoke-free policy would need to be broadly disseminated to prevent smokers from arriving at these venues without being able to prepare for abstinence during attendance.

In conclusion, the results of the present study demonstrate community support for more stringent tobacco control policies in Australia. This evidence may be of use to public policy makers in their deliberations relating to future extensions of existing regulations. Further research is needed in other countries to assess the extent to which the results reflect prevailing community views in other locations.

Funding

Supported by Health Promotion Foundation of Western Australia.

Competing Interests

None

Contributorship statement

All authors contributed substantially to the study. MR, LW, and RF conceptualised the design and implemented data collection. MR, RF, SP, and SH were involved in data analysis and interpretation. All authors contributed to the literature review and writing of the article.

Data Sharing

Other than the results presented in the paper, no additional data are available.

REFERENCES

1. Freeman B, Gartner C, Hall W et al. Forecasting future tobacco control policy: where to next? *Aust N Z J Public Health* 2010;34(5):447-50.

2. Blake KD, Viswanath K, Blendon RJ et al. The role of tobacco-specific media exposure, knowledge, and smoking status on selected attitudes toward tobacco control. *Nicotine Tob Res* 2010;12(2):117-26.

3. Brown A, Boudreau C, Moodie C et al. Support for removal of point-of-purchase tobacco advertising and displays: findings from the International Tobacco Control (ITC) Canada survey. *TobControl* Published Online First: 15 October 2011. doi :10.1136 / tobaccocontrol-2011-050153

4. Edwards R, Thomson G, Wilson N et al. After the smoke has cleared: evaluation of the impact of a new national smoke-free law in New Zealand. *Tob Control* 2008;17(1):e2.

5. Gallus S, Rosato V, Zuccaro P et al. Attitudes towards the extension of smoking restrictions to selected outdoor areas in Italy. *Tob Control* 2011 Published Online First: 25 May 2011. doi:10.1136/tc.2010.040774

6. Hitchman SC, Fong GT, Zanna MP et al. Support and correlates of support for banning smoking in cars with children: findings from the ITC Four Country Survey. *Eur J Public Health* 2011;21(3):360-5.

7. Li Q, Hyland A, O'Connor R et al. Support for smoke-free policies among smokers and non-smokers in six cities in China: ITC China Survey. *Tob Control* 2010;19 Suppl 2:i40-6.

8. Pacheco J. Trends-Public Opinion on Smoking and Anti-Smoking Policies. *Public Opin Quart* 2011;75(3):576-92.

9. Wong G, Pawson R, Owen L. Policy guidance on threats to legislative interventions in public health: a realist synthesis. *BMC Public Health* 2011;11:222.

10. Danishevski K, Gilmore A, McKee M. Public attitudes towards smoking and tobacco control policy in Russia. *Tob Control* 2008;17(4):276-83.

11. Gardner B, West R. Public support in England for raising the price of cigarettes to fund tobacco control activities. *Tob Control* 2010;19(4):331-3.

12. Wilson N, Weerasekera D, Edwards R et al. Characteristics of smoker support for increasing a dedicated tobacco tax: national survey data from New Zealand. *Nicotine Tob Res* 2010;12(2):168-73.

13. Francis JA, Abramsohn EM, Park HY. Policy-driven tobacco control. *Tob Control* 2010;19 Suppl 1:i16-20.

14. Scollo M, Winstanley M. Tobacco in Australia: Facts and Issues. Melbourne: Cancer Council Victoria. 2008.

15. Hammond D, Dockrell M, Arnott D et al. Cigarette pack design and perceptions of risk among UK adults and youth. *Eur J Public Health* 2009;19(6):631-7.

16. Wakefield MA, Germain D, Durkin SJ. How does increasingly plainer cigarette packaging influence adult smokers' perceptions about brand image? An experimental study. *Tob Control* 2008;17(6):416-21.

17. Germain D, Wakefield MA, Durkin SJ. Adolescents' perceptions of cigarette brand image: does plain packaging make a difference? *J Adolesc Health* 2010;46(4):385-92.

18. Hoek J, Gendall P, Gifford H et al. Tobacco Branding, Plain Packaging, Pictorial Warnings, and Symbolic Consumption. *Qual Health Res* 2011 Dec 27.

19. Thrasher JF, Rousu MC, Hammond D et al. Estimating the impact of pictorial health warnings and "plain" cigarette packaging: evidence from experimental auctions among adult smokers in the United States. *Health Policy* 2011;102(1):41-8.

20. Doxey J, Hammond D. Deadly in pink: the impact of cigarette packaging among young women. *Tob Control* 2011;20(5):353-60.

21. Moodie C, Mackintosh AM, Hastings G et al. Young adult smokers' perceptions of plain packaging: a pilot naturalistic study. *Tob Control* 2011;20(5):367-73.

22. Gallopel-Morvan K, Moodie C, Hammond D et al. Consumer perceptions of cigarette pack design in France: a comparison of regular, limited edition and plain packaging. *Tob Control* Published Online First: 13 October 2011. doi:10.1136/tobaccocontrol-2011-050079

23. Chapman S, Freeman B. From brand to bland--the demise of cigarette packaging. *BMJ* 2011;343:d4376.

24. Wakefield M. Welcome to cardboard country: how plain packaging could change the subjective experience of smoking. *Tob Control* 2011;20(5):321-2.

25. Freeman B. Tobacco plain packaging legislation: a content analysis of commentary posted on Australian online news. *Tob Control* 2011;20(5):361-6.

26. Smart RG, Stoduto G. Interventions by students in friends' alcohol, tobacco, and drug use. *J Drug Educ* 1997;27(3):213-22.

27. Cooper J, Borland R, Yong HH et al. Compliance and support for bans on smoking in licensed venues in Australia: findings from the International Tobacco Control Four-Country Survey. *Aust N Z J Public Health* 2010;34(4):379-85.

28. Fong GT, Hyland A, Borland R et al. Reductions in tobacco smoke pollution and increases in support for smoke-free public places following the implementation of comprehensive smoke-free workplace legislation in the Republic of Ireland: findings from the ITC Ireland/UK Survey. *Tob Control* 2006;15 Suppl 3:iii51-8.

29. Hyland A, Hassan LM, Higbee C et al. The impact of smokefree legislation in Scotland: results from the Scottish ITC: Scotland/UK longitudinal surveys. *Eur J Public Health* 2009;19(2):198-205.

30. Borland R, Yong HH, Siahpush M et al. Support for and reported compliance with smoke-free restaurants and bars by smokers in four countries: findings from the International Tobacco Control (ITC) Four Country Survey. *Tob Control* 2006;15 Suppl 3:iii34-41.

31. Thomson G, Wilson N, Edwards R. At the frontier of tobacco control: A brief review of public attitudes toward smoke-free outdoor places. *Nicotine Tob Res* 2009;11(6):584-90.

32. Doucet JM, Velicer WF, Laforge RG. Demographic differences in support for smoking policy interventions. *Addict Behav* 2007;32(1):148-57.

33. Davis RM, Wakefield M, Amos A et al. The Hitchhiker's Guide to Tobacco Control: a global assessment of harms, remedies, and controversies. *Annu Rev Public Health* 2007;28:171-94.

34. Nagelhout GE, van den Putte B, de Vries H et al. The influence of newspaper coverage and a media campaign on smokers' support for smoke-free bars and restaurants and on secondhand smoke harm awareness: findings from the International Tobacco Control (ITC) Netherlands Survey. *Tob Control* 2012;21(1):24-9.

35. Harris JK, Shelton SC, Moreland-Russell S et al. Tobacco coverage in print media: the use of timing and themes by tobacco control supporters and opposition before a failed tobacco tax initiative. *Tob Control* 2010;19(1):37-43.

36. Australian Bureau of Statistics. Smoking and risk behaviours in Australia, 2007-08. Catalogue No 4841.0. Canberra2011.

37. Davis P, Joyce S. Health and Wellbeing of Adults in Western Australia 2010, Overview and Trends. Perth: Department of Health, Western Australia2011.

38. Wood LJ, Rosenberg M, Clarkson J et al. Encouraging Young Western Australians to Be Smarter Than Smoking. *Am J Health Promot* 2009;23(6):403-11.

39. Mitchell J, Rosenberg M, Wood L. Adolescents with attitude ... changes in views about smoking over time. *Health Promot J Austr* 2008;19(2):109-12.

40. Australian Communications and Media Authority. Convergence and Communications Report 1: Australian household consumers' take-up and use of voice communications services. Canberra: Australian Communications and Media Authority 2012.

41. Australian Bureau of Statistics. CDATA01. Canberra, ACT: Australian Bureau of Statistics2006.

42. Munafo MR, Roberts N, Bauld L et al. Plain packaging increases visual attention to health warnings on cigarette packs in non-smokers and weekly smokers but not daily smokers. *Addiction* 2011;106(8):1505-10; discussion 11-2.

43. Fong GT, Hammond D, Laux FL et al. The near-universal experience of regret among smokers in four countries: findings from the International Tobacco Control Policy Evaluation Survey. *Nicotine Tob Res* 2004;6 Suppl 3:S341-51.

44. Wilson N, Edwards R, Weerasekera D. High levels of smoker regret by ethnicity and socioeconomic status: national survey data. *N Z Med J* 2009;3;122(1292):99-100.

45. Thomson G, Wilson N, Edwards R et al. Should smoking in outside public spaces be banned? Yes. *BMJ* 2008;11:337.

46. Fournier S. Consumers and their brands: Developing relationship theory in consumer research. *Journal of Consumer Research.* 1998;24:343-73.

Title: Public support for tobacco control policy extensions: A cross-sectional study

Deleted: n analytical

Authors:

Michael Rosenberg, Associate Professor
Health Promotion Evaluation Unit, School of Sport Science, Exercise and Health
The University of Western Australia
M408, 35 Stirling Highway, Crawley WA 6009
(e) michael.rosenberg@uwa.edu.au
(t) 08 6488 4654
(f) 08 6488 1039

Simone Pettigrew, Professor **(Corresponding author)**
Health Promotion Evaluation Unit, School of Sport Science, Exercise and Health,
The University of Western Australia
M408, 35 Stirling Highway, Crawley WA 6009
(e) michael.rosenberg@uwa.edu.au
(t) 08 6488 4654
(f) 08 6488 1039

Lisa Wood, Associate Professor
Centre for the Built Environment and Health, School of Population Health,
The University of Western Australia, Perth, Australia.

Renee Ferguson, Research Associate
Health Promotion Evaluation Unit, School of Sport Science, Exercise and Health,
The University of Western Australia, Perth, Australia.

Stephen Houghton, Winthrop Professor
Centre for Child and Adolescent Related Disorders,
The University of Western Australia, Perth, Australia.

Keywords

Smoking bans, open spaces, plain packaging, public support.

Word Count

2739

Article Summary

1) Article Focus:

- This study assessed public support in Australia for progressive tobacco control policies in the form of plain packaging of cigarettes and smoking bans in outdoor locations.
- The results can inform policy makers' efforts to develop and implement new tobacco control policies.

2) Key Messages

- The majority of respondents were supportive or neutral towards the introduction of plain packaging. Around a quarter of all respondents and a third of smokers disagreed with the proposed policy.
- A majority of respondents supported smoking bans at a broad range of venues including parks, zoos, and community events. Support was strongest among parents and for smaller outdoor venues.
- The results indicate that new regulations relating to plain packaging and smoking bans in outdoor locations are likely to receive considerable public support.

3) Strengths and Limitations

- The large sample (n=2,005) and use of random digit dialling provide robust results relating to the likely responses of Western Australians to new tobacco control policies.
- Further research is needed in other countries to assess the extent to which the results reflect prevailing community views elsewhere.

Deleted: the introduction of plain packaging. The majority was supportive or neutral on the issue.

ABSTRACT

Objectives: Policy makers seeking to introduce new tobacco control measures need to anticipate community support to assist them in planning appropriate implementation strategies. This study assessed community support for plain packaging and smoking bans in outdoor locations in Australia.

Design: Analytical cross-sectional survey.

Setting and participants: 2,005 Western Australian adults participated in a computer-assisted telephone interview. Random household telephone numbers were used to obtain a representative sample.

Outcome measures: Support for plain packaging of cigarettes and smoking bans at outdoor venues by demographic characteristics

Results: Around half of the survey respondents supported plain packaging and almost a further quarter reported being neutral on the issue. Only one in three smokers disagreed with the introduction of a plain packaging policy. A majority of respondents supported smoking bans at five of the six nominated venues, with support being strongest among those with children under the age of 15 years. The venues with the highest levels of support were those where smoke-free policies had already been voluntarily introduced by the venue managers, where children were most likely to be in attendance, and that were more limited in size.

Conclusion: The study results demonstrate community support for new tobacco control policies. This evidence can be used by public policy makers in their deliberations relating to the introduction of more extensive tobacco control regulations.

INTRODUCTION

Tobacco control policies to date have encompassed various elements including cessation assistance, taxation, restrictions on tobacco advertising and removal of point of sale displays, tobacco packaging regulations, and designation of non-smoking areas.(1) Most tobacco control policies have considerable public support across varying countries and among both smokers and non-smokers.(2-12) As the evidence base relating to the harms associated with second-hand smoke grows and tobacco consumption becomes increasingly de-normalised in many countries, some governments are stepping up their efforts to further discourage smoking at a population level.(13, 14) Two areas of possible tobacco control policy extension include plain packaging of cigarettes and smoking bans in outdoor locations.(1, 2, 14)

In line with work demonstrating that the visual characteristics of cigarette packages convey important information to consumers and influence their perceptions of the healthiness and desirability of the product (15), recent research indicates that plain packaging may reduce demand for cigarettes. In Australia, Wakefield and colleagues (16, 17) demonstrated that as branding symbolism is reduced on packages, associations of the types of people who would use the product and assessments of the appeal of the product become progressively more negative. Similarly, Hoek et al.'s (18) research with young adult smokers in New Zealand indicated that the brand information displayed on cigarette packages can be important for identity construction and communication for this age group, and hence that the minimisation of this information and the inclusion of more prominent health warnings can reduce the attraction of the product. Attitudinal research conducted in the US (19), Canada (20), the UK (15, 21), and France (22) has reached the same general conclusions.

In a world first, legislation has been passed in Australia that requires plain packaging to be phased in on all cigarette packages during 2012.(23, 24) There has been considerable support for plain packaging among key stakeholders, including public health advocates and the three primary political parties.(1, 25) However, anecdotal evidence suggests that the issue is more contentious among the general public, an outcome that is at least partly attributed to concerted efforts by the tobacco industry to incite public opposition to the change.(25) Research is therefore necessary to gauge levels of support for plain packaging to assist governments in planning appropriate implementation strategies.

Restrictions on smoking in public places have been found to be effective in terms of achieving compliance among smokers and reducing exposure to second-hand smoke.(4) They can also contribute to the prevention of smoking uptake among children and young people by reshaping the perceived social acceptability of smoking.(26) The ability of smoke-free policies to normalise non-smoking, is evident in the dramatic increases in support for such policies that have occurred in numerous countries post implementation. (4, 27-29) Of note is that many of these policies have been introduced on the basis of research evidence despite only minority support pre-implementation.

Deleted: Bans can

Deleted: in certain locations in a relatively short period of time.

While numerous countries have implemented smoking bans in workplaces, restaurants, and bars,(27, 30) and in some cases the outdoor areas adjacent to these locations,(14) other outdoor locations remain mostly unregulated. To date there appears to have been little research on the extent of support for bans in outdoor locations characterised by open spaces that are not directly adjacent to buildings. In their review of the few studies that have explored this issue, Thomson, Wilson, and Edwards(31) noted that there are typically high

levels of community support, but that further research is needed to more comprehensively assess the extent of support for such bans and how this may vary in different contexts.(31)

While high levels of community support are not a prerequisite for successful policy implementation due to the normalisation outcomes noted above, they are likely to be of value in facilitating policies through the relevant legislative processes and minimising the costs associated with community consultation and education. Evidence relating to levels of support for new tobacco control policies is useful for informing governments of (i) the extent to which legislative changes are aligned with community attitudes and (ii) any variations in attitudes among different stakeholder groups. This information can assist in ensuring that new policies are effectively communicated to enhance acceptance and compliance.(2, 32)

Awareness of public attitudes is particularly important in the context of sophisticated lobbying and public relations activities by the tobacco industry (33) and the potential for media coverage to influence support for tobacco control policies. (34, 35)

To this end, the present study investigated public support for plain packaging of cigarettes and smoking bans at a range of outdoor venues. Australia, the context of the study, is acknowledged to be one of the world leaders in tobacco control interventions.(6, 7, 30) Attitudes to smoke-free policies have become more prevalent over the last decade,(14) and the proportion of the adult population classified as current daily smokers has decreased to 19% nationally and 12% in Western Australia.(36, 37) These outcomes have been attributed to ongoing public education campaigns and other tobacco control strategies implemented since the 1970s.(14, 38, 39) The purpose of the study was to investigate whether the population is amenable to further policy extensions.

Deleted: attempting to ensure that

Deleted: .(2, 9, 17) In addition, information relating to variations in attitudes among different stakeholder groups

Deleted: nti-smoking a

Deleted:

Deleted: regular

Deleted: current daily

The study was funded by the Western Australian Health Promotion Foundation. Clearance was obtained from the UWA Human Ethics Committee and no competing interests were declared.

Deleted: The study received
Deleted: c
Deleted: there were
Deleted: to

METHOD

Sample and Survey Design

Data for this study were collected via a household telephone survey in November, 2010. Respondents were residents of Western Australia aged 18-69 years. Telephone numbers were randomly selected from an electronic household telephone directory. Although the directory included only landlines (i.e., mobile phone numbers are not listed), the rate of landline ownership in Australia has remained high over the last decade at around 88%. (40) The adult in the house with the next birthday was invited to participate in the survey. Up to 10 call backs were made to each household to maximise the response rate, resulting in a response rate of 60% amongst eligible households. The final sample comprised 2,005 respondents, 66% of whom resided in the Perth Metropolitan area and the remainder in country areas. To adjust for any differences from the general population, the sample was weighted to the age and location distribution of the Western Australian population aged 16-69 years according to 2006 census data.(41)

The survey instrument comprised a range of questions relating to lifestyle and attitudes to smoking. One item asked respondents whether they agreed, disagreed, or had no feelings about the introduction of plain packaging on cigarettes. The Australian Government had announced its intention to introduce plain packaging in April 2010,(25) and it was likely that many respondents were aware of this at the time of the survey. Other survey items asked

respondents whether they supported, did not support, or had no feelings either way about smoke-free policies in six outdoor venues: the Perth Zoo, the South Perth Foreshore Family Zone (a riverfront venue for music festivals), the Perth Royal Show (an annual agricultural event), Adventure World (a theme park), Kings Park (a national park located adjacent to the city centre), and Rottnest Island (a holiday resort island located 20 kilometres from the mainland). The purposefully selected venues represented a wide range of locations, including some that had elected to be smoke free[1] and others that had no smoking policies at the time of data collection. Some of the venues were family oriented, while others attracted the general population. Some were permanent fixtures, while others were annual or seasonal events. Almost all the venues, with the exception of the Royal Show, had an estimated 90% or more open space within the venue boundaries. Table 1 provides a description of each of the venues included in the study.

Data analysis comprised descriptive statistics to ascertain attitudes towards the two proposed tobacco control policies. The Chi Square statistic was used to determine significant association between policy support and participant characteristics (age, gender, smoking status, and having a child under 15 years of age). Multinomial logistic regression models were used to generate odds ratios for agreement/no agreement with the proposed policies, adjusting for respondents who 'had no feelings either way' and the participant characteristics explored in the descriptive analyses. All statistical analyses were performed using SPSS 19.0.

[1] These venues had recently received sponsorship funding from the Western Australian Health Promotion Foundation to facilitate the introduction of smoke-free policies.

Table 1: Venues and venue attributes

Venue		Venue attributes		
	Land size	Family or general population focus	Smoke-free policy status	Frequency of event
Zoo	41 acres	Family	Smoking only permitted in dedicated smoking areas	Continual
South Perth Foreshore Family Zone	30 acres	Family	Total smoking ban	Annual
Royal Show	75 acres	Family	Total smoking ban	Annual
Adventure world	660 acres	Family	Total smoking ban	Summer only
Kings Park	1,003 acres	General	No policy	Continual
Rottnest	31,179 acres	General	No policy	Continual

All authors contributed substantially to the study. MR, LW, and RF conceptualised the design and implemented data collection. MR, RF, SP, and SH were involved in data analysis and interpretation. All authors contributed to the literature review and writing of the article. Other than the results presented below, no additional data are available.

Deleted: Statistical Analyses¶
¶
The study was funded by the Western Australian Health Promotion Foundation.

RESULTS

The sample comprised 1,016 males (50.7%) and 989 females (49.3%), with 29.3% (n=588) aged 16-29 years, 42.0% (n=842) aged 30-49 years and 28.7% (n=575) aged 50-69 years. Almost two-thirds of respondents (63.5%; n=1,273) had no children under 15 years of age, and around half (53.5%; n=1,073) had completed post-secondary education. The sample was

comprised of 12.3% (n=344) current smokers, 22.6% (n=473) ex-smokers, and 59% (n=1,189) who had never smoked. A significantly higher proportion of males than females were current smokers (21.9% vs 12.3%; $p < 0.00$).

Table 2 shows the overall and sub-group levels of support for a plain packaging policy. Around half the total sample were in agreement, a quarter disagreed, and a further quarter reported that they had no feelings either way. Agreement levels were lower among smokers, with approximately a third in agreement, a quarter neutral, and the remainder expressing disagreement. Non-smokers (including ex-smokers) were 2.7 times (95% CI; 2.0 – 3.6) more likely than smokers to agree, while smokers were 2.6 times (95% CI 1.9 – 3.6) more likely to have no feelings either way. Males were more likely than females to agree with plain packaging (53.3% vs 47.8%; OR = 1.4, 95% CI; 1.1 – 1.7) and less likely to have no feelings either way (21.3% vs 24.4%; OR = 0.9, 95% CI; 0.7 – 1.2). Compared with respondents aged 16-29 years (42.0%), respondents aged 50-69 years of age (55.1%) were 2.0 (95% CI; 1.5 – 2.7) times more likely to agree with the introduction of plain packaging.

Table 2: Support for plain packaging

		Gender*		Smoking Status**			Children**		Age**		
	Total (n=2005) %	Male (n=1016) %	Female (n=989) %	Non-Smoker (n=1189) %	Ex-smoker (n=472) %	Smoker (n=343) %	No child under 15 (n=1273) %	Child under 15 (n=732) %	16-29 Years (n=575) %	35-49 Years (n=842) %	50-69 Years (n=588) %
Agreed	51	53	48	55	52	34	49	53	55	53	42
Disagree	27	25	28	25	21	38	29	22	23	24	35
No feelings either way	23	21	24	20	26	29	22	25	22	23	23

* Significant associations at the $p < 0.05$ level
** Significant associations at the $p < 0.01$ level

Deleted: C
Deleted: comprised 12.3% (n=344) of the sample,
Deleted: 22.6% (n=473)
Deleted: those
Deleted: 59% (n=1,189)
Formatted: Font: Italic
Deleted: When asked about their support for the introduction of plain packaging, 50.6% (n=1,015) of respondents agreed with the initiative, 26.6% (n=533) disagreed, and 22.8% (n=457)
Deleted: Approximately one-third of current smokers (33.7%; n = 116) agreed with the introduction of plain packaging, 37.8% (n=130) disagreed, and 28.5% (n=98) were neutral.

As can be seen in Table 3, support for smoking bans was strong for four of the six specified outdoor locations. Those who had never smoked and those with children under 15 years of age demonstrated the highest levels of support for smoking bans at all six venues. Of note is that support was strong among smokers for some venues, especially the South Perth Foreshore and the Zoo.

Table 3: Support for outdoor smoking bans by venue and respondent characteristics

Venue	Total (n=2005) %	Male (n=1016) %	Female (n=989) %	Non-Smoker (n=1189) %	Ex-smoker (n=472) %	Smoker (n=343) %	No child under 15 (n=1273) %	Child under 15 (n=732) %
Perth Zoo[a,b,c]	85	81	89	90	84	68	83	88
South Perth Foreshore Family Zone[a,b,c]	82	80	84	85	82	72	80	85
Perth Royal Show[b]	80	77	83	96	78	60	77	84
Adventure world theme park[a,b,c]	77	74	81	83	77	58	75	81
Kings Park[b]	52	52	54	62	49	26	52	53
Rottnest Island[b]	43	42	44	51	40	19	42	45

Significant associations at the $p < 0.01$ level for each venue are represented as "a" for gender, "b" for smoking status, and "c" for having a child under 15.

Table 4 provides the odds ratios for the variables of gender, age, parental status, and smoking status. Respondents' smoking status was the strongest indicator of likely support, with significant and large differences in the odds ratios of ex-smokers and non-smokers compared with smokers for each of the venues. Independent of smoking status, females were more likely than males to support the Perth Zoo, the South Perth Foreshore, and the Perth Royal Show becoming smoke free venues. Independent of smoking status, gender had little impact on support for smoke free venues, with the exception of females who were 1.3 times more likely than males to support the Zoo being a non-smoking venue. Similarly, age was observed to have little independent effect on support for smoke free venues, with the exceptions of

Deleted: ¶ ¶
Deleted: 1
Deleted: 1
Formatted: Font: Italic
Deleted: 2

Adventure World, where a smoking ban was supported significantly more by respondents aged 30+ years, and Kings Park, where respondents aged 30-49 years were less likely to support a smoking ban.

Table 4: Support for smoking bans at nominated outdoor venues

Deleted: 2

	Zoo *OR (95% CI)*	South Perth *OR (95% CI)*	Royal Show *OR (95% CI)*	Adventure world *OR (95% CI)*	Kings Park *OR (95% CI)*	Rottnest *OR (95% CI)*
Male	-	-	-	-	-	-
Female	1.5 (1.1 – 2.1)	1.7 (1.1 – 2.5	1.5 (1.1 – 2.0)	NS	NS	NS
16-29	-	-	-	-	-	-
30-49	NS	NS	NS	1.6 (1.1-2.3)	0.7 (0.6-1.0)	NS
50-69	NS	NS	NS	2.2 (1.5-3.3)	NS	NS
No Child under 15	-	-	-	-	-	-
Child under 15	NS	NS	1.9 (1.4 – 2.8)	1.4 (1.0-1.9)	NS	1.3 (1.0-1.7)
Smoker	-	-	-	-	-	-
Ex-smoker	3.1 (2.0-4.4)	NS	3.3 (2.3-4.8)	2.4 (1.7-3.5)	3.0 (2.2-4.1)	3.2 (2.3-4.6)
Never-smoked	7.2 (5.0 -10.3)	2.9 (1.8-4.6)	7.1 (5.1-9.9)	6.0 (4.3-8.4)	5.6 (4.2-7.4)	6.2 (4.6-8.4)

Respondents with children under 15 years of age were more likely than other respondents to support smoking bans at the South Perth Foreshore, the Royal Show, and Adventure World. Females with children under 15 years of age were 1.6 (95% CI; 1.08 – 2.49) times more likely than other females to support smoking bans at the Zoo. No significant independent relationship was observed for parental status and support for the introduction of bans at Kings Park, the Zoo, or the South Perth Foreshore.

Along with respondent characteristics, it is likely that venue attributes influenced support levels. Respondents were more supportive of smoke free policies for venues that already had smoking restrictions in place, were smaller in size, and had a family focus. In general, as venue size increased and the target population attending the venues became more representative of the general public, support weakened.

Deleted: Table 3 lists various attributes of each outdoor location.

DISCUSSION

Deleted: Table 3: Support for outdoor smoking bans by venue and venue attributes¶ Venue ...

The present study investigated public attitudes to potential tobacco control policy extensions, namely plain packaging requirements and smoking bans at outdoor venues. In terms of community support for plain packaging, approximately half of the survey respondents supported the initiative and almost a quarter were neutral. This suggests that there is unlikely to be a substantial public backlash when plain packaging is introduced in Australia. Of note is that only one in three current smokers, who constitute 12% of the Western Australian adult population, disagreed with the policy. In the light of a primary aim of plain packaging policy being to discourage new adopters (14, 42), this may reflect high levels of regret for smoking initiation among current smokers. (43, 44)

Deleted: 19% of the

As governments increasingly legislate against smoking in workplaces and other indoor locations, extension to outdoor contexts is the next frontier. Smoking bans in outdoor settings may have multiple benefits in terms of reducing non-smokers' exposure to second-hand smoke, encouraging smokers to reduce their intake or quit, and avoiding instances of adults modelling and normalising tobacco consumption to children.(45) However, there is a need to better understand community support for such policy extensions to optimise implementation and compliance. Reflecting the findings of limited previous work in this area,(31) the results of the present study show majority support for smoking bans at five of the six nominated venues. The one exception was an island resort that is large in acreage and patronised by both local residents and tourists. The tendency for support to be highest among venues that already have voluntary smoking bans in place is aligned with previous research suggesting that support for bans increases post-implementation.(27, 28, 30)

Past research has found women to be generally more supportive of smoking policies than men.(6, 7, 32) In the present study, women tended to be more supportive of smoking bans in outdoor venues, but men were more supportive of plain packaging. The reasons for women's lower support for plain packaging are not clear and would require further research to understand whether this outcome relates to weaker beliefs about the potential effectiveness of this approach or stronger involvement with brands per se.(46) More advanced age has been associated with greater support for smoking policies elsewhere,(32) and this was found to be the case for plain packaging and smoking bans at some of the nominated venues but not all. It thus appears that demographic attributes may have varying relationships to support levels in different national contexts, and that country-specific research needs to be undertaken to assess likely reactions to policy changes among different population segments.

Other areas of possible areas future research include (i) investigation of public support for plain packaging legislation once it has been fully implemented, (ii) analysis of venue management and community support for voluntary versus mandatory smoke-free policies in outdoor areas, and (iii) assessment of the impact of media coverage of proposed tobacco control policies on levels community support. In addition, further research analysing associations between smoke-free policies and children's normative beliefs about smoking (such as their estimates of peer or community prevalence and views on social acceptability) would be a valuable contribution to youth smoking prevention research.

Despite some variations in support for plain packaging and outdoor smoking bans by demographic characteristics, the overall levels of support for these policies suggest that it would not be necessary to differentially accommodate age and gender in communications strategies designed to educate the community about their introduction and implementation. However, the large variations in support by smoking status indicate that smokers are a specific communications audience that may require special consideration. For example, information relating to the types of outdoor venues affected by any new smoke-free policy would need to be broadly disseminated to prevent smokers from arriving at these venues without being able to prepare for abstinence during attendance.

In conclusion, the results of the present study demonstrate community support for more stringent tobacco control policies in Australia. This evidence may be of use to public policy makers in their deliberations relating to future extensions of existing regulations. Further research is needed in other countries to assess the extent to which the results reflect prevailing community views in other locations.

Deleted: ¶
¶
While this study demonstrated support for further tobacco control measures, it is important to also consider the potential for unintended negative consequences. Chapman and Freeman (2008) cautioned that the de-normalisation of smoking can stigmatise smokers, potentially resulting in adverse outcomes such as under-reporting of smoking and reluctance to seek medical assistance for smoking-related conditions.(24) Another issue is individuals' right to autonomy, which may be compromised by ever-increasing smoking restrictions .(25) Smoking bans at outdoor venues may discourage smokers from attending community events, which may in turn prevent children of smokers from accessing such events. Empirical evidence is needed to determine the likelihood of these outcomes and to guide attempts to ameliorate any unintended consequences. Fortunately, many smokers responding to this survey were in favour of outdoor smoking bans, an outcome that may reflect their appreciation of the added incentive for quitting provided by increased restrictions on smoking.(6, 10)¶

REFERENCES

1. Freeman B, Gartner C, Hall W et al. Forecasting future tobacco control policy: where to next? *Aust N Z J Public Health* 2010;34(5):447-50.

2. Blake KD, Viswanath K, Blendon RJ et al. The role of tobacco-specific media exposure, knowledge, and smoking status on selected attitudes toward tobacco control. *Nicotine Tob Res* 2010;12(2):117-26.

3. Brown A, Boudreau C, Moodie C et al. Support for removal of point-of-purchase tobacco advertising and displays: findings from the International Tobacco Control (ITC) Canada survey. *TobControl* Published Online First: 15 October 2011. doi :10.1136 / tobaccocontrol-2011-050153

4. Edwards R, Thomson G, Wilson N et al. After the smoke has cleared: evaluation of the impact of a new national smoke-free law in New Zealand. *Tob Control* 2008;17(1):e2.

5. Gallus S, Rosato V, Zuccaro P et al. Attitudes towards the extension of smoking restrictions to selected outdoor areas in Italy. *Tob Control* 2011 Published Online First: 25 May 2011. doi:10.1136/tc.2010.040774

6. Hitchman SC, Fong GT, Zanna MP et al. Support and correlates of support for banning smoking in cars with children: findings from the ITC Four Country Survey. *Eur J Public Health* 2011;21(3):360-5.

7. Li Q, Hyland A, O'Connor R et al. Support for smoke-free policies among smokers and non-smokers in six cities in China: ITC China Survey. *Tob Control* 2010;19 Suppl 2:i40-6.

8. Pacheco J. Trends-Public Opinion on Smoking and Anti-Smoking Policies. *Public Opin Quart* 2011;75(3):576-92.

9. Wong G, Pawson R, Owen L. Policy guidance on threats to legislative interventions in public health: a realist synthesis. *BMC Public Health* 2011;11:222.

10. Danishevski K, Gilmore A, McKee M. Public attitudes towards smoking and tobacco control policy in Russia. *Tob Control* 2008;17(4):276-83.

11. Gardner B, West R. Public support in England for raising the price of cigarettes to fund tobacco control activities. *Tob Control* 2010;19(4):331-3.

12. Wilson N, Weerasekera D, Edwards R et al. Characteristics of smoker support for increasing a dedicated tobacco tax: national survey data from New Zealand. *Nicotine Tob Res* 2010;12(2):168-73.

13. Francis JA, Abramsohn EM, Park HY. Policy-driven tobacco control. *Tob Control* 2010;19 Suppl 1:i16-20.

14. Scollo M, Winstanley M. Tobacco in Australia: Facts and Issues. Melbourne: Cancer Council Victoria. 2008.

15. Hammond D, Dockrell M, Arnott D et al. Cigarette pack design and perceptions of risk among UK adults and youth. *Eur J Public Health* 2009;19(6):631-7.

16. Wakefield MA, Germain D, Durkin SJ. How does increasingly plainer cigarette packaging influence adult smokers' perceptions about brand image? An experimental study. *Tob Control* 2008;17(6):416-21.

17. Germain D, Wakefield MA, Durkin SJ. Adolescents' perceptions of cigarette brand image: does plain packaging make a difference? *J Adolesc Health* 2010;46(4):385-92.

18. Hoek J, Gendall P, Gifford H et al. Tobacco Branding, Plain Packaging, Pictorial Warnings, and Symbolic Consumption. *Qual Health Res* 2011 Dec 27.

19. Thrasher JF, Rousu MC, Hammond D et al. Estimating the impact of pictorial health warnings and "plain" cigarette packaging: evidence from experimental auctions among adult smokers in the United States. *Health Policy* 2011;102(1):41-8.

20. Doxey J, Hammond D. Deadly in pink: the impact of cigarette packaging among young women. *Tob Control* 2011;20(5):353-60.

21. Moodie C, Mackintosh AM, Hastings G et al. Young adult smokers' perceptions of plain packaging: a pilot naturalistic study. *Tob Control* 2011;20(5):367-73.

22. Gallopel-Morvan K, Moodie C, Hammond D et al. Consumer perceptions of cigarette pack design in France: a comparison of regular, limited edition and plain packaging. *Tob Control* Published Online First: 13 October 2011. doi:10.1136/tobaccocontrol-2011-050079

23. Chapman S, Freeman B. From brand to bland--the demise of cigarette packaging. *BMJ* 2011;343:d4376.

24. Wakefield M. Welcome to cardboard country: how plain packaging could change the subjective experience of smoking. *Tob Control* 2011;20(5):321-2.

25. Freeman B. Tobacco plain packaging legislation: a content analysis of commentary posted on Australian online news. *Tob Control* 2011;20(5):361-6.

26. Smart RG, Stoduto G. Interventions by students in friends' alcohol, tobacco, and drug use. *J Drug Educ* 1997;27(3):213-22.

27. Cooper J, Borland R, Yong HH et al. Compliance and support for bans on smoking in licensed venues in Australia: findings from the International Tobacco Control Four-Country Survey. *Aust N Z J Public Health* 2010;34(4):379-85.

28. Fong GT, Hyland A, Borland R et al. Reductions in tobacco smoke pollution and increases in support for smoke-free public places following the implementation of comprehensive smoke-free workplace legislation in the Republic of Ireland: findings from the ITC Ireland/UK Survey. *Tob Control* 2006;15 Suppl 3:iii51-8.

29. Hyland A, Hassan LM, Higbee C et al. The impact of smokefree legislation in Scotland: results from the Scottish ITC: Scotland/UK longitudinal surveys. *Eur J Public Health* 2009;19(2):198-205.

30. Borland R, Yong HH, Siahpush M et al. Support for and reported compliance with smoke-free restaurants and bars by smokers in four countries: findings from the International Tobacco Control (ITC) Four Country Survey. *Tob Control* 2006;15 Suppl 3:iii34-41.

31. Thomson G, Wilson N, Edwards R. At the frontier of tobacco control: A brief review of public attitudes toward smoke-free outdoor places. *Nicotine Tob Res* 2009;11(6):584-90.

32. Doucet JM, Velicer WF, Laforge RG. Demographic differences in support for smoking policy interventions. *Addict Behav* 2007;32(1):148-57.

33. Davis RM, Wakefield M, Amos A et al. The Hitchhiker's Guide to Tobacco Control: a global assessment of harms, remedies, and controversies. *Annu Rev Public Health* 2007;28:171-94.

34. Nagelhout GE, van den Putte B, de Vries H et al. The influence of newspaper coverage and a media campaign on smokers' support for smoke-free bars and restaurants and on secondhand smoke harm awareness: findings from the International Tobacco Control (ITC) Netherlands Survey. *Tob Control* 2012;21(1):24-9.

35. Harris JK, Shelton SC, Moreland-Russell S et al. Tobacco coverage in print media: the use of timing and themes by tobacco control supporters and opposition before a failed tobacco tax initiative. *Tob Control* 2010;19(1):37-43.

36. Australian Bureau of Statistics. Smoking and risk behaviours in Australia, 2007-08. Catalogue No 4841.0. Canberra2011.

37. Davis P, Joyce S. Health and Wellbeing of Adults in Western Australia 2010, Overview and Trends. Perth: Department of Health, Western Australia2011.

38. Wood LJ, Rosenberg M, Clarkson J et al. Encouraging Young Western Australians to Be Smarter Than Smoking. *Am J Health Promot* 2009;23(6):403-11.

39. Mitchell J, Rosenberg M, Wood L. Adolescents with attitude ... changes in views about smoking over time. *Health Promot J Austr* 2008;19(2):109-12.

40. Australian Communications and Media Authority. Convergence and Communications Report 1: Australian household consumers' take-up and use of voice communications services. Canberra: Australian Communications and Media Authority 2012.

41. Australian Bureau of Statistics. CDATA01. Canberra, ACT: Australian Bureau of Statistics2006.

42. Munafo MR, Roberts N, Bauld L et al. Plain packaging increases visual attention to health warnings on cigarette packs in non-smokers and weekly smokers but not daily smokers. *Addiction* 2011;106(8):1505-10; discussion 11-2.

43. Fong GT, Hammond D, Laux FL et al. The near-universal experience of regret among smokers in four countries: findings from the International Tobacco Control Policy Evaluation Survey. *Nicotine Tob Res* 2004;6 Suppl 3:S341-51.

44. Wilson N, Edwards R, Weerasekera D. High levels of smoker regret by ethnicity and socioeconomic status: national survey data. *N Z Med J* 2009;3;122(1292):99-100.

45. Thomson G, Wilson N, Edwards R et al. Should smoking in outside public spaces be banned? Yes. *BMJ* 2008;11:337.

46. Fournier S. Consumers and their brands: Developing relationship theory in consumer research. *Journal of Consumer Research*. 1998;24:343-73.