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

R Borland, H-H Yong, M Siahpush, A Hyland, S Campbell, G Hastings, K M Cummings and G T Fong

Tob. Control 2006;15;34-41
doi:10.1136/tc.2004.008748

RESEARCH PAPER

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

R Borland, H-H Yong, M Siahpush, A Hyland, S Campbell, G Hastings, K M Cummings, G T Fong

Tobacco Control 2006;**15**(Suppl III):iii34–iii41. doi: 10.1136/tc.2004.008748

See end of article for authors' affiliations

Correspondence to: Dr Ron Borland, Cancer Control Research Institute, The Cancer Council Victoria, 1 Rathdowne Street, Carlton, VIC 3053, Australia; ron.borland@cancervic.org.au

Received 5 May 2004
Accepted
16 September 2004

Objective: To explore determinants of support for and reported compliance with smoke-free policies in restaurants and bars across the four countries of the International Tobacco Control (ITC) Four Country Survey.

Design: Separate telephone cross-sectional surveys conducted between October and December 2002 with broadly representative samples of over 2000 adult (≥ 18 years) cigarette smokers in each of the following four countries: the United States, Canada, the United Kingdom, and Australia.

Outcome measures: Support for smoke-free policies in restaurants and pubs/bars and reported compliance with existing policies.

Results: Reported total bans on indoor smoking in restaurants varied from 62% in Australia to 5% in the UK. Smoking bans in bars were less common, with California in the USA being the only major part of any country with documented bans. Support for bans in both restaurants and bars was related to the existence of bans, beliefs about passive smoking being harmful, lower average cigarette consumption, and older age. Self-reported compliance with a smoking ban was generally high and was associated with greater support for the ban.

Conclusions: Among current cigarette smokers, support for smoking bans was associated with living in a place where the law prohibits smoking. Smokers adjust and both accept and comply with smoke-free laws. Associates of support and compliance are remarkably similar across countries given the notably different levels of smoke-free policies.

Restrictions on smoking in public indoor areas and workplaces are increasingly becoming normative in many countries.[1–5] There is variation between and within countries where smoking is prohibited and in the strategies used to achieve this. In some cases, jurisdictions have imposed smoke-free workplace laws, but in many, various kinds of recreational venues have been exempted, including restaurants and drinking establishments. In other jurisdictions, information about the health consequences, coupled with threats of litigation under generic occupational health and safety laws, have resulted in the voluntary implementation of smoke-free policies in workplaces.[6] However, this quasi-voluntary approach has not typically generalised to recreational venues. In some places, most notably in Australia, smoking in restaurants has been extensively restricted, while in the UK, it remains largely unregulated. Neither country has any extensive restrictions in bars. In Canada and the USA, there now exists a patchwork of state (province) and local laws that limit smoking in restaurants and to a lesser extent in bars. The continuing problem of smoking in recreational venues has resulted in pressure on states, or lesser jurisdictions within states, to legislate to ban smoking where it is still allowed.

Research on the implementation of legislative bans on smoking in restaurants (and to a lesser extent, bars) has found that bans are accepted[7–10] and complied with,[7 11] and that bans do not result in any loss of sales.[12–16] There is considerable support for restrictions in all four countries (or parts thereof).[10 17–20] Ascertaining actual levels of support is not possible as question wording affects responses.[21] That said, some broad cross country generalisations are warranted. Overall, smokers are less supportive of restrictions, particularly of complete bans, than non-smokers. Support for smoke-free restaurants is consistently higher than for bars. Levels of support among smokers for both restaurants and bars have increased over at least parts of the last 10 years, especially among smokers.[22 23] There is also evidence from some of the countries that increases in support over time occur both before[24 25] and after[5 10] smoke-free areas have been legislated.

Examining variation in support and compliance for smoke-free policies by country is valuable because it can provide insights as to what countries can expect as smoke-free policies are implemented. Consumer views are an important determinant of government action, and of the extent to which people will comply with laws. While governments (or in some cases individual businesses) control the implementation of bans, the views of smokers can affect both their implementation and maintenance. We tested four predictions in this study. First, we predicted that support for bans would be strongest where bans were already in place based on previous research showing such effects for workplaces[5 26 27] and restaurants.[8] Second, we predicted that there would be high levels of compliance among smokers to total bans, consistent with past research.[7 28] Third, we predicted that support for bans would be related to both beliefs about the harms of passive smoking and frequency of thoughts about the harm of smoking to other people, based on the presumed importance of both relevant beliefs and the frequency of these beliefs being accessed. Fourth, we were interested in

exploring country specific effects, both differences in levels of key outcomes, and in factors associated with them. We predicted that countries with the most extensive restrictions would have the smokers who were most supportive of, and compliant with, smoke-free policies. We also explored whether age, sex, and cigarette consumption affected support for bans. We expected that younger smokers would be more likely to attend these venues, but had no a priori predictions as to their level of support.

METHODS

Participants

The sample for the present study is 9046 smokers aged at least 18 years who were recruited in October to December 2002 to be part of a cohort study. There were similar sized samples from each of the four participating countries: the United States, Canada, the United Kingdom, and Australia. Table 1 shows the age and sex composition of the sample. There were age differences between the four country samples, with Australia having a greater number of respondents under 24 years and UK having a greater number of respondents over 55 years. Females were over-represented as male smoking prevalence is at least as high if not higher in all four jurisdictions. Cooperation rates using American Association for Public Opinion Research (AAPOR) criteria[29] were high for a survey of this kind: USA 77.0%, Canada 78.5%, UK 78.7%, and Australia 78.8%.

Procedures

The study population comprised smokers interviewed for the International Tobacco Control Four Country Survey (ITC-4). The ITC-4 is a cohort survey of adult smokers that is designed to evaluate tobacco control policies that are likely to be implemented in at least one of the four participating countries. Survey waves are being conducted every 8–12 months over a five-year period. The survey fieldwork was conducted using computer-assisted telephone interview by two research firms: Roy Morgan Research (Melbourne) for Australia and UK, and Environics Research Group (Toronto) for USA and Canada. It was conducted in English, or in French if desired in the francophone areas of Canada. Strict protocols were developed and implemented to ensure equivalence of methods across the two companies and the four countries. Using a stratified random-digit dialling procedure, households were contacted and screened for adult smokers with the next birthday who would agree to participate in the study. Those who agreed were rescheduled for an in-depth 40-minute phone survey a week later and were sent a cheque to compensate for their time. These participants were asked to respond to questions related to tobacco control policies, smoking behaviour, and associated psychosocial predictors.

Measures

Reported smoking restrictions were assessed for both restaurants and bars using the following questions: ''Which of the following best describes the rules about smoking in restaurants and cafés where you live?'' and ''Which of the following best describes the rules about smoking in drinking establishments, bars, and pubs where you live?'' Response choices for restaurants were: (1) smoking is not allowed in any indoor area; (2) smoking is allowed only in some indoor areas; (3) smoking is allowed in all indoor areas; and (4) every restaurant, café has its own rules. For bars, the response choices were only the first three for restaurants. Respondents were asked whether they had been to these venues in the last six months. If the answer was yes, the person was asked, ''The last time you did so, did you smoke indoors?'' (reported compliance). Attitudes to smoking restrictions were assessed using the question: ''For each of the following public places, please tell me if you think smoking should be allowed in all indoor areas, in some indoor areas, or not allowed indoors at all?'' Daily cigarette consumption was derived from respondents' answers to questions related to whether they smoked daily, weekly or monthly and the average number of cigarettes smoked, including both factory made and roll-your-own cigarettes. Respondents were also asked how often in the last month they had thought about the harm their smoking might do to other people, and to indicate Yes or No to the question: ''Does smoking cause lung cancer in non-smokers from secondhand smoke?''

Extent of smoking restrictions in the four countries

Defining extent of legislative restriction is complex. We defined documented extensive restrictions to mean that there was legislation stating that no smoking was allowed, except in the case of bars, for separately ventilated areas. For restaurants, we expected all eating areas to be smoke-free, but did not extend this requirement to bar areas within restaurants. We were only able to document this at the national and state (province) level, so local ordinances are ignored in our index of documented restrictions. Across the

Table 1 Sample characteristics, cigarette consumption and smoking related thoughts by country (n = 9046)

	Country				
Variables	Australia n = 2301	UK n = 2400	Canada n = 2206	USA n = 2139	Test of significance
Age (years) (%)					
18–24	16.8	8.5	15.6	15.8	χ^2 (9) = 175.98, p<0.001
25–39	36.8	32.4	31.8	30.8	
40–54	32.9	33.9	34.5	33.8	
55+	13.5	25.3	18.0	19.6	
Sex (% female)	52.7	56.6	54.3	55.1	χ^2 (9) = 7.66, p = 0.054
Daily cigarette consumption					
Mean	18.7	16.9	16.6	18.6	F(3, 9035) = 20.74, p<0.001
SD	13.6	11.0	9.7	11.8	
Think about harm of smoking to others					
Mean	2.9	2.7	3.1	3.0	F(3, 9007) = 44.38, p<0.001
SD	1.4	1.4	1.3	1.4	
Believe smoking causes lung cancer in non-smokers from secondhand smoke (% yes)	76.9	82.6	82.2	72.1	χ^2 (3) = 91.22, p<0.001

Percentages for age and sex were based on unweighted data.

four countries, there were considerable differences in the level of smoking restrictions in restaurants and bars at the time of the survey (October to December 2002). Australia had extensive restrictions in restaurants in all jurisdictions except the Northern Territory (n = 25). In the USA, five states—South Dakota (n = 5), Utah (n = 17), California (n = 227), Oregon (n = 31), and Vermont (n = 7)—had extensive restaurant smoking restrictions, and one—Delaware (n = 4)—enacted them during the survey period (restrictions coded differently based on ban date). In addition, in some other states there were local restrictions at the city or municipality level.[30] In Canada, several provinces—British Columbia (n = 221), Newfoundland (n = 40), Nova Scotia (n = 77), and Prince Edward Island (n = 12)—and some local municipalities in other provinces, had extensive restrictions in restaurants. There were no legislative bans in the UK.

Smoking bans in bars were less common in all countries. In the USA, a few dozen localities (not documented) and the entire state of California prohibited smoking in bars at the time of the survey, and Delaware enacted a ban during the survey period.[30] Some local restrictions in bars also existed within some Canadian provinces, particularly in British Columbia. There were no legislated bans in either the UK or Australia.

Weighting procedures

In order to provide the best possible prevalence estimates for each country, we constructed survey weights. These weights were constructed from basic sampling weights (reciprocals of estimated inclusion probabilities) by an adjustment for geographic stratum non-response and stratum attrition between recruitment and main surveys, followed by calibration in each country to national smoker prevalence estimates for groups defined by demographic categories in that country. A full description of the weighting methodology is available at http://www.itcproject.org.

Statistical analysis

SPSS for Windows, version 11.5, was used for all analyses. Percentages reported in tables for Australia, UK, USA, and Canada were based on weighted data except where indicated. Pearson's χ^2 tests for categorical variables and analysis of variance for continuous variables were employed to examine differences across countries in various variables of interest. Logistic regression was undertaken to estimate the odds ratios for each independent variable of interest while adjusting for the other independent variables. For the main analyses, we focus on those respondents who reported having been to the venues in the last six months because the views of such respondents were of more relevance than of those who rarely, if ever, frequented such establishments. Also, we had included, whenever possible, in all our models the levels of both reported and documented venue restrictions to control for their potential confounding. For predictive analyses, we used a square root transformation to normalise the data on cigarette consumption. This resulted in a better model fit than the use of the untransformed data. All modelling used unweighted data.

RESULTS

Table 1 describes the cigarette consumption habits and responses to questions on beliefs about smoking by respondents in each of the four countries. Smokers in Australia and the USA had higher reported consumption than smokers in Canada and the UK. UK smokers had the lowest frequency of thoughts about the harm of smoking to others, while Canadian smokers had the highest. A larger proportion of UK and Canadian respondents endorsed the belief that

Table 2 Variables related to smoking bans in restaurants among those who attended restaurants in last six months by country (n = 8117)

	Country				
Restaurants	Aus	UK	Can	USA	Test of significance
Attended in last 6 months (%)	84.2	88.0	94.3	94.4	χ^2 (3) = 186.26, p<0.001
Among those who attended in last 6 months (n)	1937	2112	2066	2002	
Reported level of bans (%)					
Total indoor area	61.8	5.3	25.7	19.0	χ^2 (9) = 1894.18, p<0.001
Some indoor area	22.8	42.9	46.9	38.4	
Restaurant-based rules	14.7	49.2	25.1	40.5	
No restrictions	0.7	2.6	2.2	2.1	
Documented restrictions (%)					
Extensive bans	98.7	0	16.0	13.7	χ^2 (3) = 5600.22, p<0.001
None or limited bans	1.3	100	84.0	86.3	
Support for indoor restrictions in restaurants (%)					
Total bans in indoor area	71.4	24.2	29.7	26.7	χ^2 (6) = 1271.06, p<0.001
Some indoor areas	27.9	71.2	65.6	67.9	
No restrictions	0.7	4.6	4.6	5.4	
Support for total bans in indoor area (%)					
Reported bans					
Total ban	79.4	73.2	53.3	65.5	χ^2 (3) = 125.70, p<0.001
No total ban	58.7	21.4	21.6	17.5	χ^2 (3) = 517.27, p<0.001
Documented bans					
Extensive	71.6	-	51.1	63.0	χ^2 (2) = 58.13, p<0.001
None/limited	54.2	24.2	25.7	20.9	χ^2 (3) = 23.76, p<0.001
Incidence of smoking in restaurants (%)					
Reported bans in restaurants					
Total ban	2.5	20.4	5.5	4.2	χ^2 (3) = 79.52, p<0.001
No total ban	21.8	73.4	66.1	63.3	χ^2 (3) = 628.33, p<0.001
Documented bans in restaurants					
Extensive	9.5	–	20.8	7.7	χ^2 (2) = 40.34, p<0.001
None/limited	40.0	70.4	56.0	59.0	χ^2 (3) = 101.40, p<0.001

Table 3 Logistic regression predicting support for total ban* in restaurants by reported venue restrictions (n = 7508)

Variables	Attitudes to total ban (OR, 95% CI)		
	Total sample n = 7508	Where total bans in venue reported n = 2133	Where no total bans reported n = 5375
Reported bans			
Total bans	4.19 (3.66 to 4.79)	–	–
Other	1.00		
Documented bans			
Extensive bans	2.26 (1.85 to 2.76)	1.55 (1.16 to 2.07)	2.73 (2.02 to 3.69)
No/limited bans	1.00	1.00	1.00
Age (years)			
18–24	0.47 (0.38 to 0.57)	0.63 (0.43 to 0.92)	0.43 (0.34 to 0.54)
25–39	0.63 (0.53 to 0.74)	0.84 (0.61 to 1.15)	0.57 (0.47 to 0.69)
40–54	0.74 (0.62 to 0.87)	1.01 (0.74 to 1.38)	0.67 (0.55 to 0.81)
55+	1.00	1.00	1.00
Sex			
Male	1.00	1.00	1.00
Female	0.76 (0.68 to 0.85)	0.93 (0.75 to 1.14)	0.70 (0.61 to 0.79)
Daily cigarette consumption†	0.81 (0.78 to 0.85)	0.82 (0.76 to 0.89)	0.81 (0.77 to 0.86)
Think about harm to others	1.20 (1.15 to 1.25)	1.13 (1.05 to 1.22)	1.23 (1.17 to 1.30)
Believe smoking causes lung cancer in non-smokers	2.06 (1.77 to 2.40)	2.01 (1.58 to 2.57)	2.11 (1.74 to 2.57)
Country			
Canada	0.36 (0.29 to 0.45)	0.33 (0.24 to 0.45)	0.35 (0.25 to 0.48)
USA	0.39 (0.31 to 0.49)	0.56 (0.41 to 0.75)	0.33 (0.24 to 0.47)
UK	0.46 (0.36 to 0.59)	0.99 (0.57 to 1.73)	0.41 (0.29 to 0.59)
Australia	1.00	1.00	1.00
Nagelkerke's R^2	0.34	0.13	0.18

*Limited to those who reported having attended restaurants in last 6 months.
†Based on normalised data using a square root transformation.
CI, confidence interval; OR, odds ratio.

secondhand smoke can cause lung cancer in non-smokers compared to their counterparts in Australia and USA.

Smoking restrictions in restaurants

Table 2 presents the reported level of indoor restrictions and support for these restrictions among those who had been to restaurants in the previous six months for the four countries. Reported patronage of restaurants was generally high (84.2–94.4% of the respondents) across the four countries, but was lower in UK and Australia. There was also considerable variation in reported restrictions in restaurants by country, with Australia having the most extensive restrictions. Levels of reported restrictions correspond reasonably well with the levels of documented restrictions: 19.6% reported total bans where there were extensive documented restrictions, 7.8% reported a total ban where one was not documented, 11.4% with documented restrictions nevertheless reported no or limited bans, and 61.2% reported no total bans in accord with the documented situation. Support for smoking bans varied greatly by country, again being strongest in Australia (table 2). For all four countries, those who perceived that there was a smoking ban in restaurants were more supportive of a complete ban than those who reported no total ban in restaurants. Although the focus of this paper is on national differences, it is worth noting that in California in the USA, which has had an extensive ban on smoking in restaurants and bars since 1996, 90% of smoking patrons reported total restaurant bans and 70% supported total bans.

Associates of support for bans were examined using logistic regression. Reported presence of a total ban and documented extensive restrictions were most strongly related to support (table 3). Female smokers and those whose cigarette consumption was greater were less supportive of bans. Support increased with age, was greatest in Australia, and was higher among smokers who reported thinking about the harms of passive smoking more frequently, and among those who endorsed the belief that secondhand smoke can cause lung cancer in non-smokers.

We also conducted separate analyses of associates of support among those smokers who were subject to bans and those who were not. In separate analyses, we explored this by reported restrictions, documented restrictions, and the combination of both (excluding cases which did not coincide). As the results were similar for all these analyses, we simply report the results by reported restrictions in table 3. The results for those not subject to bans were very similar to the overall results. Where there was a reported total ban in restaurants, sex was no longer related to support, the relation with age was reduced, smokers from the UK were no longer less supportive, and the relation with thinking about the harms of passive smoking became marginal.

We also explored whether not smoking in situations where there were no reported bans was related to support for bans, and found it to be a strong predictor. Its addition to the regression model did not alter the strength of other relations. We also conducted the overall analysis for each country separately and generally found that the same model held in each country. There was one exception: in Australia, which has high levels of bans, the results of the model for all smokers was more similar to that for the analysis among those with bans: both sex and frequency of thinking about the harms of passive smoking were no longer significant predictors.

Among smokers who reported total bans, we examined the level of reported compliance with those bans. As can be seen from table 2, reported compliance was generally high, being highest in Australia and lowest in the UK. Logistic regression analysis revealed that reported compliance was higher where there were also documented bans (odd ratio (OR) 2.92, 95% confidence interval (CI) 1.34 to 6.38) and among those supportive of total bans (OR 2.53, 95% CI 1.59 to 4.03), but reported compliance was not related to the other variables, except for country. Specifically, smokers from the UK

Table 4 Variables related to smoking restrictions in bars among those who attended bars in last six months by country (n = 6609)

Bars	Country				Test of significance
	Aus	UK	Can	USA	
Attended in last 6 months (%)	79.2	82.1	70.3	60.9	χ^2 (3) = 313.22, p<0.001
Among those who attended in last 6 months (n)	1817	1963	1539	1290	
Reported level of bans (%)					
Total indoor area	6.8	2.5	12.2	10.0	χ^2 (6) = 626.37, p<0.001
Some indoor area	76.9	46.7	58.1	51.6	
No restrictions	16.4	50.8	29.8	38.4	
Documented restrictions (%)					
Extensive bans	0	0	0	9.8	χ^2 (3) = 533.91, p<0.001
None or limited bans	100	100	100	90.2	
Support for indoor restrictions (%)					
Total bans in indoor area	10.4	2.7	7.2	5.7	χ^2 (6) = 308.85, p<0.001
Some indoor areas	67.4	57.8	54.0	46.1	
No restrictions	22.2	39.5	38.7	48.2	
Support for total bans in indoor area (%)					
Reported bans in bars					
Total ban	20.5	6.3	19.4	27.1	χ^2 (3) = 9.64, p = 0.022
No total ban	9.7	2.6	5.5	3.2	χ^2 (3) = 100.66, p<0.001
Documented bans in bars					
Extensive	–	–	–	24.6	–
None/limited	10.4	2.7	7.2	3.6	χ^2 (3) = 113.59, p<0.001
Support for total bans as a function of restaurant bans (%)					
Reported bans in restaurants					
Total ban	12.7	9.5	12.4	18.1	χ^2 (3) = 6.18, p = 0.103
No total ban	7.5	2.3	5.4	3.3	χ^2 (3) = 44.83, p<0.001
Documented bans in restaurants					
Extensive	10.5	–	12.4	20.5	χ^2 (2) = 15.21, p<0.001
None/limited	–	2.7	6.2	3.5	χ^2 (3) = 26.42, p<0.001
Incidence of smoking in bars (%)					
Reported bans in bars					
Total ban	52.1	85.1	31.2	27.1	χ^2 (3) = 61.75, p<0.001
No total ban	85.6	95.3	91.3	90.8	χ^2 (3) = 101.06, p<0.001
Documented bans in bars					
Extensive	–	–	–	25.2	–
None/limited	83.3	95.0	83.8	90.7	χ^2 (3) = 165.28, p<0.001

remained less compliant (OR 0.32, 95% CI 0.11 to 0.87). Moreover, the model was no different when examined for the four countries separately with two notable exceptions: in the USA, support for smoking bans was not related to reported compliance; and in Canada, adding information about documented bans was not related to compliance.

Bars

Reported patronage in bars in the previous six months showed some variation across the countries, with the UK having the highest and the USA the lowest (table 4). Among bar patrons, there was considerable variation in reported restrictions, with Australia having the highest proportion of those reporting restriction in some indoor bar areas and Canada the highest proportion for total indoor ban. In California, which has banned smoking in bars, reports were much higher at 75%. Australia, by comparison, also had the highest percentage of smokers who supported at least some indoor restrictions. As in the case of restaurants, a greater percentage of smokers who reported total bans in their area supported a total ban in indoor bar areas than those who reported no total ban, and this was true for all four countries. Consistent with documented bans, smokers who reported bans in bars generally reported a ban in restaurants. Support for a ban in bars and restaurants was significantly correlated ($r = 0.37$, $p < 0.001$). Reported compliance among those who reported bans in bars was moderately high for the USA and Canada (72.9% and 68.8%, respectively), but lower for Australia and the UK. In those relatively few regions of the USA with documented bans (essentially California), reported compliance among those also reporting bans was even higher, at 82.5%, a level of compliance that was still much lower than for restaurants.

Logistic regression showed that the same variables related to support for bans in restaurants also applied to bars (table 5). In addition, both reported and documented restrictions in restaurants were also significantly related to support for bans in bars. When both reported and documented bans in restaurants were included in the model, there were no longer any significant differences among countries.

DISCUSSION

In considering the implications of this study, it is important to keep in mind that the sample consists of smokers. Non-smokers have more positive attitudes to smoke-free areas.[10 31] This study is the first to examine both the prevalence of smoking bans across four different countries, and as such, our results revealed much about the psychosocial and behavioural effects of smoking bans in restaurants and bars and how these vary across the four study countries. Australia is leading the way in restricting smoking in restaurants, and Australian smokers most strongly support bans. UK smokers were the least likely to both report bans and to support them. In the USA and Canada, there was considerable within-country variation, with California having higher reported bans and marginally higher support for total bans than Australia. Across the four countries, smoke-free restaurants were far more prevalent than smoke-free bars and support for smoke-free in bars was far lower, even where bans are in place.

The most important limitation of this study is in characterising what restrictions each smoker actually was

Table 5 Logistic regression predicting support for total ban in bars* (n = 6037)

Variables	Attitudes to total ban OR (95% CI)
Reported bans in bars	
Total bans	2.79 (2.05 to 3.79)
Other than total bans	1.00
Documented bans in bars	
Extensive	1.62 (0.81 to 3.26)
None or limited	1.00
Age (years)	
18–30	0.43 (0.28 to 0.65)
31–45	0.61 (0.43 to 0.86)
46–60	0.87 (0.62 to 1.23)
61+	1.00
Sex	
Male	1.00
Female	0.86 (0.69 to 1.07)
Daily cigarette consumption†	0.82 (0.76 to 0.89)
Think about harm to others	1.22 (1.12 to 1.33)
Believe smoking causes lung cancer in non-smokers	2.13 (1.51 to 2.99)
Reported bans in restaurants	
Total bans	1.69 (1.31 to 2.18)
Other than total bans	1.00
Documented bans in restaurants	
Extensive bans	1.67 (1.08 to 2.56)
None/limited bans	1.00
Country	
Canada	0.93 (0.62 to 1.40)
USA	0.68 (0.40 to 1.17)
UK	0.52 (0.30 to 0.90)
Australia	1.00
Nagelkerke's R^2	0.14

*Limited to those who reported having attended bars in last 6 months.
†Based on normalised data using a square root transformation.

subject to. We used both self-report and documented restrictions. Both have limitations. Getting information on jurisdictional bans below the level of state/province was not practical, so we were unable to document local ordinances where these are possible (USA and Canada). We were also not able to document proprietor-initiated restrictions. Further, documented bans need to be considered in the light of any exemptions. Governmental restrictions should be applied evenly within the jurisdiction, although implementation may vary. However, it is common for laws to have exemption clauses, where the consequences differ by type of establishment. For example, exemption of bar areas in restaurants effectively allows smoking in parts of those establishments, sometimes in the same physical space as the restaurant seating area, whereas, under the same law, restaurants without bars will have total bans throughout the premises. Thus what can appear from a superficial appraisal of the policy as a complete ban, can be experienced by smokers (or others) as quite different requirements in different types of establishments. This means that at least some of the apparent disparity between reported and documented restrictions may represent legitimate experiences grounded in real differences, not lack of perceptiveness by the smokers.

Reported restrictions also have limitations. Individuals presumably respond to questions about the existence of rules based on a mix of what they know to be legislated and what they remember experiencing at individual venues they visit. Thus it is possible for residents of a jurisdiction with total bans in restaurants but not in bar areas to perceive that smoking is allowed in some areas of some restaurants. Some smokers reporting restrictions where we report no extensive restrictions could be either responding to local jurisdictional initiatives (in the USA and Canada) or to proprietor-driven bans. Further, some of those reporting limited bans in areas where there are notionally extensive ones may be focusing on the exemptions, or areas of low compliance. Related to this, reports of limited restrictions can vary greatly in what is referred to: from total bans with limited exemptions to separate seating areas within the same space. Also, where bans exist, but are not complied with, smokers may think there are no real restrictions. Taken together, anything short of observation is unlikely to provide totally valid indices of what actually happens, and even here establishments with no formal restrictions may not have any smoking in them on some occasions.[7]

The above limitations mean that this study (like all surveys) should be used with caution in estimating the prevalence of strong and effective restrictions on smoking in either kind of venue. However, this study is likely to be valid for identifying between country diversity and for predicting support for bans and reported compliance with smoke-free requirements. Here the results are consistent and robust, with essentially the same results found when we analysed as a function of reported restrictions, documented restrictions, or a combination of the two.

Support for smoke-free environments is much stronger when they are mandated to occur or are experienced as being in place as was predicted. Further, where smokers have had comparable experiences (for example, restaurant bans) they are more likely to support bans in other areas, in this case bars. The cross-sectional nature of this study means that this, of itself, cannot be used to make strong causal links. However, there is now strong evidence that support for smoke-free policies in many kinds of venues, including workplaces and restaurants, increases following their implementation.[9 26] Taken together, this strongly suggests that at least part of the stronger support for bans where they are in place is a result of the better than expected experiences of them. In other words, the majority of cigarette smokers appear able to easily adapt and eventually support smoking bans whether they occur where they work, dine out, or drink. Perceived or experienced ability to adapt is also important. Smokers who voluntarily did not smoke where there were no restrictions were more supportive of bans, and support for bans was also strongly related to compliance, at least as reported.

Support for restrictions on smoking in bars was less strong. This appears to be only partly due to lower levels of restrictions in bars. Although we found similar predictors of support, they accounted for less of the variance. Perceived or real synergistic effects of smoking and alcohol consumption[32] may be important here.

The results show expected effects for the smoking-related covariates: both the frequency of having thoughts about the harm smoking can do to others and the belief that passive smoking is harmful contributed independently as predictors of support for restrictions, while heavier smokers were more likely to be opposed to such restrictions. This pattern of results demonstrates that in addition to beliefs that passive smoking is harmful, the frequency of accessing those beliefs also contributes to the impact such beliefs may have in creating support for smoking bans. The role of the frequency of accessing such beliefs seems to be particularly important when bans are not in place. This result has implications for the design of public health campaigns designed to increase support for smoking bans.

There were some interesting sex and age effects. Female smokers were less likely to support bans (clearly in restaurants, marginally in bars). In restaurants, at least, this was clearest where they reported not being exposed to total bans. Support also increased with the age of the smoker in both venues. Again, for restaurants this effect was most pronounced where no bans were reported. Even after

controlling for the covariates, there remained a country effect in support for restaurant bans with Australians being most supportive. This may be because of the pervasive nature of restaurant bans in Australia, or it could reflect some other unmeasured difference between Australian smokers and those from the other three countries. By contrast, when we included the measures of restaurant bans as predictors of support for bans in bars, the country effect disappeared. This is consistent with the more pervasive experience of bans in Australia being a key factor. The high level of support for bans in jurisdictions with documented bans is also consistent with this interpretation. It is possible that the pervasive bans on smoking in eating areas, even in bars, may be leading to more Australian smokers not smoking when visiting such establishments, as to smoke they would need to leave the area where they are seated. This would produce more experience of visiting bars and not smoking. However, as we did not ask about the specific activities our respondents engaged in, this remains speculative.

The findings reported here have several implications for jurisdictions contemplating banning smoking in recreational venues such as these. First, public support (including among smokers) can be strengthened by both informing the public about the adverse health effects of passive smoking and by encouraging them to continue thinking about the issue. Once bans are implemented there will be less need for public information as the bans seem to be largely self enforcing and, once smokers experience them, rapidly become accepted. Second, there is likely to be greater opposition from smokers to bans in bars than in restaurants, but even here post-implementation opposition is likely to decline. It is not clear why support for bans in bars is less strong even where they are implemented. It could be because the experience is overall less positive for smokers than bans in restaurants, or it could be in part due to bans in restaurants still being a novelty. The latter is made less likely, in that support in California (essentially the only US jurisdiction with bans) was still at only a little over one quarter. However, the interactive adverse effects of alcohol and tobacco on health[33] mean that policymakers cannot afford to make a long term exception for bars. The policy strategy of moving first on restaurants and then to bars may be politically more feasible, but such a strategy should not require separate legislation; instead, it should specify a later implementation date for bars. In the present study, we found no clear evidence of strong widespread antagonism to bans in bars where they were in place, so policymakers can implement comprehensive bans in recreational venues confident in their practicality and general acceptability.

Compliance in restaurants was generally high and unrelated to beliefs about harms of passive smoking or cigarette consumption. Compliance was reported as higher where smokers support the ban, and was less in the UK. The latter finding may be due to failure to control fully for the contribution of having documented area-wide bans. As far as we know there are no laws mandating bans in restaurants in the UK, so any perceived bans would be those imposed by proprietors. This may explain their lower compliance levels. The high level of not smoking in the presence of partial bans in Australia, as compared to the other countries, is consistent with partial restrictions in Australia being more stringent. Many of the rooms used as restaurants in bars in Australia do not have any smoking even where there is a bar (proprietors' decisions). So patrons who use such places primarily to eat would need to move to another room to smoke, something that may often be inconvenient. Thus they may be less likely to smoke inside the establishment as compared with someone who can smoke in the same room, even though both report a partial ban. That support for bans is related to reported compliance suggests that gaining and sustaining public support for bans is a crucial aspect of trouble-free implementation. Once implemented, bans seem to be largely self-enforcing, but this may be dependent on smokers not forming strongly antagonistic views about them.

Care should be taken in generalising these findings to other countries, especially where cultural traditions are quite different or where smoking is more normative. That said, we can think of few countries with more established bar traditions than the four we have studied, so would be surprised if our findings for bars did not translate, or that there was stronger support in other countries, given a similarly informed population of smokers. For restaurants, cultural traditions are more similar, and we see no clear reasons to doubt that the broad findings would apply. Our results suggest a well educated population of smokers is likely to support bans, and once implemented, to comply. We can see no reason as to why this would not generalise.

What this paper adds

Although between-country variation in the prevalence of smoking bans in restaurants and bars is widely known, to date, systematic study has yet to be carried out and little is known about the psychosocial and behavioural effects of smoking bans on smokers in such venues.

Using baseline data from the International Tobacco Control Four Country Survey, the present study demonstrated that once implemented, support for and reported compliance with smoke-free policies in restaurants and bars are high and their associates are also fairly similar across the four countries being studied. These findings provide further support and reassurances for policymakers to implement a comprehensive smoke-free policy in restaurants and bars without fear of retribution from smokers. The similarity of associates of support and compliance across the four countries is likely to mean that intervention strategies can have a high degree of universality.

Conclusions

The determinants of support for and reported compliance with smoking bans in restaurants and bars appear to be the same in the four countries we studied. Taken as a whole, this and other research strongly suggests that comprehensive smoke-free policies, once implemented, will attract support from smokers and compliance will be high. Both are likely to be increased by educating smokers of the need for the policies.

ACKNOWLEDGEMENTS

We wish to thank Ruth Loewen and Pete Driezen for data management. This research was supported by grants from the Canadian Institutes for Health Research (57897), Robert Wood Johnson Foundation (045734), Cancer Research U.K.(C312/A3726), Australian Commonwealth Department of Health and Ageing, the National Health and Medical Research Council of Australia (265903), Canadian Tobacco Control Research Initiative, and the Centre for Behavioural Research and Program Evaluation of the National Cancer Institute of Canada/Canadian Cancer Society.

Authors' affiliations

R Borland, H-H Yong, M Siahpush, The Cancer Council Victoria, Victoria, Australia
A Hyland, K M Cummings, Department of Health Behavior, Roswell Park Cancer Institute, Buffalo, New York, USA
S Campbell, Centre for Behavioral Research and Program Evaluation, University of Waterloo, Waterloo, Ontario, Canada
G Hastings, University of Stirling, and The Open University, UK
G T Fong, Department of Psychology, University of Waterloo, Canada

Ethics approval: The study protocol was cleared for ethics by the Institutional Review Boards or Research Ethics Boards in each of the countries: the University of Waterloo (Canada), Roswell Park Cancer Institute (USA), the University of Illinois-Chicago (USA), the University of Strathclyde (UK), and The Cancer Council Victoria (Australia).

REFERENCES

1 **Clarke J**, Borland R, McGartland M. The effects of smoking outside workplaces on non-regular smokers. *J Occup Environ Med* 1997;**39**:734–9.
2 **Brownson RC**, Hopkins DP, Wakefield M. Effects of smoking restrictions in the workplace. *Annu Rev Public Health* 2002;**23**:333–48.
3 **Parry O**, Platt S, Thomson C. Out of sight, out of mind: workplace smoking bans and the relocation of smoking at work. *Health Promotion International* 2000;**15**:125–33.
4 **Shopland DR**, Gerlach KK, Burns DM, *et al*. State-specific trends in smoke-free workplace policy coverage: the current population survey tobacco use supplement, 1993 to 1999. *J Occup Environ Med* 2001;**43**:680–6.
5 **Wakefield M**, Roberts L, Owen N. Trends in prevalence and acceptance of workplace smoking bans among indoor workers in South Australia. *Tobacco Control* 1996;**5**:205–8.
6 **Borland R**, Morand M, Mullins R. Prevalence of workplace smoking bans in Victoria. *Aust N Z J Public Health* 1997;**21**:694–8.
7 **Chapman S**, Borland R, Lal A. Has the ban on smoking in New South Wales restaurants worked? A comparison of restaurants in Sydney and Melbourne. *Med J Aust* 2001;**174**:512–5.
8 **Miller C**, Wakefield M, Kriven S, *et al*. Evaluation of smoke-free dining in South Australia: support and compliance among the community and restaurateurs. *Aust N Z J Public Health* 2002;**26**:38–44.
9 **Cameron M**, Letcher T, Trotter L, *et al*. Smokefree dining: community attitudes. In: *Centre for Behavioural Research in Cancer. Quit Evaluation Studies, Number 11*. Melbourne: The Cancer Council Victoria; 2003, Report No.11.
10 **Tang H**, Cowling DW, Lloyd JC, *et al*. Changes of attitudes and patronage behaviors in response to a smoke-free bar law. *Am J Public Health* 2003;**93**:611–17.
11 **Rohrbach LA**, Howard-Pitney B, Unger JB, *et al*. Independent evaluation of the California tobacco control program: relationships between program exposure and outcomes, 1996–1998. *Am J Public Health* 2002;**92**:975–83.
12 **Hyland MA**, Cummings KM, Nauenberg E. Analysis of taxable sales receipts: was New York City's Smoke-Free Air Act bad for business? *Journal of Public Health and Management Practice* 1999;**5**:14–21.
13 **Sciacca J**, Ratcliff M. Prohibiting smoking in restaurants: effects on restaurant sales. *Am J Health Promotion* 1998;**12**:176–84.
14 **Glantz SA**, Smith LRA. The effect of ordinances requiring smoke-free restaurants on restaurant sales. *Am J Public Health* 1994;**84**:1081–5.
15 **Glantz SA**, Smith LRA. The effect of ordinances requiring smoke-free restaurants and bars on revenues: a follow-up. *Am J Public Health* 1997;**87**:1687–93.
16 **Scollo M**, Lal A, Hyland A, *et al*. A review of the quality of studies on the economic effects of smoke-free policies on the hospitality industry. *Tobacco Control* 2003;**12**:13–20.
17 **Trotter L**, Mullins R. Environmental tobacco smoke: public opinions and behaviour in 2000–01. In: Letcher T, Trotter L, eds. *Quit Victoria Research and Evaluation Studies No: 11, 2000–01*. Melbourne: Victorian Smoking and Health Program, 2003.
18 **Lader D**, Meltzer H. *Smoking related behaviour and attitudes, 2002*. London: Office for National Statistics, 2003.
19 **Walsh RA**, Tzelepis F, Paul CL, *et al*. Environmental tobacco smoke in homes, motor vehicles and licensed premises: community attitudes and practices. *Aust N Z J Public Health* 2002;**26**:536–42.
20 **Canadian Tobacco Use Monitoring Survey 2001**. Environmental tobacco smoke: at home, at work, and in public places, http://www.hc-sc.gc.au/hecs-sesc/tobacco/research/ctums/2001/2001ets.html(Accessed 2 July 2004).
21 **Lader D**, Goddard E. *Smoking related behaviour and attitudes, 2003*. London: Office for National Statistics, 2004.
22 **Siahpush M**, Scollo M. Trends in public support for smoking bans in public places in Australia. *Aust N Z J Public Health* 2001;**25**:473.
23 **Walsh RA**, Tzelepis F. Support for smoking restrictions in bars and gaming areas: review of Australian studies. *Aust N Z J Public Health* 2002;**27**:310–22.
24 **Walsh RA**, Paul CL, Tzelepis F. Overwhelming support for smoking bans. *Aust N Z J Public Health* 2000;**24**:640–1.
25 **Schofield MJ**, Edwards K. Community attitudes to bans on smoking in licensed premises. *Aust J Public Health* 1995;**19**:399–402.
26 **Borland R**, Owen N, Hill D, *et al*. Changes in acceptance of workplace smoking bans following their implementation: a prospective study. *Prev Med* 1990;**19**:314–22.
27 **Borland R**. Changes in prevalence of and attitudes to restrictions on smoking in the workplace among indoor workers in the State of Victoria, Australia, 1988–90. *Tobacco Control* 1992;**1**:19–24.
28 **Borland R**, Owen N, Hocking B. Changes in smoking behaviour after a total workplace smoking ban. *Aust J Public Health* 1991;**15**:130–4.
29 **American Association for Public Opinion Research 2000**. Standard definitions: final dispositions of case codes and outcome rates for surveys, http://www.aapor.org/default.asp?page=survey_methods/standards_and_best_practices/standard_definitions (Accessed 10 June 2004).
30 **Office of Smoking and Health 2003**. CDC's STATE: tobacco legislation reports, http://www2.cdc.gov/nccdphp/osh/state/legislation_files/restaurant.asp (Accessed 10 June 2003).
31 **Miller C**, Kriven S. Public support for smoking bans in bars and gaming venues. *Aust N Z J Public Health* 2001;**25**:275–6.
32 **Rose JE**, Brauer LH, Behm FM, *et al*. Psychopharmacological interactions between nicotine and ethanol. *Nicotine Tob Res* 2004;**6**:133–44.
33 **International Programme on Clinical Safety**. Health effects of interactions between tobacco use and other agents. In: *Environmental health criteria*. Geneva: World Health Organization, 1999.