

# Effect of smoke-free policies on the behaviour of social smokers

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## Abstract

**Objective**—To test the hypothesis that proposed amendments to the Occupational Safety and Health Act making all enclosed workplaces in Western Australia smoke free would result in a decrease in cigarette consumption by patrons at nightclubs, pubs, and restaurants without adversely affecting attendance.

**Design**—Cross sectional structured interview survey.

**Participants and setting**—Patrons of several inner city pubs and nightclubs in Perth were interviewed while queuing for admission to these venues.

**Outcome measures**—Current social habits, smoking habits, and how these might be affected by the proposed regulations. Persons who did not smoke daily were classified as “social smokers.”

**Results**—Half (50%) of the 374 patrons interviewed were male, 51% currently did not smoke at all, 34.3% smoked every day, and the remaining 15.7% smoked, but not every day. A clear majority (62.5%) of all 374 respondents anticipated no change to the frequency of their patronage of hospitality venues if smoke-free policies became mandatory. One in five (19.3%) indicated that they would go out more often, and 18.2% said they would go out less often. Half (52%) of daily smokers anticipated no change to their cigarette consumption, while 44.5% of daily smokers anticipated a reduction in consumption. A majority of social smokers (54%) predicted a reduction in their cigarette consumption, with 42% of these anticipating quitting.

**Conclusions**—One in nine (11.5%) of smokers say that adoption of smoke-free policies would prompt them to quit smoking entirely without a significant decrease in attendance at pubs and nightclubs. There can be few other initiatives as simple, cheap, and popular that would achieve so much for public health.

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clubs, pubs, and restaurants, would become smoke free. Penalties for non-compliance would be severe for both patron and proprietor (\$500 for individuals, \$5000 for bodies corporate).

The impact of these regulations on the hospitality industry has been a subject of considerable attention within the media. Concerns persist regarding the economic consequences of such a policy, with the Western Australian Hotels Association fearing reduced patronage and therefore revenue,<sup>2</sup> despite good evidence from the United States that turnover is not affected.<sup>3</sup> Moreover, recent work by the Ministerial task force on passive smoking<sup>4</sup> and others<sup>5</sup> has shown that proprietors could expect little change in attendance if their establishments were made smoke free. Other studies have shown that there would be benefits to health from such policies, as smoke-free entertainment venues would see total cigarette consumption fall.<sup>6,7</sup>

Our study aimed to evaluate how the public might change its patronage of nightclubs, pubs, and restaurants and its smoking behaviour in response to smoke-free policies becoming mandatory in these venues. In previous investigations, participants in surveys identifying their anticipated behavioural change in response to smoke-free policies have been categorised simply as either “smokers” or “non-smokers.”<sup>4,5</sup> We refined this, classifying smoking habits on the basis of patterns of cigarette consumption. We paid particular attention to the “social smokers”—individuals who smoke a large proportion of their cigarettes when they go out to “hospitality venues,” that is, nightclubs, pubs, and restaurants. Our central question was how the patronage and smoking behaviour of this subgroup of smokers might change if indoor areas of these venues became smoke free.

As the debate developed it became clear that the public and many restaurateurs supported adoption of smoke-free policies in restaurants. Therefore we confined our survey to patrons of pubs and nightclubs, venues which are subject to different forms of liquor licence but which can both offer alcohol, live music, and dancing.

## Methods

### SUBJECTS

We conducted a cross sectional study on four weekend nights between May and August 1998. The survey population consisted of a convenience sample of individuals waiting in queues for admission to two pubs and one

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There has been debate in Western Australian State Parliament and in the community for over a year concerning the introduction of new regulations governing smoking in workplaces. Amendments to the Occupational Safety and Health Act<sup>1</sup> proposed in 1997 would mean that all indoor areas of workplaces, including night-

nightclub in the Perth inner city suburb of Northbridge, the principal "night life" area of the state. Between two and four members of the research team interviewed each patron of the pub or nightclub who joined the end of the queue, using a standardised interview schedule. It was estimated that less than 5% of individuals approached refused the survey. In all, 374 patrons were interviewed.

#### QUESTIONNAIRE

Data were collected using a structured interview developed by reviewing published reports and incorporating questions from previously administered surveys.<sup>4,5</sup> After pilot testing of 40 subjects, the questionnaire was modified slightly before the definitive study began. The final interview schedule consisted of nine items covering frequency of visits to hospitality venues, smoking habits on both usual days and social occasions, and how these might be affected by the proposed smoke-free policies.

#### STATISTICAL ANALYSIS

Interview forms were coded and the data analysed using SPSS and  $\chi^2$  tests. The smoking status of the subjects was classified in two ways. First, based on questions developed by a national expert committee<sup>6</sup> convened by the Australian Institute of Health and Welfare, subjects who chose "daily" to describe their smoking habit were designated daily smokers, those who chose "at least weekly," "less often than weekly," or "only when I go out to a nightclub, pub or restaurant" were designated social smokers, and those who chose "not at all" were designated non-smokers. This is similar to the approach taken by the ministerial task force on passive smoking.<sup>4</sup>

We also attempted to assess the social component of cigarette consumption by examining the proportion of smokers' weekly cigarette consumption that was smoked in a nightclub, pub or restaurant. This proportion was calculated using the formula:

$$\% \text{ Social component} = \frac{N \times S}{(N \times S) + (N \times d/2) + [(7-N) \times d]} \times 100$$

where: N is the number of days each week that the person visited a nightclub, pub, or restaurant; S is the number of cigarettes smoked on these social occasions; and d is the number of cigarettes smoked on usual days.

The formula reflects our assumption that on days when subjects smoked in a social setting their usual daily consumption would be halved.

Smokers were then divided into two groups—"high proportion social smokers" and "low proportion social smokers" in relation to the median of 41% of total weekly consumption of cigarettes being smoked in a social setting. This division identified respondents who smoked a large proportion of their cigarettes in a social setting, if they did smoke every day.

Using these two definitions of a social smoker—"non-daily" and "high proportion social smokers"—we examined the relations between anticipated changes in smoking habits and attendance at nightclubs, pubs, and restaurants after the introduction of smoke-free policies and age ( $\leq 23$  years and  $\geq 24$  years), sex, and previous daily smoking status of the interviewees.

Some social smokers who indicated an intention to quit or to reduce their cigarette consumption in response to the new policies may previously have been daily smokers who had become social smokers on their way to eventual abstinence from smoking. This pattern of behaviour could lead to overestimation of the likely impact of restrictions on smoking in reducing the cigarette consumption of social smokers. Thus we also separately examined the anticipated impact of the new regulations on non-daily smokers who had previously smoked daily.

Finally, we evaluated the frequency of visits to nightclubs, pubs, and restaurants according to smoking status. Those who attended these venues once a week or less were designated "low attendance," and those that attended more than once a week were designated "high attendance."

#### Results

Of the 374 subjects interviewed, 50% were female. Just over half the respondents (50.9%) were non-smokers, 34.3% were daily smokers, and 15.7% were non-daily smokers. As indicated above, the median proportion of cigarettes smoked in a social setting was 41%. Table 1 shows that the proportion of smokers among patrons aged 20–34 years was much higher than national figures<sup>8</sup> for the prevalence of smoking (49.3% *v* 33.2%). The median age of respondents was 23 years, with a range of 16–56 years. Daily smokers were more common among patrons older than 23 years (39.6% *v* 28.6%), with a corresponding significantly greater frequency of non-smokers in the younger age group (57.7% *v* 44.8%) ( $\chi^2 = 118.9$ , degrees of freedom (df) = 2,  $p < 0.0001$ ). More male subjects smoked daily (38.5% *v* 29.9%) with equal prevalences of non-smoking across the sexes ( $\chi^2 = 136.0$ , df = 2,  $p < 0.0001$ ). Equal proportions (61%) of daily smokers and non-smokers reported going out to social venues more than once a week, but 60% of non-daily smokers said that they went out less often than this ( $\chi^2 = 8.8$ , df = 2,  $p < 0.01$ ).

A clear majority (62.5%) of respondents anticipated no change in their patronage of nightclubs, pubs, and restaurants if smoke-free policies were introduced, but there were

Table 1 Comparison of sample with national data for prevalence of smoking

Age group (years)	Present study			National survey <sup>8</sup>		
	n	Per cent smokers	95% CI	n	Per cent smokers	95% CI
16–19	59	39.0	26.6 to 51.4	317	30.0	25.0 to 35.0
20–24	154	44.2	36.4 to 52.0	459	33.3	29.0 to 37.6
25–29	88	58.0	47.7 to 68.3	517	34.8	30.7 to 38.9
30–34	44	62.5	48.2 to 76.8	607	33.4	29.6 to 37.2
Total	345*	49.3	44.0 to 54.6	1900	33.2	31.1 to 35.3

\*29 respondents aged 35–56 years omitted from the table because of small age specific numbers.  $\chi^2 = 118.9$ , df = 2,  $p < 0.0001$ . CI, confidence interval.

Table 2 Anticipated change in patronage by smoking status

	Daily smoker (n=128)		Non-daily smoker (n=55)		Non-smoker (n=190)		Total (n=373)	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
More often	3.1	0.1 to 6.1	7.3	0.4 to 14.2	33.7	27.0 to 40.4	19.3	15.3 to 23.3
Less often	41.4	32.9 to 49.9	16.4	6.6 to 26.2	3.2	0.7 to 5.7	18.2	14.3 to 22.1
Just as often	55.5	46.9 to 64.1	76.3	65.1 to 87.5	63.1	56.2 to 70.0	62.5	57.6 to 67.4

$\chi^2 = 106.0$ ,  $df = 4$ ,  $p < 0.00001$  (one missing observation).  
CI, confidence interval.

Table 3 Anticipated change in cigarette consumption by smoking status

	Daily smoker (n=128)		Non-daily smoker (n=55)		Total smokers (n=183)	
	%	95% CI	%	95% CI	%	95% CI
Unchanged	52.3	43.6 to 61.0	43.6	30.5 to 56.7	49.7	42.5 to 56.9
Decreased	38.3	29.9 to 46.7	32.7	20.3 to 45.1	36.6	29.6 to 43.6
Quit smoking	6.3	2.1 to 10.5	23.6	12.4 to 34.8	11.5	6.9 to 16.1
Increased	3.1	0.1 to 6.1	0.0	—	2.2	0.1 to 4.3

$\chi^2 = 12.76$ ,  $df = 3$ ,  $p = 0.005$ .  
CI, confidence interval.

significant differences between subgroups defined by smoking habits (table 2). Almost one in five (19.3%) of respondents (including one third of the half of the total sample who were non-smokers) indicated that they would go out more often and 18.2% (77.9% of whom were daily smokers) would decrease patronage. Social (non-daily) smokers were least likely to change their patronage (76.3%), while 16.4% of this group anticipated a decrease in patronage. When the analysis was limited to smokers, 37% of the low proportion social smokers said that they would go out less often, 59% anticipated no change, and 4% said they would go out more often. The corresponding figures for high proportion social smokers were 29%, 65%, and 6%.

Table 3 shows that half the daily smokers (52.3%) anticipated that the adoption of smoke-free policies would have no impact on their cigarette consumption. Most of the remainder (38.3%) felt that their daily consumption would fall, and 6.3% said that they would quit altogether. Almost one third of social smokers (32.7%) anticipated reducing their cigarette consumption and over one in five (23.6%) indicated that adoption of smoke-free policies in hospitality venues would prompt them to quit. The same pattern was evident in each sex and in both younger and older age groups (data not shown). Forty per cent of high proportion social smokers would decrease their consumption if smoke-free policies came into force, and 15% said that such a change would prompt them to quit. The corresponding figures for low proportion social smokers were 34% and 8%. While the differences between the groups defined by daily/non-daily smoking were obviously significant ( $\chi^2 = 12.76$ ,  $df = 3$ ,  $p = 0.005$ ), the most important aspect of these data is the implication that adoption of smoke-free policies could prompt one in nine of all smokers to give up the habit entirely.

Among the 55 smokers who did not smoke daily at the time of our survey, the 33 individuals who had never smoked daily were somewhat more likely than those who had pre-

viously smoked daily to report that adoption of smoke-free policies would prompt them to quit smoking. This difference (27% v 18%) did not reach statistical significance.

## Discussion

Our findings are similar to those of previous studies<sup>4-5</sup> with respect to the anticipated effects of smoke-free policies on patronage of hospitality venues. Proprietors of nightclubs, pubs, and restaurants can expect little change to attendances, as the decrease in attendance by daily smokers would be balanced by an increase in attendance by non-daily smokers and by non-smokers. While non-daily smokers appear inclined to alter their smoking habits in order to maintain their social activities, daily smokers perceive themselves as more likely to change their social behaviour, presumably in order to continue smoking. Substantial numbers of non-smokers may currently be avoiding these venues, deterred by the smoke-filled atmosphere and concerns about passive smoking,<sup>9</sup> and therefore were not sampled in this survey. The great majority (94%) of non-smokers expressed such concerns in a survey of 800 Western Australians conducted for the ministerial task force on passive smoking.<sup>4</sup> The same survey even showed that 29% of smokers prefer a smoke-free environment for social occasions.<sup>4</sup>

The prevalence of smokers in our sample was considerably higher than that reported from a recent national survey.<sup>10</sup> This may partly reflect the care we took to identify individuals who do not smoke every day, but it also supports anecdotal observations from the hospitality industry that smokers are overrepresented in its clientele. Our data suggest that there might be an increase in overall patronage if hospitality venues became smoke-free, but the impact on alcohol consumption, and therefore on turnover, is less clear. While Johnson and Jennison<sup>11</sup> note that heavy smokers have a higher alcohol consumption than lighter or non-smokers, this is a general observation rather than one made in social settings. At the very least, an increase in patronage following introduction of smoke-free policies would partially offset any drop in average sales per customer. There are now objective data from 81 localities in six states of the USA showing that smoke-free policies do not lead to a downturn in sales in hospitality venues,<sup>12</sup> and even some evidence that they can result in a net economic benefit.<sup>13</sup>

We have shown that adoption of smoke-free policies in hospitality venues could prompt many non-daily smokers to decrease their cigarette consumption. Were this to occur, it would have direct and indirect benefits for their health, by preventing damage that even light smoking may do to health, and also by eliminating the possibility that they will progress to heavier levels of consumption. These positive outcomes would be additional to the elimination of exposure to environmental tobacco smoke among staff and members of the public who visit these establishments. While a proportion of social smokers might

progressively decrease their cigarette consumption solely on the basis of current negative social attitudes towards smoking, it seems that adoption of smoke-free policies would accelerate this process. Furthermore, our analysis of previous daily smoking status of current non-daily smokers shows that a large part of the potential decline in cigarette consumption in this group would be the result of the new smoke-free policies rather than a continuation of an established process of cessation.

Apart from the convenience nature of our sample, a limitation of this study is its reliance on the perceptions of smokers regarding likely changes to their consumption under the new regulations. Identifying which subjects would fulfil such predictions is difficult.<sup>14</sup> Furthermore, the initial large decrease in cigarette consumption predicted by our study might diminish over time,<sup>6</sup> although it would also reinforce non-smoking as the social norm.

Finally, we did not include patrons of restaurants in the study. Given the strong desire in the community for smoke-free dining, as indicated by Mullins and Borland,<sup>15</sup> one might expect patronage of restaurants to increase if these became smoke-free environments.

The primary aim of the changes to the Occupational Safety and Health Act<sup>1</sup> was to effect a reduction in passive smoking by employees. Our study has shown that the amendments would have a secondary effect of promoting a reduction in the consumption of cigarettes by patrons. This would have its greatest impact on those who do not currently smoke every day. Overall, 11.5% of current smokers predict that they would quit entirely were comprehensive smoke-free policies to be introduced in the hospitality industry. Our survey indicates that this very significant gain for public health would be achieved without any negative impact on the patronage of pubs nightclubs, and restaurants.

#### Addendum

After extensive public and Parliamentary debate, the Health (Smoking in enclosed public places) Regulations 1999 were introduced in Western Australia in April 1999. They

require that all indoor places to which the public has access are smoke-free. While this includes many restaurants, exemptions are provided for (parts of) many other hospitality venues, including the bingo centre run by the Royal Western Australian Institute for the Blind as a fund raising venture, and the local casino. Some, but not all, of these exemptions are of finite duration, after which full smoke-free policies will come into force. The regulations made under the Occupational Safety and Health Act in 1997 appear to require that all workplaces are smoke free, but remain to be tested at law.

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