Support for Smoke-Free Restaurants Among Massachusetts Adults, 1992–1999

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A B S T R A C T

Objectives. The authors examined trends and predictors of public support for smoke-free restaurants in Massachusetts.

Methods. Since 1992, the Massachusetts Behavioral Risk Factor Surveillance System has asked survey respondents about their attitudes toward smoking in restaurants. Analyses using data from 1992 to 1999 characterized changes over time in support for smoke-free restaurants and the role of demographic and smoking-related factors in predicting support.

Results. During 1992 to 1999, the rate of support for smoke-free restaurants increased from 37.5% to 59.8%, with similar increases among current, former, and never smokers. After adjustment for smoking status, support was associated with socioeconomic characteristics, race/ethnicity, and household smoking rules. Among current smokers, lighter smokers and those who were trying to quit were more likely to endorse smoke-free restaurants.

Conclusions. There has been a substantial increase in support for smoke-free restaurants among both smokers and nonsmokers in Massachusetts. (*Am J Public Health.* 2001;91:300–303)

Efforts to implement smoke-free restaurant laws have proved contentious, despite the documentation of measurable levels of carcinogens in environmental tobacco smoke,[1] exposure of restaurant workers to high levels of environmental tobacco smoke,[2] and the suggestion of both acute and chronic effects of exposure on the health of these workers.[2,3] Opposition to smoke-free restaurants has come primarily from the tobacco industry, organizations of smokers, and restaurant associations. Despite the controversy, increasing numbers of localities have implemented regulations to make restaurants smoke free. In Massachusetts, the percentage of the population living in communities essentially prohibiting smoking in restaurants increased from 0.2% in 1992 to 30.0% in 1998.[4]

A number of studies have considered the economic effect of smoke-free restaurant laws, either through analyses of their impact on employment or sales[5–13] or through surveys of the public's intentions or behavior with respect to patronizing restaurants after the implementation of regulations.[14,15] However, there have been almost no published studies of levels of public support for smoke-free restaurants.

The Massachusetts Department of Public Health has been collecting information on public opinion regarding smoking restrictions in different public settings, including restaurants, since 1992. Our goals in this study were to (1) assess change over time in support for smoke-free restaurants and (2) evaluate demographic and smoking-related factors that predict current levels of support.

Methods

Data were collected through interviews conducted from 1992 to 1999 as part of the Massachusetts Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is an ongoing, state-based, random-digit-dialed household telephone survey of health-related behaviors and conditions among adults 18 years and older, conducted in collaboration with the Centers for Disease Control and Prevention.[16]

During 1992 to 1999, the Massachusetts BRFSS used a list-assisted methodology to sample households. Interviews were conducted with one randomly selected adult from each contacted household. The interview completion rate among contacted households ranged from 54% to 74%; the annual sample size ranged from 1825 to 7278. Additional details about the methodology of the Massachusetts BRFSS are available from the authors.

As part of a series of questions on attitudes toward restricting smoking in various public areas, respondents were asked, "Concerning smoking in restaurants, should it be allowed without restriction, should it be permitted only in designated areas, or not be allowed at all?" All respondents also provided information on demographic characteristics and a variety of smoking-related variables, including current smoking status (current, former, never) and rules about smoking in the home. Former smokers were asked how long it had been since they last smoked regularly. Current smokers were queried about whether they smoked daily, average number of cigarettes per day, time from waking until first cigarette, whether they had made a quit attempt in the past year, and whether they planned to try to quit smoking.

Our main outcome of interest was support for smoke-free restaurants. We categorized individuals who stated that smoking in restaurants should not be allowed at all as supporting smoke-free restaurants and all others (smoking should be allowed in designated areas, smoking should be allowed without restriction, or no opinion) as nonsupportive.

We first evaluated changes over time in the level of support for smoke-free restaurants among the population as a whole and by smoking status. Using data from 1999 only, we also evaluated recent demographic and smoking-related predictors of support. To ensure that demographic differences in support for smoke-free restaurants were not due to differences by smoking status across the variables, we calculated smoking-adjusted percentage differences standardized to the smoking status distribution of all respondents in the 1999 survey. Because BRFSS data are

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TABLE 1—Support for Smoking Restrictions in Restaurants: Massachusetts Behavioral Risk Factor Surveillance System, 1992–1999

	1992 (n=1825), % (95% CI)	1993 (n=1857), % (95% CI)	1994 (n=3288), % (95% CI)	1995 (n=3311), % (95% CI)	1996[a] (n=717), % (95% CI)	1997 (n=3725), % (95% CI)	1998 (n=4944), % (95% CI)	1999 (n=7278), % (95% CI)
Attitudes toward smoking in restaurants								
Completely smoke free	37.5 (34.7, 40.3)	42.8 (40.2, 45.4)	47.0 (44.6, 49.4)	45.1 (42.7, 47.5)	48.0 (43.2 52.8)	50.1 (47.7, 52.5)	52.3 (50.3, 54.4)	59.8 (58.2, 61.4)
In designated areas only	57.3 (54.5, 60.1)	52.7 (50.0, 55.4)	49.5 (47.1, 51.9)	51.5 (49.1, 53.9)	47.0 (42.2, 51.9)	45.4 (43.0, 47.8)	42.2 (40.2, 44.2)	35.6 (34.0, 37.2)
Allow without restriction	3.8 (2.8, 4.9)	3.3 (2.3, 4.3)	2.5 (1.8, 3.2)	2.2 (1.6, 2.9)	3.7 (1.6, 5.8)	2.9 (2.1, 3.6)	3.8 (3.1, 4.6)	3.2 (2.6, 3.8)
No opinion/ refused	1.4 (0.7, 2.1)	1.2 (0.7, 1.7)	1.1 (0.6, 1.5)	1.2 (0.7, 1.8)	1.3 (0.3, 2.3)	1.6 (1.1, 2.1)	1.6 (0.9, 2.2)	1.4 (1.0, 1.8)
Support for completely smoke-free restaurants								
Current smokers	11.9 (7.8, 15.9)	20.3 (15.8, 24.9)	24.9 (20.4, 29.5)	20.0 (15.9, 24.1)	24.3 (16.0, 32.7)	25.4 (20.9, 29.8)	25.0 (21.4, 28.6)	33.6 (30.1, 37.2)
Former smokers	37.0 (32.0, 42.0)	40.2 (35.2, 45.1)	43.6 (39.1, 48.1)	43.4 (38.4, 48.3)	46.0 (37.5, 54.4)	51.6 (47.2, 56.0)	54.1 (50.3, 57.9)	60.7 (57.7, 63.7)
Never smokers	51.9 (47.6, 56.2)	54.0 (50.1, 57.9)	59.3 (55.9, 62.7)	58.0 (54.5, 61.4)	60.9 (53.9, 67.9)	59.8 (56.4, 63.1)	62.4 (59.1, 65.6)	69.2 (67.0, 71.3)

Note. CI = confidence interval.
[a]Questions on attitudes toward smoking in restaurants were included only from October through December.

weighted to account for differential probability of selection and to partially adjust for nonresponse, we used SUDAAN to calculate 95% confidence intervals that accounted for the sampling scheme and weighting.[17]

Results

The rate of support for making restaurants smoke free increased from 37.5% in 1992 to 59.8% in 1999 (Table 1). As expected, never smokers were most likely and current smokers least likely to favor making restaurants smoke free. Through 1996, the level of support among former smokers was midway between never and current smokers, but in later years former smokers were almost as likely as never smokers to endorse smoke-free restaurants. Although the absolute level of support varied greatly by smoking status, there were similar increases over time among current, former, and never smokers. By 1999, greater than 60% of nonsmokers and 34% of current smokers supported smoke-free restaurants.

In 1999, levels of support varied little by sex or age (Table 2). After adjustment for smoking status, Hispanics were substantially more likely than Whites to favor making restaurants smoke free. Support increased directly with income, but the relationship with education was more complex, with the lowest levels found among those reporting some college education. Support was also directly related to rules about smoking in the household. Regardless of adults' own smoking status, the more restrictive the smoking rules in their own households, the more likely they were to say that restaurants should be smoke free (Figure 1).

Table 2 also shows the association between other smoking-related variables and support for smoke-free restaurants. Among former smokers, support increased as time since quitting increased. Among current smokers, support was substantially greater among lighter and less dependent smokers.

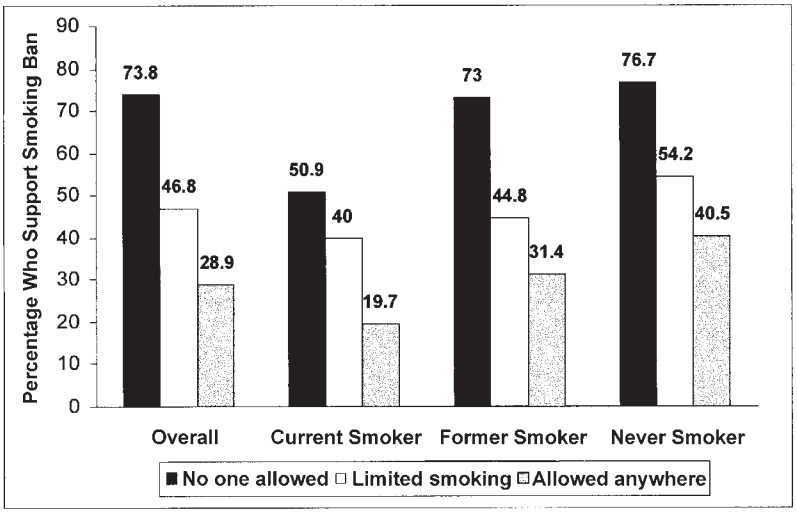

FIGURE 1—Support for prohibiting smoking in restaurants, by smoking status and household smoking rules: Massachusetts Behavioral Risk Factor Surveillance System, 1999.

TABLE 2—Support for Prohibiting Smoking in Restaurants, by Demographic and Smoking-Related Variables: Massachusetts Behavioral Risk Factor Surveillance System, 1999

	No.	Support Smoke-Free Restaurants, % (95% CI)	Difference[a], % (95% CI)
Sex			
Female	4342	61.1 (59.1, 63.0)	0[b]
Male	2945	58.4 (55.8, 61.0)	–2.5 (–5.6, 0.7)
Age group, y			
18–39	3311	59.5 (56.8, 62.1)	0[b]
40–64	2730	61.4 (59.0, 63.8)	+2.9 (–0.6, 6.4)
≥65	1138	57.3 (53.8, 60.8)	–3.5 (–7.9, 1.0)
Race/ethnicity			
White	5419	58.6 (56.8, 60.3)	0[b]
Black	711	62.5 (56.4, 68.6)	+3.9 (–2.0, 9.8)
Hispanic	740	71.1 (65.0, 77.1)	+10.3 (3.5, 17.1)
Asian	235	63.9 (54.3, 73.5)	+6.7 (–3.5, 16.8)
Education			
Less than high school	750	61.2 (55.5, 67.0)	0[b]
High school/GED	2080	57.3 (54.5, 60.2)	–5.3 (–11.3, 0.6)
College 1–3	1718	53.6 (50.1, 57.2)	–10.1 (–16.4, -3.7)
≥College 4	2696	65.3 (62.8, 67.8)	–2.0 (–7.9, 3.8)
Income, $			
<25000	1476	53.9 (49.9, 58.0)	0[b]
25000–49999	1847	56.4 (53.2, 59.5)	+1.4 (–3.7, 6.6)
≥50000	2160	65.4 (62.7, 68.2)	+6.3 (1.4, 11.3)
Years since quitting			
<1	194	47.2 (36.3, 58.0)	0[b]
1–5	306	51.0 (43.5, 58.4)	+3.8 (–9.4, 17.0)
≥5	1122	65.4 (61.9, 68.9)	+18.3 (6.8, 29.7)
Current smoker			
Smoking habits			
Smoke every day	1132	31.2 (27.1, 35.2)	0[b]
Smoke some days	329	43.1 (36.0, 50.3)	+11.9 (3.7, 20.2)
Cigarettes per day			
≥21	203	23.7 (15.9, 31.4)	0[b]
11–20	563	30.4 (24.1, 36.7)	+6,8 (–3.2, 16.8)
1–10	650	39.3 (34.2, 44.4)	+15.7 (6.4, 25.0)
Time to 1st cigarette, min			
≤30	762	30.9 (25.5, 36.2)	0[b]
>30	564	32.8 (27.7, 37.9)	+1.9 (–5.5, 9.3)
Desire to quit smoking			
Not contemplating quitting	368	24.0 (18.2, 29.7)	0[b]
Thinking about within 6 mo	397	33.5 (27.3, 39.7)	+9.6 (1.1, 18.0)
Plan to quit within 1 mo	568	40.4 (33.9, 46.8)	+16.4 (7.8, 25.0)
Made quit attempt within year			
No	560	27.8 (23.0, 32.7)	0[b]
Yes	892	37.4 (32.5, 42.2)	+9.5 (2.7, 16.4)

Note. CI = confidence interval.
[a]Demographic variables adjusted for smoking status.
[b]Reference group.

Those who did not smoke daily, smoked fewer cigarettes, said they were planning to quit smoking within 30 days, and had made a quit attempt in the past year were more likely to express support for making restaurants smoke free.

Discussion

During the 1970s and 1980s, the level of support for smoke-free restaurants among US residents remained essentially unchanged, at about 20%.[18] As awareness of the health effects of environmental tobacco smoke has increased, so has the level of support. Among Massachusetts residents, support has increased to the point at which 60% support making restaurants smoke free.

Not surprisingly, the strongest predictor of support was the smoking status of the individual. Among former smokers, support increased with the length of time since quitting smoking and was almost as high among those who had quit for 5 years or more (65.4%) as among those who had never smoked (69.2%). However, even among current smokers, a substantial percentage favored making restaurants smoke free. This is particularly significant given that smokers are frequently portrayed by opponents of regulatory efforts as absolutely opposed to such restrictions. Smokers who indicated support were clearly different from those who opposed smoke-free restaurants: they smoked fewer cigarettes and smoked less frequently, actively wanted to quit, and were more likely to live in homes with stricter rules about smoking.

Our estimate of support for smoke-free restaurants is probably conservative. There is some evidence that estimates of levels of support are sensitive to how the question is phrased. For example, consider 2 surveys conducted in Oregon in 1998. The SmokeLess States Survey asked whether respondents agreed or disagreed with banning smoking in restaurants, while the Oregon BRFSS used essentially the same phrasing as the Massachusetts BRFSS, which explicitly provided an option to restrict smoking to designated areas. Despite the fact that the surveys were conducted at the same time, the estimate of support was 17% higher on the SmokeLess States Survey (C. Mosbaek, Oregon Health Division, written communication, May 1999).[19]

There is also some evidence that opposition to smoke-free restaurants wanes further after regulations have taken effect. In 1993, Brookline was one of the first municipalities in Massachusetts to implement regulations making all restaurants smoke free. Although these regulations were highly contentious at the time, a survey conducted in 1998 showed that only 11% of residents disagreed with them.[20]

Although the factors that determine the process of public health regulation are complex and difficult to quantify, public opinion is certainly one component of the regulatory process. A decade ago, only a small minority favored making restaurants smoke free; however, the analysis presented here demonstrates a substantial and continuing increase in support.

Massachusetts has had a strong and active anti-tobacco effort that has included a focus on protecting the public from environmental tobacco smoke; initiatives ranging from statewide television advertising campaigns to efforts by local coalitions have been designed to specifically promote support for smoke-free restaurants.[21] Without comparable data from other areas, it is not possible to conclude to what extent the trend in Massachusetts reflects such efforts or a more general national trend.

There is a need for future surveys involving more detailed questions about reasons for supporting or opposing smoke-free restaurants; such surveys would provide important information to aid in further increasing public support for implementing regulations that would protect restaurant employees and the public from exposure to environmental tobacco smoke. □

Contributors

Both D. R. Brooks and L. A. Mucci planned the study and interpreted the data. D. R. Brooks wrote the paper. L. A. Mucci analyzed the data and contributed to the writing of the paper.

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