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Employee Smoking Behavior Changes and Attitudes Following a Restrictive Policy on Worksite Smoking in a Large Company

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Synopsis

A Connecticut insurance company adopted a policy prohibiting smoking in all work areas. Three months later, the authors assessed smoking behavior changes and attitudes of a sample of 1,210 employees, 56.6 percent of the total.

The survey showed that the policy of no smoking in the work areas did not markedly affect smoking cessation, that it reduced cigarette consumption for those who continued to smoke, that those who previously smoked most were most likely to reduce consumption, and that despite negative feelings about the policy by smokers, only 29 percent of smokers and 4 percent of nonsmokers wanted a worksite smoking policy eliminated.

During the 1-year prepolicy period, smoking prevalence decreased from 25.2 percent to 23.6 percent of the sample. During the 3-month postpolicy period, smoking prevalence decreased to 22.0 percent. During the prepolicy period, consumption did not change significantly (from 0.99 to 0.95 packs per day) and few smokers increased (11 percent) or decreased (13 percent) consumption. During the postpolicy period, consumption decreased by 32 percent to 0.67 packs per day, and 12 times as many smokers decreased (44 percent) as increased (3.5 percent) consumption. Of those who smoked at least two packs per day, 93 percent smoked less after the policy. Among nonsmokers, 70 percent thought the policy had a positive overall effect on the work environment, compared with 19 percent of smokers.

CIGARETTE SMOKING is considered the largest cause of preventable premature death and disability in our society. It is 1 of the 15 health priority areas spotlighted by the Public Health Service's Objectives for the Nation initiative (*1,2*). The increasing awareness of the health consequences of smoking, particularly the possible danger of passively inhaled smoke by nonsmokers, has focused attention on smoking in the workplace (*3,4*).

Legislation regulates smoking in the workplace in 22 or more States. Three recent surveys indicate that 32 to 36 percent of businesses have enacted

'Employers considering restrictive smoking policies should institute new policies gradually and with employee input.'

smoking policies (*5–7*). Smoking policies within the private sector differ considerably in the extent to which they limit worksite smoking. Only a few large companies have banned smoking entirely from the workplace (*3*).

Few data have been published regarding employee attitudes and changes in their smoking behavior after a company implements a policy severely limiting worksite smoking. One of the strictest policies on smoking in the workplace among large companies in Connecticut was instituted on January 1, 1986, by a life insurance firm. This study was undertaken to determine employee attitudes and smoking behavior changes 3 months later.

Background

The company employed 2,137 persons in two buildings. In response to frequent employee complaints about worksite smoking, an employee advisory committee recommended and adopted three smoking policies during a 10-year period. In 1976, smoking was restricted in portions of the cafeteria. In 1983, smoking was prohibited in the cafeteria, classrooms, and conference rooms. The latest policy prohibits smoking on the premises except in designated restrooms and lounges. Although the employee advisory committee recommended the restrictions, management formulated and implemented the policy.

The latest policy was announced to employees August 7, 1985, in the company newspaper. Management's stated reasons were to reduce medical benefit costs and employee absences, to reduce nonsmokers' complaints about smoke, and as a life insurance company, to project a positive health image.

As part of the program, smokers were offered $50 subsidies for the tuition of local smoking cessation clinics during the period September 1985 through February 1986 (20 enrolled). A buddy system was begun; although ex-smoking employees volunteered to provide support to smokers attempting to stop, no smokers requested it. An education campaign was begun to inform smokers of the hazards of smoking and to increase employee understanding of the new policy.

The employee advisory committee received numerous complaints about the new policy after it took effect. Usually the complaints involved the designated smoking areas, rather than the smoking policy. Nonsmoking employees complained of exposure to cigarette smoke from a smoking lounge located outside the main cafeteria exit. Nonsmokers working near restrooms in which smoking was permitted complained about having to use more distant facilities.

Methods

A self-completed, anonymous questionnaire sought information on personal demographic characteristics, smoking history, and attitudes about the smoking policy. Questionnaires were distributed at lunchtime on March 26, 1986, to employees entering the company cafeteria. In order to facilitate quick return and to minimize disruption of usual activities, completed questionnaires were collected at the cafeteria exits and at the exit of the adjacent smoking lounge, where employees may take their food and eat lunch. Discussions with employees before the survey indicated that both smokers and nonsmokers were likely to use the cafeteria because food was inexpensive, and there were no other locations to eat in the immediate vicinity. Those choosing to complete the questionnaire later could return it through the company mail.

Information on daily cigarette consumption was collected categorically in 0.5-pack-per-day increments for the periods of January 1985, 1 year before the implementation of the policy; December 1985, 1 month before the policy; and March 1986, 3 months after the policy. Because the consumption data were categorical, the mean cigarette consumption for all smokers could not be determined directly; therefore, the mean was estimated using the midpoint quantity of each smoker's indicated consumption category. Smoking behavior change was determined for the 1-year period before the implementation of the policy by comparing the responses for January and December 1985, and determined for the 3-month period after the implementation by comparing responses for December 1985 and March 1986. Because cigarette consumption data were collected categorically, those who smoked less than 0.5 packs per day would have had to quit smoking in order to be

counted as decreasing their smoking. An increase in smoking could not be determined for those who reported smoking two or more packs a day.

Background

Questionnaires were given to 1,501 of the 2,137 employees; 1,210, or 81 percent, returned them, for an overall response rate of 57 percent. Demographic and employment characteristics of survey respondents paralleled those of all company employees. They were 67 percent women (68 percent companywide), 87 percent white (82 percent companywide), 65 percent were 20 to 39 years old (62 percent companywide), 69 percent had at least some college education (59 percent companywide), 63 percent had professional or technical jobs (52 percent companywide), and 49 percent had been employed at the company at least 5 years (49 percent companywide). Each question was completed by at least 95 percent of respondents. Totals in subsequent analyses may vary slightly because nonrespondents were excluded from each analysis.

Smoking prevalence and behavior change. Of 1,207 respondents reporting their smoking status, 21 percent (257) classified themselves as current smokers; 58 percent (697) as former smokers; and 21 percent (253) as having never smoked.

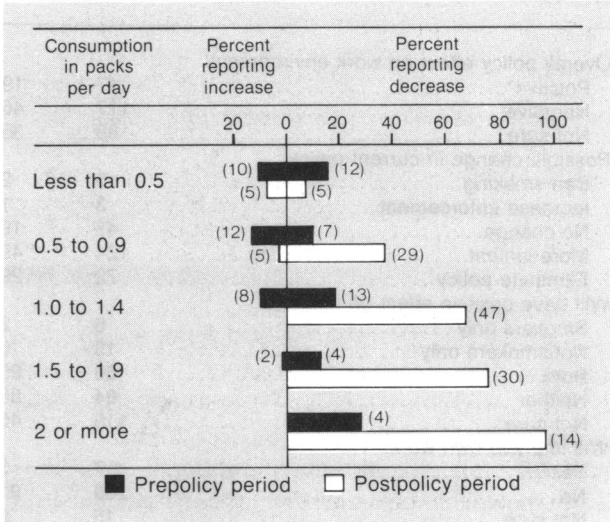
The smoking policy did not have a large effect on smoking prevalence. During the 1-year prepolicy period, smoking prevalence decreased from 25.2 percent (302 of 1,200) to 23.6 percent (284 of 1,202). During the 3-month postpolicy period, smoking prevalence decreased to 22.0 percent (265 of 1,204).

During the 1-year prepolicy period, the rate of smoking cessation was 7.9 percent (24 of 302 smokers); during the postpolicy period it was 8.4 percent (24 of 284). Fewer than 1 percent of nonsmokers began to smoke during the prepolicy (4 of 898) or postpolicy (5 of 913) periods.

The policy did reduce cigarette consumption for those who continued to smoke. The daily average cigarette consumption for smokers remained stable before the policy (0.95 packs per day in January 1985 and 0.99 in December 1985). The consumption rate declined 32 percent 3 months after implementation (to 0.67 packs per day).

Before the policy, 11 percent of smokers increased consumption (32 of 301), while 13 percent (40 of 301) decreased. After the policy, 44 percent of smokers decreased consumption (125 of 284), 12 times as many as the 3.5 percent who increased

Changes in cigarette smoking among 284 employees of a Connecticut company: consumption before a 1-year prepolicy period, and 3 months after policy implementation; numbers of smokers in parentheses



their smoking (10 of 284). During the postpolicy period, those most likely to decrease consumption were those who previously smoked the most. After the policy, of those who previously smoked two or more packs per day, 93 percent smoked less (see chart).

Attitudes about the smoking policy. Among survey respondents, 88 percent (1,052 of 1,198) said that at least one person, including themselves, had smoked in their work areas prior to the smoking policy. Among those who had never smoked, 76 percent (442 of 582) said that cigarette smoke had caused them discomfort at work; 19 percent (128 of 689) thought that a smoker should be allowed to smoke in the smoker's own work area. Among current smokers, 6 percent (15 of 249) reported having been discomforted by cigarette smoke at work; 80 percent (202 of 252) thought they should be allowed to smoke in their own work areas.

Attitudes about the smoking policy differed greatly between current smokers and those who had never smoked (see table). Ex-smokers' attitudes were slightly less favorable toward the policy than the attitudes of those who had never smoked. Acceptance of the policy was high for those who had never smoked; 70 percent (481 of 682) believed the policy had an overall positive effect on the work environment; 82 percent (551 of 672) wanted the policy to remain the same or to be made stricter. Among current smokers, 19 percent (47 of 252) thought the policy improved the overall work environment; 22 percent (55 of 251) believed

Connecticut company employees' attitudes about a restrictive smoking policy, by smoking status in March 1986

Smoking policy attitudes and responses	Smokers		Ex smokers		Never smoked		Total[1]	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Overall policy effect on work environment:								
Positive	47	19	146	59	481	70	674	57
Negative	117	46	42	17	68	10	227	19
Not sure	88	35	61	25	133	20	282	24
Possible change in current policy:								
Ban smoking	5	2	61	25	182	27	248	21
Increase enforcement	3	1	22	9	80	12	105	9
No change	47	19	102	41	289	43	438	37
More lenient	124	49	40	16	91	14	255	22
Eliminate policy	72	29	21	9	30	4	123	11
Will have positive effect on health of:								
Smokers only	6	2	5	2	36	5	47	4
Nonsmokers only	15	6	11	4	36	5	62	5
Both	50	20	164	66	471	69	685	58
Neither	64	26	20	8	38	6	122	10
Not sure	115	46	47	19	104	15	266	23
Will improve own work:								
Yes	7	3	58	24	208	31	273	23
No	230	91	145	59	350	52	725	62
Not sure	15	6	43	17	113	17	171	15
Will decrease days of absence from work:								
Yes	8	3	18	7	91	14	117	10
No	222	88	158	64	414	62	794	68
Not sure	23	9	70	28	163	24	256	22

[1]Sums of total vary because of nonresponses.

the policy should remain the same or be made stricter. Asked if the policy would improve their own work, 31 percent (208 of 671) of those who had never smoked and 3 percent (7 of 252) of current smokers agreed.

Employees were asked if they thought the policy would have a positive effect on the health of either smokers or nonsmokers. Among current smokers, 28 percent (71 of 250) agreed, compared with 79 percent (543 of 685) of nonsmokers. Three percent of the smokers and 14 percent of the nonsmokers thought the policy would reduce employee absences.

Discussion

Smoking prevalence and behavior change. The policy did not have a marked short-term effect on smoking cessation. During the prepolicy period, 7.4 percent of smokers quit; 8.4 percent quit during the postpolicy period. Smoking prevalence declined from 25.2 to 23.6 percent during the prepolicy period and to 22.0 percent in the postpolicy period. The 3-month postpolicy period may have been too short to determine the final impact of the policy on cessation. If the 8.4 percent cessation rate were maintained, more than 25 percent of smokers would have quit during the first year after the policy. This is unlikely, as most of the effect should occur shortly after enactment of the policy. How many smokers quit during the prepolicy period in anticipation of the restrictions is not known. There are no comparison data on smoking prevalence for other groups of workers in Connecticut; however, from 1985 to 1987, smoking prevalence among adults in the State declined from 29 to 28 percent (*8,9*).

Perhaps the best measure of the effectiveness of the policy was its effect on cigarette consumption. As noted previously, during the prepolicy period similar percentages of smokers increased or decreased consumption. However, during the postpolicy period, 12 times as many persons decreased consumption as increased it.

Other employee surveys show that in a Boston hospital 33 percent of smokers were smoking less 20 months after a smoking policy was implemented (*10*). In a health maintenance organization, 29 percent of smokers had decreased consumption 4 months after a complete ban on worksite smoking (*11*). Results of the second survey must be regarded with caution as only 12 percent of those employees smoked and only 67 smokers were sampled.

Our results indicate that those who smoked heavily and were most likely to develop adverse

health effects from smoking were those most likely to decrease cigarette consumption. An overwhelming 93 percent of those who previously smoked at least two packs per day smoked less after the policy. While the reduction in consumption might simply be a reflection of decreased opportunities for smoking, a variety of social factors could have influenced this change. Because the workplace social environment is important in shaping smoking behavior (*12*), the policy may have altered the social context that promoted smoking and, as a result, subjected smokers to increasing inconvenience, isolation, and smoking-related stigma.

The smoking behavior results may have been influenced by several possible sources of error. Prepolicy cigarette consumption was assessed retrospectively, introducing the possibility of recall bias. For example, smokers generally did not approve of the policy and may have underreported postpolicy decreases in smoking. Employees had the opportunity to discuss the questionnaire while completing it in the cafeteria. The sampling was not systematic; however, we sampled 57 percent of the employees and the sample population did not differ from the workforce in any of the measured demographic and employment characteristics.

Employee attitudes. Most nonsmokers, 76 percent, reported discomfort caused by cigarette smoke at work before the implementation of the policy. This finding is similar to that of a survey of another large company where 28 percent of employees smoked; 68 percent of all employees there said they were bothered by cigarette smoke at work (*13*).

Although we did not ask about personal approval of the policy, responses to other attitude questions indicated that most nonsmokers approved of the policy, and many of the smokers did not. This finding is similar to that of the survey of the health maintenance organization which showed that 4 months after implementation 87 percent of nonsmokers and 24 percent of current smokers approved of the policy (*11*).

This low approval by smokers differs from the Boston hospital survey showing 83 percent of smokers approving a restrictive policy (*10*). Smokers in this survey may have approved because a smoking policy committee, with hospitalwide representation, formed, implemented, and evaluated the policy. Another influencing factor may have been the timing of the survey, 20 months following implementation, giving smokers more time to adapt to the restrictions.

Our survey, showing 29 percent of smokers and 4 percent of nonsmokers wanting elimination of a policy, corroborates other research showing that both smokers and nonsmokers want some type of workplace smoking policy (*13–15*). Based on this and similar research (*4,10,11*), we recommend the following guidelines for establishing policies for nonsmoking in the workplace.

- Employers considering restrictive smoking policies should institute new policies gradually and with employee input.
- If smoking is not banned entirely from the workplace, designated areas for smoking should be located in areas not likely to be used by nonsmokers.
- Evaluations should be made of worksite smoking policies in other locations. Evaluations should include measuring changes in employees' smoking behavior and attitudes. These should be considered by employers planning to implement such policies.
- Disseminate widely the results of studies of employee smoking behavior and attitudes toward smoke-free working environment policies. More employers are likely to implement such policies when they are aware of widespread employee acceptance of policies that provide desirable changes in smoking behavior in the workplace.

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Assessing Trends in Mortality in 121 U.S. Cities, 1970–79, from All Causes and from Pneumonia and Influenza

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Synopsis

The Centers for Disease Control receives weekly reports of mortality due to all causes and to pneumonia and influenza from 121 cities and counties in the United States. To assess the epidemiologic applicability of these data, the trends of death rates based on data compiled by the Centers for Disease Control's mortality reporting system (CDC-MRS) from 1970 through 1979 were compared with trends derived from national mortality statistics compiled by the National Center for Health Statistics (NCHS).

In general, CDC-MRS trends in death rates from all causes and from pneumonia and influenza followed patterns similar to those shown by mortality statistics for the entire nation. CDC-MRS data were particularly sensitive to annual fluctuations in the nationwide rate of death from pneumonia and influenza among the elderly population. However, because of higher death rates among residents of the CDC-MRS reporting areas, in addition to other ascertainment biases, CDC-MRS death rates—from all causes and from pneumonia and influenza—consistently exceeded NCHS rates for the nation. Moreover, for each age group, trends based on CDC-MRS reflected an underestimate of the rate of decline in mortality observed over time according to NCHS data. It is concluded that despite its limitations, the CDC-MRS provides mortality data that are both timely and useful for epidemiologic purposes.

FOR MANY DISEASES and adverse health effects, mortality is an essential measure of incidence and long-term trends, and it is the basis for epidemiologic study. Although mortality statistics may be readily obtained at the local or State level, final mortality data do not become available at the national level—that is, from the National Center for Health Statistics (NCHS)—for at least 20 months after the close of the data year. Even NCHS provisional mortality data, published monthly and based on a 10 percent national sample of death certificates, are not available for 3–4 months. Such delays limit the usefulness of the data by impeding the timely detection of acute changes in the incidence or distribution of diseases and adverse health effects.

As part of its national influenza surveillance effort, the Centers for Disease Control (CDC)