

Incentives and Competition in a Worksite Smoking Cessation Intervention

LEONARD A. JASON, PhD, SHYAMALANITA JAYARAJ, CARYN C. BLITZ, MARK H. MICHAELS, AND LORI E. KLETT

Abstract: We evaluated a worksite smoking cessation program that employed multicomponents including support groups, incentives, and competition. The combination of incentives and other components increased participation rates to over 80%. Forty-two percent of smokers were abstinent at six months, compared to 13 percent of a control group (difference 29 percent, 95% CI 9, 49). (*Am J Public Health* 1990; 80:205–206.)

Introduction

Klesges, Cigrang, and Glasgow¹ and Klesges and Cigrang² reviewed seven controlled worksite programs having incentives and/or competition. The average post-test cessation rate was 44.8 percent, and the follow-up cessation rate was 45.9% (if one study by Stachnik and Stoffelmayr³ with an exceptionally high rate is excluded, the average 13-month follow-up rate was 26.1 percent).

In January of 1988, we began pilot work with a worksite incentive system, that built on our previous work.^{4,a} We report the results below.

Methods

The intervention was composed of two parts: a three week quitting program, and six months of follow-up meetings. The two group leaders of the two groups were employees of the Experimental (intervention) company, who were provided training and consultation. One of the two groups met on company time in the late afternoon, the second group met during lunch. For the first three weeks, there were two meetings each week. For the next two weeks, there were weekly meetings. For the next four weeks, there were meetings every other week. For the last four months, there were group meetings on a monthly basis. Each meeting lasted from 40 to 50 minutes.

Incentives

Participants also could earn \$10 for attending each meeting regardless of their smoking status. Following the end of the initial three-week program, participants could also earn \$1 each day that they were abstinent up to \$180 (six months), and for every 30 continuous days of abstinence an extra \$30. At the end of the program, each participant who had been abstinent for at least the last two months was eligible to participate in a lottery, with the company contributing \$50 for each person who quit in the program. (The company changed this policy at the end of the program by actually putting in \$50

for each person who signed up for the smoking cessation program.)

Participants had the opportunity to compete in a team effort for additional incentives. Teams consisted of three members who worked together to quit smoking. The team with the largest number of days abstinent won a cash prize of \$300 at the end of the program.

Participants also had the option of selecting a coworker "buddy" to aid in those times of temptation to start smoking again. At the program's end, each buddy was given an opportunity to select an item from a list of gifts.

Participants were not required to join a group. They could still participate and be eligible for other incentives. On a pre-intervention survey, 81 percent of Es indicated they wanted the group program, 4 percent only wanted the self-help book, 2 percent wanted to quit on their own, and 11 percent indicated that they might quit smoking. As for incentives, 91 percent requested payment at meetings, 94 percent payment of \$1 a day for quitting, 98 percent for \$30 for a month of continuous abstinence, and 93 percent for the lottery. Forty-five percent of Es selected a team and 57 percent selected a buddy. Participants earned an average of \$237. Fifty-three percent of Es indicated they would not have tried to quit if the program had not been offered.

Control group smokers were not provided any program or incentives; the high rates of control participation can partially be explained by their interest in obtaining prepoint expired air carbon monoxide (CO) tests. In the CO test, participants first exhale completely, then take a deep breath, hold it for 20 seconds, expire half the air, then breathe into an impermeable plastic bag to provide a sample of carbon monoxide in their breath to be measured.⁵

Results

Pretest Comparability

Two companies agreed to participate in our worksite smoking cessation study. There were approximately 300 employees at the Experimental company and 260 at the Control company. Forty-two of the 52 Control company smokers and 53 of the 63 smokers in the experimental company agreed to be involved in this study.

The two populations were rather similar (Table 1). Experimentals had smoked longer than controls and had higher status jobs.

Program Impact

The experimental manipulation of support, incentives, and competition had a substantial effect on abstinence rates at the immediate post-test, six-month end-of-group meetings, and at the six-month follow-up (Table 2). Experimentals also had higher continuous abstinence rates and overall worksite quit rates (i.e., the percentage of all smokers, both participants and non-participants).

Most of the experimentals selected incentives and the support group, but several preferred to accept other incentives unrelated to group attendance. For two who only selected the self-help book plus incentives, one quit at the post-test and six-month end-of-group meeting, and both had quit by the 12-month follow-up. One who decided to quit on his own and also accept incentives was successful at the three

Address reprint requests to Leonard A. Jason, PhD, Professor of Psychology, DePaul University, 2323 North Seminary Avenue, Chicago, IL 60614-3298. Co-author Jayaraj is an undergraduate research assistant, and Blitz, Michaels, and Klett are all graduate research assistants, at DePaul University. This paper, submitted to the *Journal* March 21, 1989, was revised and accepted for publication October 14, 1989.

^aJason LA, Lesowitz T, Michaels M, Blitz C, Victors L, Dean L, Kimball P: A worksite smoking cessation intervention involving the media and incentives. 1989. Manuscript under review. DePaul University, Chicago.

TABLE 1—Demographic Characteristics and Preintervention Measures on Experimental and Control Conditions

	E	C	Difference (95% CI)
Gender			
% Male	20	22	2% (-16,20)
% Female	80	78	2% (-16,20)
Race			
% Black	8	11	3% (-9,15)
% White	92	89	3% (-9,15)
Occupation			
% Labor/Craft	37	42	5% (-17,27)
% Service	12	33	21% (3,39)
% Prof/Managerial	51	25	25% (4,46)
Education ^a	4.4	3.9	.5 (-0,1)
Age (mean years)	36.8	33.3	3.5 (-4,7.4)
Mean years smoking	19.3	14.7	4.6 (.9,8.3)
Preintervention smoking			
Number of cigarettes per day	24.6	20.1	4.5 (-.8,9.8)
Tar (mg/cig) ^b	12.1	11.3	.8 (-1.3,2.9)
Nicotine (mg/cig) ^b	.81	.77	.04 (-.08,.16)
Carbon Monoxide (mg/cig) ^b	11.9	10.9	1.0 (-.8,2.8)
% Tried to quit before	82	67	15% (-5,35)
Mean number of prior quit attempts	3.4	3.1	.3 (-1.3,1.9)
% Previously stopped smoking 6 months or more	43	39	4% (-18,26)
Mean number of times stopped smoking 6 months or more	1.8	1.8	.0 (-1.2,1.2)

^aA 7-point scale was used (Elementary School = 1, Professional School = 7)

^bThe participants told interviewers their brand of cigarette and these brands were checked with the January 1985 Federal Trade Commission Report to obtain tar, nicotine, and carbon monoxide levels.

E = Experimental
C = Control

TABLE 2—Immediate Post-test, 6-Month, and 12-Month Measures on Abstinence, Continuous Abstinence, and Worksite Smoking Reductions

	E	C	Difference (95% CI)
Post-Test (95) [*]	(53)	(42)	
% Abstinence	49	9	40% (21,59)
% Worksite Smoking Reductions	41	8	33% (17,49)
6-Month (92) [*]	(53)	(39)	
% Abstinence	42	13	29% (9,49)
% Continuous abstinence	34	5	29% (13,45)
% Worksite Smoking Reductions	35	10	25% (10,40)
12-Month (84) ^{**a}	(47)	(37)	
% Abstinence	36	16	20% (1,39)
% Continuous abstinence	21	5	16% (2,30)
% Worksite Smoking Reductions	32	13	19% (3,35)

^{*}Total numbers in groups

^aOf the 6 Es who left the company, 3 left abstinent; whereas more of the 5 Cs who left the company were abstinent.

time points. Of the six experimentals who indicated maybe they would quit but would also accept incentives, only one quit at the immediate post-test, relapsed at the end of

six-month group meetings, and had quit again at the six month follow-up.

Biochemical Verification

CO confirmations (ppm \leq 9) were conducted at both experimental and control settings at the post point and end of the six-month meeting period. There was an 85 percent accuracy rate with self-reports. When discrepancies occurred, there are a number of explanations that could have explained the findings (e.g., exposure to second hand smoke, poor ventilation at home or in the car).

Discussion

The present study indicates that incentives and competition can be used effectively to increase participation in worksite smoking cessation programs. Overall worksite reductions were high because a large percentage of smokers participated in the program. It should be noted that worksite policies that allowed smoking at designated areas were introduced in both settings prior to the start of the intervention. Some of the effectiveness of the present program might be due to the smoking restriction policies at the experimental company.

One of the advantages of the present study was that experimentals could select those parts of the program that most appealed to them. Although most chose the groups and incentives, several of those who quit selected other materials and/or incentives. This suggests that different individuals might prefer different types of programs.

There are some limitations to the present study. There were several prepoint differences between the experimental and control companies, and these differences might have played a role in the outcomes. In addition, only two companies were used, and thus this research can only be considered a case study until it is replicated with larger samples.

ACKNOWLEDGMENTS

Portions of this paper were presented at the meeting of the Association for the Advancement of Behavior Therapy, November 1989, Washington, DC. Requests for reports and a more extended version of this paper should be addressed to the first author, Leonard A. Jason, Department of Psychology, DePaul University, Chicago, IL 60614.

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