

## THE EFFECTS AND USE OF MAINTENANCE NEWSLETTERS IN A SMOKING CESSATION INTERVENTION

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**Abstract** — This article evaluates the effects and use of adjuncts to a televised smoking cessation program, based on the American Lung Association's "Freedom From Smoking in 20 Days." Subjects were randomized to maintenance and control conditions. The maintenance condition received newsletters with information and support addressing different stages in the cessation process and information about a telephone hotline. The maintenance condition did not increase cessation at any wave of interviewing, assessed by multiple point or point prevalence of abstinence. Those abstinent at 6 months and those who had made an attempt to stop smoking by that time were more likely to have used the newsletters and were more likely to have used the sections relevant to their cessation stage. Rates of use of the telephone hotline were low. The newsletters appear to be useful to smokers who are predisposed to use written materials.

There is increasing interest in the development and evaluation of relatively low-cost or minimal-contact smoking cessation programs, such as self-help methods (Owen, Ewins, & Lee, 1989; Jeffrey, Hellerstedt, & Schmid, 1990). However, there have been few evaluations of adjuncts to minimal cessation programs designed to prevent relapse or promote recycling (i.e., encourage a relapsed smoker to make another quit attempt). Killen, Fortmann, Newman, and Varady (1990) examined the effects of self-guided written materials organized in topical modules and nicotine gum administered in varying regimens on smoking relapse in smokers who had been abstinent for 48 hours. The written materials did not influence rates of abstinence. The use of a single mailing to reinforce self-help materials did not influence smoking behavior change (Orleans et al., 1991). Other adjuncts are the use of hotlines (Ossip-Klein et al., 1991) or telephone

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counseling (Orleans et al., 1991). Each set of authors reported enhanced cessation with such adjuncts.

The study reported here attempted to provide all participants with continued information and support beyond the end of the smoking cessation program. It also provided information tailored to smoking status. In this study, participants were randomly assigned to either a maintenance condition or a control condition prior to the cessation program. The maintenance condition included a series of supportive newsletters and information about how to dial a telephone hotline with scheduled messages and access to a counselor. By contrast, most relapse prevention programs focus primarily on maintaining abstinence in the group that had initial success in cessation (Hall, 1987).

The use of adjuncts is an outcome of interest in itself. Use of self-help guides and completion of activities are correlated with quit rates (Cummings, Emont, Jaen, & Sciandia, 1988; Davis, Faust, & Ordentlich, 1984; Warnecke et al., 1992). However, frequently print materials are not read by many participants and activities are not followed. One question of interest is whether individuals will select and attend to relevant portions of mailed materials. This issue is relevant to decisions about how much tailoring to stage of cessation is necessary in designing adjuncts.

This article has two objectives: (a) to assess the impact that the maintenance condition had on smoking cessation and (b) to describe the use of the maintenance newsletters and the telephone hotline, including the extent to which subjects selectively used sections of the newsletter tailored to their smoking status.

#### M E T H O D

##### *The cessation and maintenance interventions*

The cessation program was a televised self-help smoking cessation program, based on the American Lung Association (ALA) manual, *Freedom From Smoking in 20 Days*. The program was broadcast in March and April 1987 as a daily feature of the local evening news at 4 and 10 p.m. on Channel 7, WLS-TV, the local ABC-owned station in Chicago. Through collaboration with the Chicago Lung Association, True Value Hardware stores, and PruCare Health Maintenance Organization, smokers could obtain the ALA manual, *Freedom From Smoking in 20 Days*, in person or by mail.

The televised program followed the ALA manual. The televised segments covered such topics as keeping records of smoking habits, eating and weight control, using rewards, withdrawal symptoms, activities to do instead of smoking, avoiding situations in which you smoke, and what to do after quitting. The segments took the audience day by day through the quitting procedures outlined in the manual. The programs depicted the experience of several volunteers as they dealt with different aspects of quitting (see Warnecke et al., 1991, for more detail).

The newsletters were designed to provide information and support for different stages of the cessation process. Each newsletter had four pages with major sections for those who had quit smoking, who had slipped, who had relapsed, or who never quit. In addition to these four sections, each issue of the newsletter featured a reprint of a cartoon in which characters faced some aspect of quitting smoking. The newsletters also contained information about how to call a telephone hotline, the schedule of taped messages, and the availability of counselors. Beginning at the end of the televised intervention, the newsletters were sent weekly for 4 weeks, biweekly for 8 weeks, and then bimonthly. A total of 10 newsletters were sent over the 6-month period.

*Sample, data collection, and analysis*

The target population consisted of smokers living in the six-county Chicago Metropolitan Statistical Area who watched the evening news on Channel 7. All subjects were individuals who registered for the program and reported viewing at least one program or receiving the manual. Only a single household member was selected for the study. Subjects were randomized to maintenance ( $n = 1,147$ ) or control ( $n = 598$ ) conditions, in a ratio of approximately 2:1. Control subjects thus participated in the basic program activities, but did not get the maintenance newsletters or information about the telephone hotline.

Participants were interviewed by telephone four times following the televised intervention: immediately after and at 6, 12, and 24 months postintervention. During the first interview, subjects provided information on their sociodemographic characteristics and their smoking history. Questions were parallel for the maintenance and control groups except at the 6-month interview in which maintenance subjects were asked whether they received the maintenance newsletters, their frequency of reading the newsletter and its sections, the helpfulness of the sections read, and whether they took action in relation to the telephone hotline, such as cutting out the hotline phone card or calling the hotline for a recorded message or to talk with a counselor.

The cessation outcomes were point prevalence and multiple point prevalence of abstinence. Abstinence was defined as not having smoked for at least 3 days at the end of the program and for at least 7 days at each subsequent wave of interviews. Multiple point prevalence was defined as being abstinent at a given wave and all preceding waves. Use of the maintenance materials included self-reports of the receipt of the newsletter, number of newsletters read, having made a call to the telephone hotline, and the frequency of reading and the helpfulness of newsletter sections. Smoking status at 6 months was further subdivided into currently abstinent, having had a quit attempt (a smoker who had stopped smoking for at least 24 h between the postintervention and 6-month interviews), and current smokers with no quit attempts.

Chi-square tests of independence were used in bivariate analyses. Multiple logistic regression was used to determine the relative influence of predictors of having read all of the newsletters.

## R E S U L T S

Subjects in the two experimental conditions did not differ on sociodemographic characteristics, baseline smoking levels, or participation in the intervention (see Table 1). The two groups also had the same rate of abstinence at the end of the program. Relative to many studies of smoking behavior change, the study sample has a relatively large proportion of blacks, and of persons with lower income and education levels. The study sample has a higher proportion of heavy smokers than the general population of smokers (Warnecke et al., 1991). Use of the manual several times a week or more frequently was reported by half the sample. Daily viewing of the program was reported by 23% of the sample.

*Cessation*

The maintenance condition had no effect on rate of abstinence at any wave (Table 2). Similar results were found for multiple point prevalence of abstinence and for reduction in number of cigarettes smoked for those who remained smoking (data not shown).

Table 1. Characteristics of maintenance and control groups

Sociodemographic	Total	Maintenance	Control	Chi-square (df)/prob.
Age				
18-30	22.7%	21.8%	24.4%	1.82
31-45	39.5%	40.3%	38.1%	(3)
45-64	30.2%	30.2%	30.3%	.61
65 and above	7.6%	7.8%	7.2%	
<i>n</i>	1745	1147	598	
Gender				
Female	70.2%	70.6%	69.4%	.28
Male	29.8%	29.4%	30.6%	(1)
<i>n</i>	1745	1147	598	.60
Income				
\$13,000 or less	19.4%	20.3%	17.7%	1.96
\$13,001 to 25,000	19.7%	19.8%	19.5%	(3)
\$25,001 to 40,000	29.2%	28.5%	30.6%	.58
\$40,001 or more	31.7%	31.4%	32.3%	
<i>n</i>	1609	1070	539	
Race				
Black	23.9%	23.8%	24.2%	.03
Non-black	76.1%	76.2%	75.8%	(1)
<i>n</i>	1738	1142	596	.87
Education				
Less than H.S. grad	10.1%	10.2%	9.9%	1.67
H.S. graduate	36.6%	36.7%	36.3%	(3)
Some college	34.9%	35.5%	33.8%	.64
College grad or more	18.5%	17.6%	20.1%	
<i>n</i>	1745	1147	598	
Preprogram smoking				
Less than 20 a day	21.0%	20.8%	21.9%	1.01
20-29 a day	35.0%	35.8%	33.4%	(2)
30 or more a day	43.8%	43.3%	44.7%	.60
<i>n</i>	1745	1147	598	
Program participation				
Refer to cessation manual				
Daily	25.5%	26.3%	23.9%	2.89
2-6 times/week	26.5%	27.2%	25.0%	(2)
Less than 2 times/week	48.0%	46.5%	51.1%	.24
<i>n</i>	1510	1003	507	
Frequency watch program				
Daily	22.5%	22.7%	22.3%	1.38
2-6 times/week	49.5%	50.3%	47.8%	(2)
Less than 2 times/week	28.0%	27.0%	29.8%	.50
<i>n</i>	1472	966	506	
Abstinent end of program				
Yes	16.6%	16.7%	16.4%	.02
No	83.4%	83.4%	83.6%	(1)
<i>n</i>	1745	1147	598	.89

The two groups also did not differ in their rates of relapse between the end of the program and 6 months: 50% in the maintenance condition and 48.5% in the control condition had resumed smoking at 6 months.

#### *Use of the maintenance materials*

In the maintenance condition, 82% of the respondents reported receiving the newsletters. Of those, two-thirds (71%) reported reading most issues of the newsletter. Few (6%) read none of the newsletters. Only 7% called the hotline to talk with a counselor

Table 2. Abstinence at each wave of interviews, by condition

Condition	6 Months		12 Months		24 Months	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Maintenance	15.9	1,041	17.6	988	20.6	873
Control	16.2	551	20.0	511	24.0	438
Total	16.0	1,745	18.4	1,499	21.7	1,311

or listen to the message. We will limit detailed discussion of use of the maintenance materials to the newsletter because so few respondents telephoned the hotline.

Smoking status at 6 months was related to use of the maintenance materials. Abstinent respondents and attempters were more likely to have read all or most of the newsletters, whereas current smokers with no quit attempts were more likely to report having read some of the newsletters. The current smokers were also less likely to have called the hotline (Table 3).

We were interested in evidence of selective attention to the newsletter sections among respondents with different smoking statuses. With the exception of the "Never Quit" section of the newsletter, smoking status was significantly related to the frequency of reading the relevant newsletter sections. Abstinent respondents were most likely to have read the "Quit" section, followed by the "Slip," "Relapse," and "Never Quit" sections.

Table 3. Frequency of reading newsletters and helpfulness of newsletter sections, by smoking status at 6 months postintervention

Maintenance materials	Smoking status			$\chi^2$ ( <i>df</i> )	<i>P</i> <
	Abstinent %	New attempter <sup>a</sup> %	Current smoker %		
Frequency of reading					
All or most newsletters	75.9	74.5	66.1	9.6	.05
Some	17.7	21.5	27.3	(4)	
None	6.4	4.0	6.6		
<i>n</i>	(141)	(353)	(366)		
Called hotline	11.4	7.3	4.4	8.2	.02
<i>n</i>	(141)	(353)	(366)	(2)	
Always, usually read section					
Quit section	58.2	46.3	35.1	32.1	.001
<i>n</i>	(122)	(322)	(322)	(4)	
Slip section	50.8	61.1	51.5	16.6	.002
<i>n</i>	(124)	(324)	(324)	(4)	
Relapse section	38.4	59.4	47.8	28.2	.001
<i>n</i>	(125)	(323)	(324)	(4)	
Never Quit section	38.8	48.1	49.7	8.8	<i>ns</i>
<i>n</i>	(121)	(320)	(314)	(4)	
Rated very helpful					
Quit section	40.0	28.9	16.6	23.5	.001
<i>n</i>	(115)	(256)	(235)	(2)	
Slip section	36.1	30.6	20.1	12.5	.002
<i>n</i>	(97)	(294)	(269)	(2)	
Relapse section	32.5	31.2	18.1	14.2	.001
<i>n</i>	(83)	(276)	(260)	(2)	
Never Quit section	26.6	24.0	19.0	2.8	<i>ns</i>
<i>n</i>	(79)	(233)	(247)	(2)	

<sup>a</sup>A smoker at 6 months postintervention who reported having quit smoking for at least 24 h between end of program and 6 months.

Table 4. Logistic regression of the use of maintenance newsletter (adjusted odds ratios and 95% confidence intervals)

Variable	Odds ratio	95% confidence interval
Sex (female vs. male)	1.57**	1.13–2.18
Age (18–45 vs. 46+)	0.57***	0.43–0.75
Education (less than college graduate vs. college graduate)	0.73	0.51–1.03
Race (black vs. other)	0.81	0.59–1.11
Read manual (daily vs. less frequently)	1.93***	1.42–2.62
Level of watching intervention (number of segments recalled) <sup>a</sup>	1.19*	1.02–1.38
Smoking status at end of program (abstinent vs. nonabstinent)	0.82	0.58–1.16
Self-efficacy (highly confident about staying or becoming abstinent vs. less confident)	1.49**	1.10–2.01

<sup>a</sup>Odds for increase from zero to two segments.

\* $p < .05$ .

\*\* $p < .01$ .

\*\*\* $p < .001$ .

The attempters were most likely to have read the “Slip” and “Relapse” sections and were less likely to have read the “Quit” and “Never Quit” sections. Current smokers generally had lower rates of reading the newsletter sections. They reported especially low rates of reading the “Quit” section.

Those who had read sections of the newsletter were asked about the helpfulness of each section read. Abstinent respondents rated the “Quit” and “Slip” sections as most helpful but were less favorable about the “Relapse” and “Never Quit” sections. Abstinent respondents rated the helpfulness of each section higher than did the other groups. Attempters had similar ratings for the “Quit,” “Slip,” and “Relapse” sections. These ratings were intermediate between the current smokers and abstinent respondents. Current smokers rated each section less helpful than did the other groups.

In a logistic regression analysis predicting level of use of the maintenance newsletters, daily use of the cessation manual was the best predictor of use (Table 4). Older respondents and females were also more likely to have read all of the newsletters. Other significant predictors were recalling more segments from the televised intervention and being more confident about staying quit or stopping smoking. Having successfully quit with the program was not related to use of materials when controlling for level of participation in the cessation program.

## DISCUSSION

The development of effective adjunct methods to enhance the maintenance of smoking cessation could offer major benefits. In this study, the adjunct materials — newsletters and a telephone hotline — were available to participants, regardless of their end-of-program smoking status. The maintenance materials were not associated with higher rates of cessation or lower rates of relapse among those abstinent at the end of the program. This lack of effect is unlikely to be a Type II error given the large sample size.

The lack of effect from the newsletters was not because they were not read. More than two-thirds of participants receiving the newsletters reported reading all or most of the newsletters. One possibility is that the newsletters appealed to the same persons who intensively used the ALA cessation manual. These individuals were older, female, and read the cessation manual frequently (Warnecke et al., 1992). This may be related to a

preference for print material. It may also be that extensive use of the maintenance newsletters was associated with greater motivation or preparation to quit smoking, as shown by the greater self-efficacy to quit smoking in the high users of the maintenance materials.

The evidence that respondents were more likely to read and find helpful those sections in the maintenance newsletters addressed to their particular smoking status was interesting. This suggests that respondents personalized the materials to some extent by their selection of sections to read. One implication of this is that highly tailored adjunctive materials (e.g., adjuncts analogous to the computer generated personalized manuals; see Owen et al., 1989) may not be necessary.

Because it appears that participants will make use of materials and selectively attend to segments addressing their stage of cessation, the next step is to devise approaches that have more impact on smoking behavior change. We think that there may be great benefit in brief telephone contacts that provide support and permit individuals to select particular types of information relevant to their cessation experience. It appears that such calls are acceptable to smokers (Lando, Pirie, Hellerstedt, & McGovern, 1991). The calls fit in easily with daily life and require little special effort on the part of the person attempting to quit smoking. The strategy can be generalized to several settings and incorporated into practice. The cost of additional contacts may even be reduced through the use of volunteers (Lando, Hellerstedt, Pirie, & McGovern, 1992).

We expect enhanced effectiveness from several mechanisms. The personal contact that is helpful but not overly intrusive should increase self-efficacy to stop smoking, reduce consumption, or to make new serious attempts to quit. The information provided should encourage closer adherence to the cessation activities. The use of multiple media permits individuals with different preferences to follow their own paths to cessation efforts. Alternative or multiple media could reach more resistant groups of smokers.

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