



Pharmacological Aids for Interactive Smoking Cessation

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Abbreviated Abstract

This project created a multi-session, web-based multimedia smoking cessation intervention (Smokefree Partners: 21 Days to Freedom). Based on Azjen and Fishbein's Theory of Reasoned Action and Bandura's Social Learning Theory, the program is a structured 21-session program that takes the user through three phases: preparation, quit day, and maintenance. Each session combines appropriate content for the phase of the user, assignments, and the opportunity to use a bulletin board/chat function with other quitters. The program also features a live "coach" function, where project staff interact with users to promote program compliance and provide social support. The program was evaluated in a clinical trial in worksites across the nation from February 2003 through January 2006. The wait-list control design included pre- and post-intervention assessments and a 90-day follow-up. The following outcomes were examined: abstinence from smoking; use of pharmacological aids (Zyban, nicotine replacement therapy) during the quit attempt; and changes in self-efficacy, motivation, and intentions for quitting.

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Research Team & Affiliations

Co-Investigator: Dennis Ary, Oregon Center for Applied Science

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Total Budget

\$1,092,356

Research Objectives

AIMS

1. Does the Smokefree Partners: 21 Days to Freedom intervention help users stop smoking permanently?
2. Is the Internet format an acceptable medium for smokers to employ in a smoking cessation attempt?
3. Does the addition of an in-person coaching function in the form of email or phone contact boost the impact of an online smoking cessation program?



Theory/Hypothesis

It was hypothesized that an Internet-delivered multimedia intervention with a behavior-change theoretical foundation that encouraged and supported the use of pharmacological smoking cessation aids would assist a smoker to quit smoking. Furthermore, the addition of a live “coaching” function would increase the likelihood of a smoker quitting due to social desirability, accountability, and social support.

Experimental Design

To test the effectiveness of the product, a randomized clinical trial was conducted. If the subject agreed to participate and was eligible, an online pretest (T1) was presented. The program then randomly assigned subjects to treatment (immediate access to the smoking cessation program) or the control condition (access after a 3-month waiting period and completion of T3). All subjects were prompted via automatically generated email messages to complete two additional assessments 30 days (T2) and 120 days (T3) after registration. One year after completing T1, all participants were contacted once more and asked to complete a final survey (T4).

Final Sample Size & Study Demographics

There were 500 participants in the final sample size. Characteristics of the participants are presented in Table 1. There were slightly more women (51.2%) than men (48.8%), and the majority of participants (84.2%) were between the ages of 26 and 55. The vast majority of participants were White (85.6%). Most participants had some college (53.6%) or a college degree (32.2%).

Table 1. Demographics of participants

		Treatment		Control		Total	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender	female	129	52.4	127	50	256	51.2
	male	117	47.6	127	50	244	48.8
Age	18-25	21	8.5	24	9.4	45	9.0
	26-39	100	40.7	108	42.5	208	41.6
	40-55	108	43.9	105	41.3	213	42.6
	over 55	17	6.9	17	6.7	34	6.8
Race	White	211	85.8	217	85.4	428	85.6
	minority	35	14.2	37	14.6	72	14.4
Education	high school or less	32	13.0	39	15.4	71	14.2
	some college	143	58.1	125	49.2	268	53.6
	college degree+	71	28.9	90	35.4	161	32.2

Data Collection Methods

Online questionnaires

Outcome Measures

Primary outcome measure: abstinence from smoking

Additional outcome measures: use and acceptability of the website.

Evaluation Methods

Quit rates were compared for those in the experimental and control groups.



Research Results

Quit rates: The primary measure of the effectiveness of the treatment program was whether or not those who used it actually quit smoking. Treatment subjects were significantly less likely to return for the posttest at 30 days (T2) and the 120-day follow-up (T3). Expectation is that those who have NOT quit smoking are more likely to drop out, and thus analyses of quit rates at each time would be biased. To overcome this, an “intent to treat” model was used in which all participants who did not complete T2 and T3 data were considered to be smokers at those times.

Posttest 30-day (T2) effect of treatment: Subjects in the treatment condition were significantly more likely to have quit smoking at T2 compared to those in the control condition (17.9% vs. 5.5%); unadjusted odds ratio = 3.73 (95% confidence interval = 1.99-7.01); likelihood ratio chi-square (N = 500, df = 1) = 19.44, p < 0.001. That is, the treatment condition participants were more than three times as likely to have quit smoking at T2 compared to control group participants. This would be considered a moderately large effect (Lipsey & Wilson, 2000). □ **Treatment effect at**

Treatment effect at 120-day follow-up (T3): Again at T3, treatment group participants were significantly more likely to have quit smoking compared to those in the control group (18.3% vs. 8.3%); unadjusted odds ratio = 2.48 (95% confidence interval = 1.43-4.31); likelihood ratio chi-square (N = 500, df = 1) = 11.14, p = 0.001. Treatment participants were more than twice as likely to have quit smoking at T3 compared to the controls. This would be considered a moderate effect (Lipsey & Wilson, 2000).

Treatment effect at 1-year follow-up (T4): After T3, control group participants were allowed access to the treatment program. At the T4 1-year follow-up survey, a total of 97 participants (29% of those who completed T4 and 19% of the total of 500) were quitters. Of the 97 participants who were quitters at T4, 51 had used some portion of the program some time during the evaluation period, and 46 people had not used the program. This is a statistically significant difference (37.5% vs. 23.6%); unadjusted odds ratio = 1.94 (95% confidence interval = 1.20-3.14); likelihood ratio chi-square (N = 331, df = 1) = 7.48, p = 0.006. Thus, people who used the program were almost two times more likely to quit than those who did not use the program.

Visits to the program website: Those who had quit smoking at posttest (T2) were more than three times more likely than those who had not quit to use the treatment program more often than the schedule suggested by the program (30% vs. 11%); odds ratio = 3.51 (95% confidence interval = 1.43-8.63); likelihood ratio chi-square (N = 147, df = 1) = 7.44, p = 0.006. The same relationship, but not quite as strong, was found at the 120-day follow-up (T3): 40% vs. 22%; odds ratio = 2.35 (more than two times as likely) (95% confidence interval = 1.05-5.26); likelihood ratio chi-square (N = 122, df = 1) = 4.372, p = 0.037).

Satisfaction ratings of program: Treatment subjects were asked three questions evaluating the program at both T2 and T3: How useful was this program? How easy was the program to use? and Would you recommend this program to a friend? The mean useful ratings on a 1 to 5 scale (with 1 being extremely useful) were 2.14 (n = 149) at T2 and 2.03 (n = 124) at T3. The mean ease of use ratings on a 1 to 5 scale (with 1 being extremely useful) were 1.88 (n = 148) at T2 and 1.84 (n = 123) at T3. Not surprisingly, those who had quit smoking at T2 and T3 rated the program usefulness and ease of use more positively than did those who had not quit. Ninety-eight percent of T2 participants (n = 149) said that they would recommend the program to a friend, as would 97% of the T3 participants (n = 123).



Barriers & Solutions

No major problems encountered

Product(s) Developed from This Research

Smokefree Partners: 21 Days to Freedom: This program combines a structured, 21-step, computer-based approach with a live “coach” feature to support smokers through a smoking cessation attempt and maintenance. Video-based website content, a message board with other program users, emails, and telephone contacts guide the user through the preparative stages, through the quit day, and 14 days of additional support. The program promotes the use of pharmacological aids and social support as positive adjuncts to a successful quit. The program was evaluated for efficacy in a clinical trial with 500 smokers from February 2003 through January 2006.