A Brief Smoking Cessation Intervention for Women in Low-Income Planned Parenthood Clinics

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A B S T R A C T

Objectives. The purpose of this study was to evaluate a brief smoking cessation intervention for women 15 to 35 years of age attending Planned Parenthood clinics.

Methods. Female smokers (n = 1154) were randomly assigned either to advice only or to a brief intervention that involved a 9-minute video, 12 to 15 minutes of behavioral counseling, clinician advice to quit, and follow-up telephone calls.

Results. Seventy-six percent of those eligible participated. Results revealed a clear, short-term intervention effect at the 6-week follow-up (7-day self-reported abstinence: 10.2% vs 6.9% for advice only, $P<.05$) and a more ambiguous effect at 6 months (30-day biochemically validated abstinence: 6.4% vs 3.8%, NS).

Conclusions. This brief, clinic-based intervention appears to be effective in reaching and enhancing cessation among female smokers, a traditionally underserved population. (*Am J Public Health.* 2000;90:786–789)

The health consequences of smoking for women are well documented.[1,2] While the overall prevalence of smoking has declined,[3] there is an increasing rate of smoking among young White women and a slow rate of decline among women of lower socioeconomic status.[4–6] The efficacy of medical-office-based smoking cessation interventions is well established.[7–12] Yet, women of lower socioeconomic status often have multiple barriers to participating in such programs (e.g., transportation, time, cost, child care).[7,13–15]

Effectiveness studies are needed to evaluate programs targeting underserved populations in real-world settings.[16,17] Planned Parenthood clinics, which typically serve many low-income women with a high probability of smoking, offer an important setting in which to study these issues.

The evaluation model used in this study addressed the public health impact of our smoking intervention on 5 key dimensions: reach, efficacy, adoption, implementation, and maintenance (RE-AIM).[18] This paper describes the outcomes of a randomized trial in which 1154 women in Planned Parenthood clinics were assigned to an advice-only condition or to a brief smoking cessation intervention. We report on (1) program adoption among clinics approached, (2) participation rate and representativeness of the sample (reach), (3) subject attrition, (4) intervention implementation integrity, and (5) smoking cessation outcomes at 6 weeks (efficacy) and 6 months (maintenance) postintervention.

Methods

Setting

This study was conducted in 4 Planned Parenthood clinics in Portland, Ore, from 1997 to 1998. Clients visit these clinics for contraception, gynecologic, and pregnancy-related services. Women account for the vast majority (95%) of patient visits, and more than half of all patients have reported annual household incomes below 125% of the poverty level.[14]

Female smokers (i.e., those self-reporting any current cigarette smoking on their medical history intake form) 15 to 35 years of age who were scheduled for routine contraception or non-pregnancy-related follow-up visits were offered study participation. All participants read and signed a consent form approved by our institutional review board. A blocking size of 4 was used in randomizing consenting women at each clinic to 1 of 2 conditions under a fixed randomization schedule.[19]

Intervention

Patients randomized to the advice-only condition received a generic stop smoking brochure ("Smart Moves") and a standardized 20-second message from their health care provider advising them to quit. This was done to address ethical issues in regard to not providing advice and to prevent contamination across conditions.[11]

The brief intervention, based on motivational interviewing[20] and barrier-based counseling,[21] was delivered immediately before the clinician visit. Participants first saw a 9-minute video featuring young women discussing reasons for, difficulties with, and tips for quitting smoking along with health professionals discussing cessation benefits.[22] After the video, Planned Parenthood staff met briefly (12–15 minutes) with participants to discuss their reactions to the video, assess their readiness to quit, and develop personalized strategies based on readiness to quit and barriers to quitting. Readiness was assessed several times in the encounter, and smokers in the decision/action stage were asked to set a quit date and helped to devise a cessation plan. All brief intervention participants were given materials tailored to their stage of change and were offered supportive telephone calls in the following month. They also received the 20-second quit message from their provider.

Nicotine replacement therapy was not used because its cost was not covered, and it was considered unlikely that these low-

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income women would purchase this form of therapy. Participants in both conditions received a $10 gift certificate at their visit and additional gift certificates after completing the 6-week and 6-month data collection calls ($10 and $20, respectively).

Study protocols were developed after extensive consultation and pilot work with Planned Parenthood clinicians and staff. All staff underwent a 1-hour training session covering study background, rationale, protocols, and materials. Clinicians underwent an additional hour of training that included role-playing, and patient services staff underwent 4 hours of training on recruitment, informed consent, intervention delivery, and documentation.

Initially, research staff were present in the clinics daily to observe interventions and protocol adherence and to provide feedback. Additional training sessions were arranged to accommodate patient services staff turnover (only 36% of those initially trained remained throughout the study). Ongoing supervision and support were provided through twice-weekly visits, telephone consultation, and quarterly feedback on randomization goals, protocol adherence, and participant satisfaction data.

Measures

The baseline questionnaire consisted of 28 items on sociodemographic characteristics; smoking history, smoking among peers and household members, and nicotine dependence[23]; previous cessation efforts, stage of change,[24] and confidence about cessation; smoking and weight concerns[25]; depression[26]; general health and social support; and barriers to and benefits of quitting. At 6 weeks and 6 months, participants were contacted by a telephone interviewer, unaware of condition assignments, who assessed smoking status, cessation attempts, and cessation methods. Those who reported not smoking in the previous 30 days at the 6-month assessment were asked to provide a saliva sample for cotinine measurement. Cotinine levels above 10 ng/ml were considered disconfirmatory.

Analyses

Analyses of variance or χ^2 analyses were used to evaluate baseline differences between conditions and attrition rates. Multiple logistic regression analyses or analyses of covariance (ANCOVAs), as appropriate, were used in evaluating outcomes; outcomes were adjusted for potential confounding variables. Models included intervention status and any baseline variables on which conditions differed. Missing data were handled via complete cases and an intent-to-treat model that assumed that subjects lost to follow-up were smoking.

Results

Clinic Adoption

All 4 Planned Parenthood clinics approached (those with the populations that were most ethnically diverse and of the lowest socioeconomic status) participated in the study.

Reach

As detailed elsewhere,[14] we estimated from chart reviews that more than 99% of Planned Parenthood clients had their smoking status identified and that 70% of smokers were approached about participation. Seventy-six percent of the smokers approached participated, and there were no differences between participants and nonparticipants on any demographic or smoking history variables (Table 1). Participants averaged 24 years of age, 89% were White, and 43% had a high school diploma or less. These women were relatively light smokers and had smoked for an average of 6 years. At baseline, fewer than 30% reported intending to quit in the next month. There were no differences between treatment conditions on any of the baseline variables.

Attrition and Biochemical Data

Ninety-three percent of participants completed the 6-week follow-up, and 90% completed the 6-month follow-up. There were no significant differences between conditions on attrition rates (Table 2). Of the participants claiming to be abstinent for 30 days at the 6-month follow-up, 70% (76% of intervention participants and 62% of advice-only participants) provided saliva samples for analyses. Of the 75 participants providing saliva samples, 3 reported use of nicotine replacement therapy. Of the remaining 72 samples, 17% involved cotinine levels exceeding 10 ng/ml. There were no significant differences between conditions in regard to percentages of self-reported quitters biochemically disconfirmed (18% of intervention participants and 15% of advice-only participants).

Implementation

Planned Parenthood staff delivered the intervention components very consistently (delivery rates of 85% or higher), with the exception of follow-up telephone calls (Figure 1). Twenty-six percent of intervention subjects did not want to be called, and, despite repeated efforts, we failed to reach 31% of those who agreed to calls. Despite ongoing supervision, feedback, and problem-solving attempts, including centralization of the follow-up calls, it proved difficult to complete the supportive calls.

TABLE 1—Participant and Nonparticipant Characteristics, by Condition: Planned Parenthood Clinics, Portland, Ore, 1997–1998

	Participants		
	Brief Intervention (n = 578)	Advice Only (n = 576)	Nonparticipants (n = 359)
Demographics			
Age, y, mean (SD)	24 (5)	24 (5)	25 (5)
Education, %			
High school or less	44	41	43
Some college	41	45	41
College or more	15	15	16
Caucasian, %	90	88	90
Time with Planned Parenthood, %			
Less than 6 months	38	40	35
6 months–4 years	32	29	37
More than 4 years	29	31	28
Smoking history/patterns			
Cigarettes per day, mean (SD)	12 (7)	12 (7)	11 (7)
Years smoked, mean (SD)	6 (4)	6 (4)	9 (5)
Intention to quit, %			
Next month	28	27	. . .[a]
Next 6 months	68	70	. . .[a]

Note. There were no significant differences between participants and nonparticipants, or between brief intervention and usual care patients, on any of these baseline variables.
[a]Not available.

TABLE 2—Cessation Outcomes at 6-Week and 6-Month Follow-Ups: Planned Parenthood Clinics, Portland, Ore, 1997–1998

	6-Week Follow-Up		6-Month Follow-Up	
	Brief Intervention	Advice Only	Brief Intervention	Advice Only
7-day abstinence, % (no.)				
Present at assessment	11.0 (536)	7.4 (536)**	21.1 (502)	16.2 (531)**
Intent to treat[a]	10.2 (578)	6.9 (576)**	18.3 (578)	14.9 (576)
30-day abstinence, % (no.)				
Present at assessment	. . .	. . .	11.6 (510)	8.5 (532)*
Intent to treat[a]	. . .	. . .	10.2 (578)	7.8 (576)
Biochemical confirmation[b]	. . .	. . .	6.4 (578)	3.8 (576)

[a]Intent-to-treat analyses assume that participants not located are smoking.
[b]Biochemical confirmation of self-reported 30-day quit rate assumes that those not contacted and those who decline to provide saliva samples are smoking. Those reporting current use of nicotine replacement products (3%) are considered abstinent.
*$P<.10$; **$P<.05$ (logistic regression analysis).

Cessation

The brief intervention produced modest but consistent increments in 7-day cessation rates beyond advice only (10.2% vs 6.9% abstinence in the intent-to-treat analysis; odds ratio [OR]=1.52, 95% confidence interval [CI]=1.01, 2.32). At the 6-week follow-up, differences between conditions were significant at $P<.05$, regardless of whether intent-to-treat or complete case analyses were used.

Outcomes were less clear at 6 months. There was a significant effect on the 7-day abstinence measure when complete cases were used (OR=1.39, 95% CI=1.01, 1.90; $P<.05$). However, none of the 30-day abstinence measures—complete cases ($P=.09$), intent to treat ($P=.15$), or the biochemical verification analysis (6.4% vs 3.8% confirmed abstinence; $P=.25$)—reached significance.

Smoking Reductions

Encouraging results were found regarding number of cigarettes smoked per day, although this not a central focus of this intervention. ANCOVAs revealed that among continuing smokers who did not stop, the brief intervention produced greater reductions than did advice only at both the 6-week (3 vs 2 cigarettes per day, $P<.01$) and 6-month (4 vs 3 cigarettes per day, $P<.05$) follow-ups.

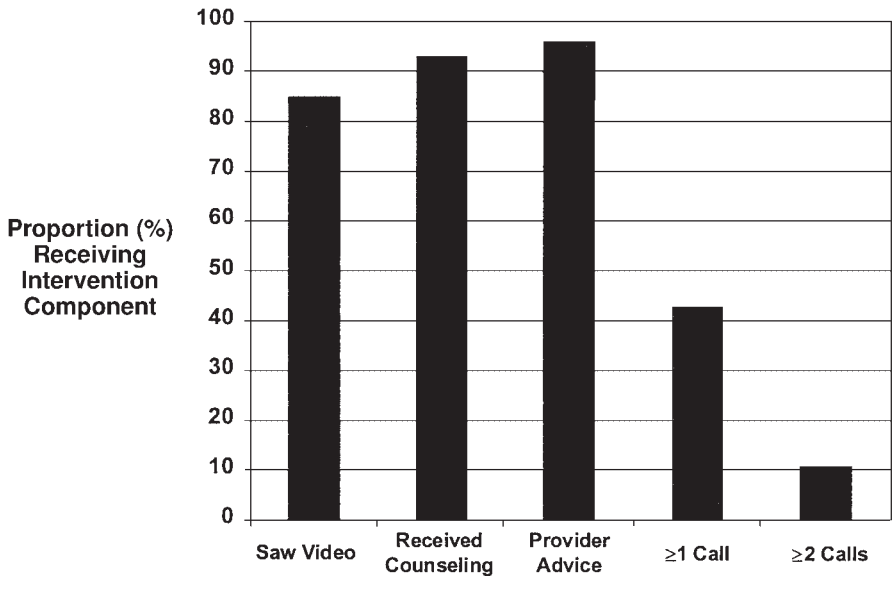

FIGURE 1—Intervention implementation rates, by component: Planned Parenthood Clinics, Portland, Ore, 1997–1998

Discussion

A brief intervention implemented by Planned Parenthood staff attracted a high percentage of smokers and produced a statistically significant short-term (6-week) effect on quitting. However, at the 6-month follow-up, differences between conditions, although consistently showing 30% to 50% greater cessation rates among the brief intervention participants, were generally nonsignificant. The study had reasonable statistical power to detect differences of 5% in cessation rates. Given our sample size and the 8% cessation rate at 6 months in the advice-only condition, we had 80% power to detect an improvement of 5% in terms of cessation ($\alpha=.05$, 2-tailed). Although some outcomes were based on self-reports, biochemical data at the 6-month follow-up did not reveal differential reporting across conditions. The gift certificates, judged necessary to enhance participation in assessments, may have affected both conditions.

It is not uncommon for short-term differences in cessation to diminish at longer follow-ups.[27,28] We suspect that in the present study, this was due to problems in implementing the follow-up intervention. Protocol implementation at the clinic visit was exceptional. Almost all women assigned to intervention received provider advice, more than 90% received counseling, and 85% saw the targeted video.

In contrast, implementation of the follow-up counseling calls was poor; only 43% of participants received a call. The low rate of telephone counseling was partly a function of the population. Some women (26%) did not

want to be called; others were very difficult to reach. Part of the problem was the poor fit between Planned Parenthood staffing and follow-up calls. In other projects requiring telephone counseling,[29] we often reach participants during evenings and weekends. However, Planned Parenthood staff did not work evenings or weekends. Midway through the project, we shifted the calls to a centralized Planned Parenthood caller and expanded calling times, but this did not substantially improve contact rates.

Considered against the dimensions of a comprehensive public health evaluation scheme such as RE-AIM,[18] our program succeeded in some ways but not in others. All 4 Planned Parenthood clinics that we approached participated. In terms of reach, 76% of smokers approached participated. In regard to implementation, in-clinic protocol adherence was excellent, but telephone follow-up was problematic. Short-term efficacy was reasonably good for a brief intervention conducted by Planned Parenthood staff in addition to their numerous other responsibilities. Long-term maintenance was not as robust as we had hoped. Finally, whether Planned Parenthood clinics will maintain and institutionalize the smoking intervention after the formal project has ended remains to be seen.

The current study had several strengths: a large, randomized sample; high rates of adoption, recruitment, and participation; a brief, practical intervention, the clinic part of which could readily be implemented by line staff; a relatively comprehensive evaluation; and biochemical corroboration of self-reported cessation. Limitations include difficulties in completing follow-up telephone counseling, high Planned Parenthood staff turnover, and the inclusion of only a few clinics in one city. □

Contributors

R. E. Glasgow was principal investigator and oversaw analyses. E. P. Whitlock supervised training and the monitoring of project implementation. E. G. Eakin supervised development of the project video. All of the authors contributed to the project design, specification of the intervention and measurement protocols, and participated actively in writing the manuscript.

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