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Telephone-Based Tobacco-Cessation Treatment:

Re-Enrollment Among Diverse Groups

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Abstract

Background—Telephone quitlines are utilized by diverse individuals and represent an effective tobacco-cessation modality. Quitlines allow tobacco users to seek support for multiple quit attempts. Little is known about how frequently tobacco users take advantage of this opportunity. No studies have been conducted to determine how communication strategies affect quitline re-enrollments. This study aimed to determine the rates of quitline re-enrollment and to compare the responses of people of varying racial/ethnic identities to invitations utilizing different communication strategies.

Design—Four-cell RCT.

Setting/participants—Random sample of 2400 tobacco users who enrolled into services during 2006, with oversampling of ethnic populations.

Intervention—Between November 2006 and January 2007, participants received either no invitation to re-enroll or were invited to re-enroll into services via a letter, a letter with ethnic-specific content, or a letter and a telephone call.

Main outcome measures—Re-enrollment into quitline services.

Results—Analysis of the 252 days prior to the intervention resulted in a spontaneous re-enrollment rate of 0.54% per 30 days. Recruitment using mailers did not significantly change this rate; the addition of telephone calls increased re-enrollment to 6.93% per 30 days. No significant differences were found among the subpopulations studied. Invalid addresses (16%); invalid telephone numbers (29.1%); and the inability to reach subjects after five call attempts (37.9%) were barriers to recruitment.

Conclusions—For those who have previously called quitlines for help, proactive re-enrollment can be one way to initiate a new quit attempt after relapse. This study has shown that it is feasible to re-enroll former quitline participants, making the test of effectiveness the next logical step.

Introduction

Telephone counseling is an effective and accessible mode of smoking-cessation service.^{1,2} Currently such counseling is available in the U.S., free of charge, in the form of state quitlines.

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State quitlines serve, on average, 1% of the smokers in the U.S., with state utilization rates ranging from 0.01% to 4.28%.³ This translates into a volume of approximately 400,000 smokers each year.

Many quitline users, however, will relapse after they initially attempt to quit, because recidivism in smoking cessation is high.⁴ As quitlines typically record the contact information of callers,³ it seems logical to reach out to those who relapsed to encourage them to use counseling again. Moreover, smokers of ethnic-minority backgrounds are active participants among first-time quitline callers.^{5,6} Proactively re-enrolling former quitline users can contribute to the national tobacco-control effort to reach out to underserved populations.⁷

This study had two objectives: first, to establish the rate of spontaneous re-enrollment in state quitlines when there is no proactive outreach, and second, to test the effectiveness of proactively reaching out to former quitline callers through mailed and telephone invitations to re-enroll in treatment. The re-enrollments of four populations (non-Hispanic white, Latino/Hispanic, African American, and Native American) were also compared. The primary hypotheses were that telephone invitations would produce a higher re-enrollment rate than direct mail, and that direct mail would produce a higher re-enrollment rate than no intervention. The secondary hypothesis was that mailers with content reflecting tobacco users' racial/ethnic identities would generate higher re-enrollment rates than generic mailers.

Methods

Setting and Study Sample

The study population consisted of tobacco users who received services from the Oklahoma or New Mexico helplines between May 2005 and February 2006. Eligibility criteria required that participants be aged ≥ 18 years, agreed to be contacted, and reported being either non-Hispanic white, Latino/Hispanic, African American, or Native American. A total of 10,299 subjects were eligible, and 2400 were randomly selected for inclusion in the study, 600 from each racial/ethnic identity.

Study Design

The study oversampled Latino/Hispanics, African Americans, and Native Americans to ensure 600 subjects from each racial/ethnic identity (Figure 1). Subjects were randomized into four study groups, using ethnicity and state as stratification variables:

Control condition—Subjects could call and re-enroll in services, but no proactive invitation was extended.

Generic mail invitation—Subjects received a mailer inviting them to contact the helpline to re-enroll in services. The mailer design was based on a survey of more than 2000 smokers, mostly non-Hispanic whites (T. Bush et al., unpublished findings, Free & Clear, Inc., 2007).

Ethnic-specific mail invitation—Subjects received a mailer targeted to their racial/ethnic identity. The contents of these mailers were based on input from focus groups with smokers from each ethnic group.

Mail invitation with telephone follow-up—Each subject received an ethnic-specific mailer and a telephone follow-up call (five attempts). Staff used motivational interviewing techniques⁸ to encourage the subjects to re-enroll.

The 7899 subjects eligible for the study but not randomized into groups were monitored in terms of their re-enrollment rates and used as the expanded control in the study.

Data Collection and Analysis

Spontaneous re-enrollment was tracked for 252 days (timing was based on the operational convenience of the quitlines) before the delivery of interventions. Re-enrollment post intervention was tracked for 60 days (Figure 1). The dependent variable was re-enrollment into the quitline. The independent variable of interest was the type/channel of message delivered. Comparisons within the pre- or post-intervention periods were evaluated, using chi-square tests or Fisher exact tests. The comparisons of monthly re-enrollment rates between the pre- and post-intervention periods were evaluated using t-tests. Logistic regression was used to determine the differences in re-enrollment rates among groups, controlling for racial/ethnic identity, age, and gender.

Results

The sample included mostly cigarette users (98.3%), women (65%), and people aged >45 years (45.7%). These characteristics reflect the typical makeup of tobacco users seeking support from quitlines,⁵ and were statistically no different among study groups (except for a slightly younger sample in the mail-invitation group.)

Based on 2400 individuals followed for 252 days, the 30-day spontaneous re-enrollment rate averaged 0.54% per 30 days. No significance was found among spontaneous re-enrollments across the four study groups or ethnic groups included in the trial.

On average, 15.7% of the mailers were returned due to invalid addresses (range 14.9%–16.2%). Among the subjects randomized to the mail-with-telephone follow-up group, 29.1% had records of disconnected or wrong numbers, and 37.9% could not be reached after five attempted telephone calls. African Americans and individuals aged <45 years were significantly more likely to have both invalid addresses and non-usable telephone numbers on record.

No significant change was detected in re-enrollment rates for mail-invitation groups (generic or ethnic-specific) during the 60-day follow-up period when compared to spontaneous re-enrollment rates and to the expanded control group (Table 1). However, when compared to the re-enrollment rate in the control group, mail interventions were statistically higher (six and eight people, compared to zero in the control; $p \leq 0.05$).

The mailer-with-telephone follow-up resulted in a monthly re-enrollment rate of 6.93%, significantly higher than the spontaneous re-enrollment (before intervention); the control; the expanded control; and the two other study groups' re-enrollment rates. If those effectively reached by telephone were considered alone ($n=80/179$), 44.7% agreed to re-enroll.

Logistic regression showed that during the intervention phase, re-enrollment rates did not vary across the four study groups by state, gender, or racial/ethnic identity. Older tobacco users were more likely to re-enroll by telephone than younger ones ($p \leq 0.05$). However, age differences did not hold significance when only the subjects reached were considered, suggesting that the difference could be related to the higher telephone stability of older tobacco users.

Discussion

This study showed that quitline users will re-enroll without any special prompt from the quitlines. It also demonstrated that re-enrollment can be higher when proactively prompted. While mailing invitations did not significantly alter re-enrollment, telephone outreach resulted

in a 12-fold increase in re-enrollment. These results support previous studies showing that intervention to increase re-enrollment can work.^{9–12}

Additionally, this study has shown that smokers of ethnic minorities are equally likely to re-enroll into quitline services, both spontaneously and when invited by telephone, and that their responsiveness to intervention requires no ethnic-specific effort. The main limitation of using proactive methods to re-engage tobacco users into quitline services seems to be the lack of valid contact information. This should be kept in mind particularly when the foci of intervention are younger tobacco users and African Americans, the groups least likely to be successfully reached using available contact information.

A 0.5% monthly spontaneous re-enrollment rate translates into service for 20,000 smokers, assuming that state quitlines continue to serve about 1% of U.S. smokers per year.³ This is not a negligible service effort on the part of quitlines. Future studies should examine the effectiveness of quitline services to these re-enrollees, as most published studies on quitlines focus only on smokers who are first-time callers.²

For those who have called quitlines for help in the past, proactive re-enrollment can be one way to initiate a new quit attempt after relapse. Given that repeated quit attempts are the norm before smokers succeed in finally quitting, proactive interventions that prompt new quit attempts are promising,¹³ making the test of their effectiveness the next logical step.

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Figure 1.
Flow diagram of subject progress through the study

Table 1
Re-enrollment rates by group condition, (n) and rate per 30 days (%)

Re-enrollment	Control n=600	Mailer, generic n=600	Mailer, ethnic-specific n=600	Mailer + telephone n=600	Expanded control n=7899
Spontaneous—252 days prior to delivery of recruitment messages	(25) 0.50	(34) 0.67	(28) 0.56	(23) 0.46	(334) 0.50
After delivery of recruitment messages—60 days follow-up	(0) 0.00	(6) 0.53 ^a	(8) 0.70 ^a	(80) 6.93 ^b	(67) 0.44

Note: All participants in the study were included in the analysis. Those with nonvalid addresses or telephone numbers were considered non-re-enrollees. Results remain significant even when covariates are included (gender, state, age group, and racial/ethnic identity).

^a Higher than control

^b Higher than control, generic, and ethnic-specific mailers