

Original Investigation

Feasibility of a telephone-based intervention for support persons to help smokers quit: A pilot study

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Abstract

Background: Nonsmokers have a potentially supportive role in tobacco cessation efforts. The present study examined the feasibility, acceptability, and potential efficacy of a telephone-based intervention for nonsmoking support persons.

Methods: A total of 59 support persons (mean age = 36 years, 92% female, 95% White) were randomly assigned to a control condition ($N=30$; written materials only) or to a social cognitive theory-based intervention ($N=29$; written materials and 5 weekly, 20- to 30-min telephone counseling sessions). Both support persons and smokers completed assessments separately by mail at baseline and at weeks 6 (end of treatment) and 26.

Results: Two thirds of the smokers reported low–moderate levels of motivation to quit at baseline as assessed by the contemplation ladder. Study retention rates were excellent, with 95% of both support persons and smokers completing the week 26 assessment. Moreover, 86% of support persons in the intervention

group completed all five telephone sessions. Treatment acceptability was high for both support persons and smokers. Compared with the control condition, the intervention was associated with a significant increase in support person self-efficacy to help their smoker ($p=.034$) and outcome expectancies ($p=.025$) from baseline to week 6. However, the intervention was not associated with higher smoking abstinence rates or quit attempts.

Discussion: The program was successful in reaching smokers with lower levels of readiness to quit. The intervention was feasible and acceptable to both support persons and smokers. Although support persons and smokers can be engaged in this type of outreach program, refinements in the intervention approach are needed to improve the smoking outcomes.

Introduction

A positive association has been documented between social support received by smokers and their successes at smoking cessation

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(Fiore et al., 2008). Nevertheless, clinic-based smoking treatments involving supporters generally have not been successful (May & West, 2000; Park, Tudiver, Schultz, & Campbell, 2002). The reported willingness of nonsmokers to help smokers quit (Thomas et al., 2008) and to seek help on behalf of smokers (Campbell, Mays, Yuan, & Muramoto, 2007; Zhu, Nguyen, Cummins, Wong, & Wightman, 2006) holds promise for tobacco cessation. Our approach consisted of directly targeting nonsmoking support persons as the agent of change (Patten et al., 2004). The present study examined the feasibility, acceptability, and potential efficacy of a social cognitive theory-based telephone counseling intervention for support persons. We extended our previous work by examining the feasibility of obtaining baseline and smoking outcome assessments from the smokers. Another goal was to assess smokers' reactions to support persons' involvement in the study. Processes of change consistent with our theoretical framework also were examined.

Methods

Participants

A target sample of 60 support persons was based on the primary aim of examining feasibility. Recruitment occurred over a 5-month period from 2005 to 2006 and consisted of flyers displayed in the community that targeted family members or friends who wanted to help a smoker quit.

Individuals were eligible for the study if they were at least 18 years of age, provided written informed consent, had never smoked or had not smoked in the past 6 months, wanted to help a current adult smoker (average of at least one cigarette smoked per day during the past 7 days), and had current and expected contact (face-to-face, telephone, or E-mail) with their smoker on at least 4 days/week for the 6-month study duration, and if their smoker provided written informed consent. Individuals were excluded if another support person from the same household had enrolled, if another individual had enrolled to help the same smoker, or if the smoker was currently (in the past 30 days) receiving cessation treatment. The study was approved by the Mayo Clinic institutional review board.

A total of 98 people expressed interest in the study; 85 were reached for screening. Of these, 59 (69%) were eligible to participate. Of the 26 not eligible, only 2 reported that they were not willing or able to ask their smoker to provide informed consent and 9 were excluded because their smoker did not provide consent.

Procedure

This pilot study applied a randomized, two-group design with mailed assessments at weeks 0 (baseline), 6 (end of treatment), and 26. After the baseline assessment, support people were randomly assigned to the control ($N=30$) or intervention ($N=29$) condition. The interventions were provided only to the support persons. Separate assessment packets were mailed to the support persons and smokers. Support persons and smokers each received US\$20 for completion of each of the assessments at weeks 0, 6, and 26.

Interventions

Control condition. Support persons in the control group received a 20-page booklet developed in a previous study (Patten

et al., 2007). The booklet contained information on nicotine dependence, motivation to quit, stop smoking resources, and supportive behaviors. No additional intervention was provided.

Telephone counseling. The telephone counseling condition included the booklet provided in the control condition and 5 weekly proactive telephone counseling sessions (lasting 20–30 min each), conducted through the Mayo Tobacco Quitline. The development and content of the intervention are described in detail elsewhere (Patten et al., 2007).

Counselors

The manual-based intervention was provided by three Mayo Tobacco Quitline counselors. A checklist was used to compare the number of intended intervention components that were delivered. Overall counselor adherence to the manual was 98%; thus, the intervention was delivered according to the protocol.

Measures completed by support persons

Based on our theoretical framework, at weeks 0 and 6, single items were used to assess perceived self-efficacy, outcome expectancies, and motivation level to help. Support persons completed the 22-item Support Provided Measure (SPM), which taps support delivered to a smoker over the previous 2-week period (Thomas et al., 2005). SPM items pertain to support provided to a smoker irrespective of their level of readiness to quit. The SPM was shown to have high internal consistency reliability ($\alpha = .83$; Thomas et al., 2005).

At week 6, support persons rated the perceived helpfulness of the interventions and were given the opportunity to provide open-ended feedback. Counselors recorded whether or not each telephone session was completed. All support persons indicated at week 6 how much of the booklet they had read.

Measures completed by smokers

At baseline, demographic characteristics, cigarettes smoked per day, and quitting self-efficacy (Ossip-Klein et al., 2000) were assessed. At weeks 0, 6, and 26, the validated contemplation ladder was used to assess readiness to quit (Biener & Abrams, 1991).

At weeks 6 and 26, smokers' self-reported smoking status was assessed. A saliva collection kit was mailed to smokers who self-reported abstinence from smoking. Point prevalence smoking abstinence was defined at each timepoint as no cigarettes smoked (not even a puff) for the previous 7 days, confirmed with a salivary cotinine concentration of less than 15 ng/ml (Hughes et al., 2003). Based on an intent-to-treat approach, smokers were classified as smoking if they were lost to follow-up, if they did not provide information on their smoking status, or if biochemical verification of abstinence could not be obtained. Smokers who reported continued smoking were asked to report the number of quit attempts made since the prior assessment.

At week 6, smokers rated their receptivity to the intervention and the effect of study participation on their relationship with their support person, and they were given the opportunity to provide open-ended feedback.

Table 1. Baseline characteristics of support persons and smokers by treatment condition^a

Characteristics	Control group (N = 30)	Telephone counseling (N = 29)	<i>p</i> value
Among support persons			
Age in years, <i>M</i> ± <i>SD</i>	37.3 ± 13.4	35.7 ± 10.5	0.83
Range	20–71	18–53	
Female gender	97% (29)	86% (25)	0.20
Race			0.20
White	97% (29)	93% (27)	
Hispanic	3% (1)	0% (0)	
Asian	0% (0)	7% (2)	
Married	60% (18)	59% (17)	0.91
Education			0.80
High school/general educational development	10% (3)	7% (2)	
Some college/trade school	43% (13)	38% (11)	
College degree	40% (12)	41% (12)	
Postgraduate degree	7% (2)	14% (4)	
Tobacco use			0.34
Never	53% (16)	35% (10)	
Experimented	30% (9)	41% (12)	
Former smoker	17% (5)	24% (7)	
Type of relationship: smoker is a ...			0.39
Spouse/partner	30% (9)	28% (8)	
Parent	10% (3)	7% (2)	
Child	20% (6)	7% (2)	
Sibling	13% (4)	3% (1)	
Friend	7% (2)	21% (6)	
Coworker	10% (3)	14% (4)	
Boyfriend/girlfriend	7% (2)	17% (5)	
Other	3% (1)	3% (1)	
Lives with smoker	33% (10)	41% (12)	0.52
Among smokers			
Age in years, <i>M</i> ± <i>SD</i>	40.0 ± 14.7	37.0 ± 12.7	0.57
Range	19–68	21–63	
Female gender	47% (14)	35% (10)	0.34
Race			
White	100% (30)	97% (28)	
Hispanic	0% (0)	3% (1)	
Married	50% (15)	59% (17)	0.51
Education			0.86
Elementary school/junior high	3% (1)	3% (1)	
High school/general educational development	37% (11)	38% (11)	
Some college/trade school	33% (10)	41% (12)	
College degree	17% (5)	7% (2)	
Postgraduate degree	7% (2)	10% (3)	
Other	3% (1)	–	
Cigarettes per day, <i>M</i> ± <i>SD</i>	16.2 ± 7.8	16.6 ± 6.6	0.59
Range	5–40	4–30	
Self-efficacy to quit item ^b	5.0 ± 2.7	4.7 ± 2.7	0.59
Range	0–10	0–10	
Contemplation ladder ^c score, <i>M</i> ± <i>SD</i>	5.6 ± 2.2	5.9 ± 2.1	0.61
Range	0–10	1–10	
Low: 0–3	17% (5)	10% (3)	
Medium: 4–6	50% (15)	55% (16)	
High: 7–10	33% (10)	34% (10)	

Note. ^aAll values are percentages with sample sizes in parentheses, except where noted. Because of rounding, not all percentages total 100.

^bAssessed with the item “How confident are you that you can quit smoking completely in the future regardless of the situation.” Rated on an 11-point scale ranging from 0 = “not at all confident” to 10 = “completely confident” (Ossip-Klein et al., 2000).

^cThe ladder operates as an 11-point Likert scale and is designed to measure a smoker’s position on a continuum ranging from having no thoughts of quitting (0) to being engaged in action to change one’s smoking behavior (10). From previous work (Zhu et al., 2006), the contemplation ladder scores also were grouped into three categories: low (0–3), medium (4–6), or high (7–10) levels of readiness to quit.

Table 2. Support person study outcomes (process measures) by treatment condition

Process measure	Baseline		End of treatment	
	Control (N=30)	Intervention (N=29)	Control (N=30)	Intervention (N=29)
Motivation to help item ^a				
<i>M ± SD</i>	8.6 ± 1.7	8.5 ± 1.4	8.4 ± 2.0	8.7 ± 1.1
Range	5–10	5–10	3–10	6–10
Change from baseline			−0.1 ± 1.9	0.2 ± 1.3
Self-efficacy to help smoker ^{b,c} item				
<i>M ± SD</i>	4.1 ± 1.7	4.4 ± 2.2	5.0 ± 2.5	6.6 ± 1.9
Range	1–7	1–10	1–10	3–10
Change from baseline			0.9 ± 2.2*	2.1 ± 2.7*
Outcome expectancies item ^{c,d}				
<i>M ± SD</i>	4.3 ± 2.0	4.6 ± 2.2	4.8 ± 2.3	6.2 ± 1.9
Range	1–8	1–10	1–10	3–9
Change from baseline			0.4 ± 2.6**	1.7 ± 2.5**
Support provided measure score ^e				
<i>M ± SD</i>	10.4 ± 3.7	10.2 ± 3.7	14.2 ± 3.5	15.3 ± 4.8
Range	4–18	4–20	8–20	4–22
Change from baseline			3.8 ± 3.6	5.1 ± 4.6

Note. ^a“How motivated are you to help this person to quit smoking or stay quit?” Rated on a 10-point scale ranging from 1 = “not motivated at all” to 10 = “extremely motivated.”

^b“How confident are you that you can help your smoker quit or stay quit regardless of the situation?”

^cThe answer set was rated on a 10-point rating scale ranging from 1 = “not at all confident” to 10 = “completely confident.”

^d“How confident are you that your efforts will help your smoker quit or stay quit?”

^eThe total score is calculated by summing the number of items endorsed in the direction of supportive behaviors; range = 0–22.

p* = .034 from two-sample rank sum test comparing treatment differences on the mean change from baseline. *p* = .025 from two-sample rank sum test comparing treatment differences on the mean change from baseline.

Data analyses

Baseline demographics were compared between the treatment conditions for the support persons and smokers using the chi-square test or exact test as appropriate for categorical variables and the two-sample rank sum test for continuous variables. Fisher’s exact test was used to compare conditions on study retention, smoking abstinence rates, and proportion of smokers reporting at least one quit attempt. Treatment differences on SPM scores, contemplation ladder scores, and ratings of treatment acceptability were evaluated using a two-sample rank sum test or an exact test when appropriate. Two-tailed *p* values of .050 or less were considered statistically significant. Themes from the qualitative treatment acceptability data were explored using content analysis (Sim, 1998).

Results

Participants

Table 1 presents the baseline characteristics of the 59 support persons and 59 smokers. Treatment conditions were comparable on baseline characteristics.

Study retention

No significant differences were detected between treatment conditions on study retention. Among support persons, 98% and 95% completed the weeks 6 and 26 assessments, respectively. The corresponding percentages for the smokers were 97% and 95%, respectively.

Treatment compliance

Some 59% of support persons in the control condition and 79% of those in telephone counseling indicated that they had read the entire booklet (*p* = .089). Support persons who received the intervention completed a mean of 4.5 of 5 telephone sessions (*SD* = 1.4, range = 0–5); 86% (*n* = 25) completed all 5.

Treatment acceptability

Support persons. In each treatment condition, 86% of support persons indicated that they definitely or probably would recommend the program to another support person. The booklet was rated as somewhat or very helpful by 69% of control and 90% of intervention participants (*p* = .052). Among intervention participants, 71% indicated that the telephone counseling was somewhat or very helpful. However, most viewed the telephone sessions as being redundant with or not adding much information beyond that provided in the booklet.

Themes from the open-ended feedback indicated that the participants thought that this program might work best for those assisting a smoker who wants to quit. Many suggested that the booklet or some type of information should be sent to the smoker or that the smoker should receive counseling or quitting assistance as part of the program.

Smokers. In each treatment condition, 93% of smokers indicated that they were somewhat or very receptive to the support person’s attempts to assist them with their smoking. Some 59% of control smokers and 48% of intervention smokers indicated

no effect of study participation on their relationship with their support person; 35% and 44%, respectively, indicated that it had a very positive effect and only 7% (in both conditions) reported that it had a somewhat negative effect.

Themes from the open-ended feedback indicated that the smokers had a positive reaction to the support person's involvement in the study; for example, "I felt very good she cared enough to get involved." A common sentiment was that the smokers had to decide to quit; for example, "If someone were more ready than I am, I think this would be a great support." In addition, they emphasized the need for assistance with quitting: "Provide samples of nicotine replacement therapy," "Provide gum, patches or pills for quitting," and "Need more support for the smoker, other than from the support person."

Support person process measures

Compared with the control condition, the intervention resulted in a statistically significant increase from baseline in self-efficacy to help the smoker and in outcome expectancies, but no significant differences were observed for motivation to help or for SPM scores (Table 2).

Smoking outcomes

All smokers reporting abstinence from smoking provided a saliva sample. The biochemically confirmed abstinence rates were 3% for both conditions at week 6 and 7% for controls and 3% for intervention smokers at week 26. No significant treatment differences were observed for the proportion who had made at least one quit attempt at weeks 6 (47% vs. 63%) or 26 (67% vs. 62%) or for changes from baseline in quitting self-efficacy or contemplation ladder mean scores.

Discussion

This pilot study indicates that telephone counseling for support persons is feasible and acceptable to both support persons and smokers. Treatment compliance among support persons was excellent. In addition, it was feasible to obtain baseline and follow-up assessments and biochemical verification of smoking abstinence from the smokers. As in our prior study (Patten et al., 2004) by targeting support persons, the program was successful in reaching smokers reporting lower levels of readiness to stop smoking (about two thirds of the sample). Study retention rates among support persons and smokers also were excellent. For the first time, we assessed smokers' perspective and found they were receptive to the involvement of support persons. Thus, support persons and smokers can be engaged in this type of outreach program. However, we found no evidence that the telephone counseling was associated with a higher smoking abstinence rate or quit attempts in the smokers. Abstinence rates were consistent with population estimates for unassisted quit attempts (Centers for Disease Control and Prevention, 2002; Hughes, Keely, & Naud, 2004).

A potential limitation of the present study is that the support persons consisted of mostly females who were educated and employed, and nearly all were White. Nonetheless, these characteristics are similar to those found in other studies of individuals seeking help on behalf of a smoker (Campbell

et al., 2007; Zhu et al., 2006). We allowed for varying types of relationships between the support persons and smokers to enhance our recruitment and generalizability of the findings. Nonetheless, interventions may be more effective among support persons who live with or have a close relationship with their smoker.

A continued challenge for the field is how to optimize the role of supporters in tobacco cessation. A recent study highlighted the importance of social networks on smoking and indicated that health promotion efforts targeted to people who are connected socially with the smoker might be effective (Christakis & Fowler, 2008). Thus, continued efforts to target nonsmokers are warranted. Participant feedback suggested ways to strengthen the approach to improve the smoking outcomes, for example, by providing quitting assistance for the smokers. It is also important to consider whether nonsmokers can be trained as lay counselors. Unlike our previous clinic-based intervention (Patten et al., 2004), which showed more promising smoking outcomes, a telephone format may not have been sufficient to train nonsmokers to change smokers' behavior (i.e., no treatment differences were detected on change in SPM scores). A broader, public health goal for nonsmokers is to encourage their smokers to use an evidence-based treatment, for example, by calling a quitline (Patten et al., 2008). The potential utility of this approach is suggested by investigations in the alcoholism treatment field (for review, see Smith & Meyers, 2004).

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Declaration of Interests

None declared.

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