Support Person Intervention to Promote Smoker Utilization of the QUITPLAN® Helpline

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Background: Effective cessation services are greatly underutilized by smokers. Only about 1.5% of smokers in Minnesota utilize the state-funded QUITPLAN® Helpline. Substantial evidence exists on the role of social support in smoking cessation. In preparation for a large randomized trial, this study developed and piloted an intervention for an adult nonsmoking support person to motivate and encourage a smoker to call the QUITPLAN Helpline.

Methods: The support person intervention was developed based on Cohen's theory of social support. It consisted of written materials and three consecutive, weekly, 20–30 minute telephone sessions. Smoker calls to the QUITPLAN Helpline were documented by intake staff.

Results: Participants were 30 support people (93% women, 97% Caucasian, mean age 49). High rates of treatment compliance were observed, with 28 (93%) completing all three telephone sessions. The intervention was ranked as somewhat or very helpful by 77% of the support people, and 97% would definitely or probably recommend the program. Five smokers linked to a support person called the QUITPLAN Helpline.

Conclusions: An intervention using natural support networks to promote smoker utilization of the QUITPLAN Helpline is both acceptable to a support person and feasible. A controlled randomized trial is under way to examine the efficacy of the intervention.
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Introduction

Effective smoking-cessation treatments are greatly underutilized by smokers. Population-based studies indicate that only about 20%–30% of smokers who tried to quit used one or more types of evidence-based cessation aids.[1–3] About 40% of smokers report having made a quit attempt each year,[2,4] but only about 3%–5% maintain abstinence up to 1 year after quitting.[5,6] In addition, population-based studies indicate most smokers (~80%) are not interested in quitting within the next 30 days.[7] Thus, an important public health challenge is how best to encourage quit attempts using evidence-based treatments, and to reach smokers with lower levels of readiness to quit.

The Updated Clinical Practice Guidelines on treatment of tobacco use recommends quitlines as an evidence-based intervention.[8,9] In 2001, ClearWay Minnesota℠ funded the QUITPLAN® Helpline, a telephone-based tobacco cessation counseling service for all Minnesotans. It is utilized by only about 1.5% of the estimated 666,000 smokers in Minnesota,[10] consistent with the reach of other state funded quitlines.[11,12] With promotional efforts (e.g., publicizing the availability of free nicotine replacement therapy) the reach of quitlines can be increased to 2%–6% of smokers.[13–17]

A novel approach is to promote smoker utilization of quitline services through nonsmoking family members and friends (i.e., a support person). Despite the evidence on the role of social support in successful smoking cessation,[8] literature reviews indicate that interventions utilizing a support person had inconsistent smoking abstinence outcomes.[18,19] It is thought that support people add complexity to already intensive clinic-based interventions, and not all smokers are successful at engaging a support person. The literature on social relationships and health suggests the effectiveness of boosting natural support networks versus social support groups, especially for maintenance of behavioral change (see Cohen[20] for review). Indeed, while clinic-based interventions have been generally ineffective, efforts to promote natural support in the context of community-based or self-help smoking-cessation interventions have been more successful.[21–23] A recent

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study[24] highlighted the role of social networks on smoking among adults, indicating that health promotion efforts targeted to people who are connected socially with the smoker might be effective. Therefore, prior research efforts have not optimally tapped the potential role of supporters in tobacco cessation.

A different approach is to target nonsmokers directly to support a smoker in quitting. Many nonsmokers are willing to assist a smoker to quit[25] and to seek help on behalf of a smoker.[26] A clinic-based intervention directly targeting support people was feasible in a previous study,[27] but the goal of that research was to train the support person as a lay counselor to assist a smoker in quitting. A broader, public health goal for support people is to encourage a smoker to utilize an effective cessation treatment (e.g., call the QUITPLAN Helpline).

The potential utility of this approach is suggested by effective investigations in the alcoholism treatment field. Working only with the concerned other, between 64% and 86% of substance users sought treatment, regardless of the type of relationship with the substance user (e.g., spouse, friend), or substance used.[28,29] The potential public health significance of the approach is also supported by research indicating that adding a system within healthcare settings for identifying and advising smokers to quit (e.g., the 5A's) is associated with increased quit attempts and use of effective cessation treatments.[8,30,31]

In preparation for a large RCT, this pilot study examined treatment acceptability, compliance, and study retention of a telephone-based intervention for a support person. Procedures for documenting smoker calls to the QUITPLAN Helpline were also piloted, and the proportion of smokers who called during the study period was estimated. Based on studies indicating increases in the reach of quitlines to 2%–6% using promotional efforts,[13–17] it was expected that 6% (2/30) would call the QUITPLAN Helpline.

Methods

Participants

A sample of 30 support people was targeted to develop and refine the intervention and to pilot study procedures. Recruitment occurred over a 5-month period in 2007. Participants were recruited statewide using flyers sent to various public health organizations, health fairs, community events, and advertisements in three small regional Minnesota newspapers. Total recruitment costs were $3312 or $110 per participant. The study was approved by the Mayo IRB.

Recruitment advertisements targeted individuals who were concerned about and wanted to learn how to help their smoker. Recruitment advertisements included a toll-free number and electronic mail address. Individuals responding to the advertisements underwent a brief telephone screen by a study assistant. Eligible individuals were mailed a consent form and baseline questionnaires, and once these were completed and returned by mail, the support person was enrolled.

Volunteers were eligible if they: (1) were aged at least 18 years; (2) resided in Minnesota; (3) were a never or former smoker (no smoking during the past 6 months); (4) were interested in supporting a current cigarette smoker (≥1 cigarettes smoked per day during the past 7 days) who was aged ≥18 and resided in Minnesota; (5) had current and anticipated contact (face-to-face, telephone, and/or electronic mail) with the smoker at least 3 days per week for the 4-week study duration; (6) had access to a working telephone; and (7) were willing and able to participate in all aspects of the study. Individuals were excluded if another support person from the same household had enrolled.

Of the 44 screened, 30 (68%) were eligible to participate. Ineligibility was due primarily to lack of interest in the study, being under age 18, or not residing in Minnesota.

Procedure

The pilot evaluation applied a single-group design with mailed assessments at Weeks 0 (baseline) and 4 (end-of-treatment). All support people were mailed written materials and scheduled to receive three consecutive, weekly, 10–30 minute, proactive, telephone-based sessions. One week after completion of counseling, participants were mailed follow-up forms. Participants received a check for $15.00 for the completion and return of these forms.

To capture smoker calls to the QUITPLAN Helpline, a study-specific toll-free number was established, which connected smokers directly to an intake assistant at the QUITPLAN Helpline. The written materials contained the toll-free number and a study reference code. The code contained a color (green) and a "P" for pilot and was linked to the support person's study identification number (e.g., GREEN P001). The materials emphasized that the support people should inform their smoker to use the study toll-free number and reference code when calling the QUITPLAN Helpline. To ensure consistency in services provided, smokers who called using the study number were eligible to receive all QUITPLAN Helpline cessation services, and were not triaged based on insurance status or current health plan, which is the usual intake protocol. The intake assistant documented smoker calls to the QUITPLAN Helpline and obtained the reference code, but no other data were collected from the smokers. Smokers were eligible to use the study toll-free number for up to 6 months following the support person's enrollment in the study.

Intervention for Support People

Written materials. To enhance the generalizability of the findings, the same written materials were chosen that the QUITPLAN Helpline provides to individuals calling on behalf of a smoker. These materials are consistent with those provided to support people by other quitlines, websites, and national organizations (e.g., American Lung Association). The materials, primarily at a 6th-grade reading level, were: (1) a 1-page leaflet entitled The Process of Stopping Tobacco Use: Information for Support Persons, covering nicotine dependence and withdrawal; (2) a 1-page leaflet entitled When a Family Member or Friend Ends Tobacco Use: What You Can Do To Show Support, describing positive and

negative support behaviors; (3) an 11-page National Cancer Institute (NCI) brochure entitled Why Do You Smoke? that included tips for quitting; and (4) a 37-page NCI brochure entitled Clearing the Air, describing quitting strategies and resources. Two additional, study-specific materials were provided: (1) the contemplation ladder,[26,32] which provided a visual aid to facilitate understanding of readiness to quit, and (2) a 1-page leaflet on local Minnesota resources and referrals including websites, cessation programs, and the QUITPLAN Helpline. A laminated card was attached to this handout containing the study toll-free number for the QUITPLAN Helpline and reference code.

Telephone counseling. The intervention was developed using published guidelines on behavioral treatment development.[33] The conceptual basis for the intervention was Cohen's theory of social support and health,[20] which postulates that supportive actions promote positive health practices of others by encouraging more effective coping. The types of support behaviors provided can be instrumental (e.g., providing material aid); informational (e.g., providing relevant information or advice to make behavioral changes); or emotional (e.g., expression of empathy, caring, reassurance). Supportive behaviors are more likely to predict health outcomes when matched to the demands of the situation, for example, how ready the smoker is to quit.[34] Another important theoretical dimension is the positive–negative nature of behaviors engaged by the support person.[35] Increasing positive behaviors (e.g., encouragement) while avoiding negative behaviors (e.g., nagging) is consistently associated with a change in smoking behavior. Further, based on the substance abuse treatment literature,[28] and previous work measuring support provision[36] another theoretical dimension is the support person's self-behaviors or behaviors that maintain well-being and morale.

Table 1 provides the major topics covered by the counselor at each session and illustrative examples. The focus of the intervention was to provide each support person with the skills and information to encourage their smoker to call the QUITPLAN Helpline, but also to recognize that any small step toward quitting is progress (e.g., expressing interest in quitting, or asking about the QUITPLAN Helpline). Moreover, the intervention focused on assisting the support person to recognize or accept that it was ultimately up to the smoker to call. Figure 1 illustrates how the intervention was expected to influence study outcomes based on the theoretical framework.

Data on treatment acceptability and compliance were reviewed after each successive series of ten support people completed the study, with the goal of refining the counselor manual if necessary. Due to the generally high levels of treatment acceptability and compliance with the intervention, the only modification to the manual was to add examples relevant to the support person's helping a co-worker or someone else with whom a close relationship was not established.

Counselors. The intervention was conducted by four trained research counselors with a master's or bachelor's degree in a social sciences–related field. A counselor manual was developed with a script for each session. A checklist was used to compare the number of intervention components delivered to the number intended. Overall counselor adherence to the manual was 98%, thus the intervention was delivered according to protocol. In addition, a sample of ten audiotapes was randomly selected from early, middle, and late treatment sessions and reviewed on a weekly basis to provide ongoing feedback to the counselors.

Table 1. Telephone-based intervention for a support person: session topics

Session 1

1. Provide rationale for the treatment
   - Raise awareness of possible personal benefits of treatment (e.g., dealing with anger or distress regarding smoker's behavior)
   - *You can't control your smoker, only yourself. It is important to focus on what you can do as a support person.*
2. Describe the role of the support person in this program
   - *Your role is not to be a counselor or to make (smoker) quit. There are two goals of this program (1) to help you better understand or accept (smoker's) smoking behavior, and (2) to help you encourage (smoker) to move toward quitting and to get help to quit. So, your role might be to motivate (smoker) to start thinking about getting help.*
3. Provide education on readiness to quit
   - Review handout on the Contemplation Ladder and ask support person to assess or decide where their smoker fits on this ladder prior to the next session.
4. Provide education on nicotine dependence
   - *Remind yourself that the process of quitting smoking is difficult for you and your smoker.*
5. Describe the QUITPLAN® Helpline, what happens when the smoker calls and benefits of using this service
   - *There are resources available to help smokers quit and there are places for your smoker to get help including the QUITPLAN Helpline.*
   - Emphasize that the QUITPLAN Helpline could be helpful to smokers regardless of their readiness to quit and level of nicotine dependence.

Session 2

1. Review readiness to quit
   - *Remember that smokers differ in their level of readiness to quit smoking.*
2. Discuss supportive and nonsupportive behaviors and statements to encourage the smoker to move forward in the quitting process.
   - *It will take time so remember to be patient and accepting of where he/she is in the process now.*

Session 3

1. Review nicotine dependence.
2. Discuss how to reinforce any progress the smoker makes in the process of quitting (i.e., shaping). Examples of behaviors to reinforce: smoker wrote down the number for the QUITPLAN Helpline, or talked about his/her reasons to quit. Examples of reinforcers: take the smoker out to dinner, help the smoker with chores, send a special card to the smoker.
3. Emphasize persistence beyond the program
   - *Supporting your smoker is a process, not a one shot deal. Never give up on your smoker, and it is important to keep yourself motivated.*

QUITPLAN® Helpline

Since 2005, the Mayo Clinic Tobacco Quitline has been the vendor for the QUITPLAN Helpline counseling services. The QUITPLAN Helpline is a free service provided to Minnesota residents. Smokers who enroll in the program receive tele-

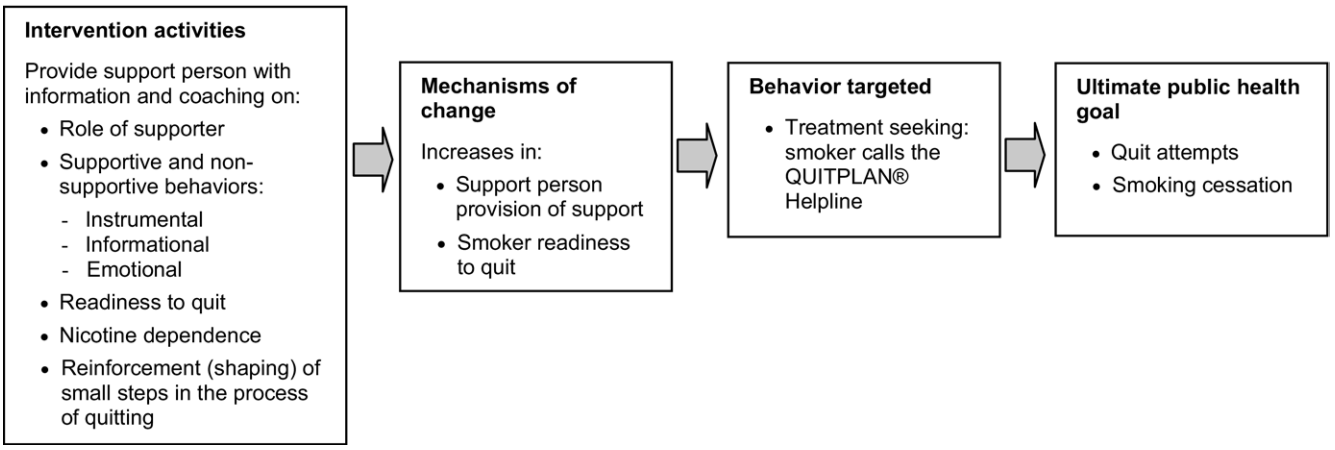

Figure 1. Logic model illustrating the hypothesized links between the support person–intervention activities and smoker outcomes

phone counseling, written self-help materials, and can receive nicotine replacement (patches, lozenges or gum) by mail. Depending on the smoker's needs, the QUITPLAN Helpline counselors provide information on other cessation medications that are prescribed by the smoker's physician, including Zyban and Chantix. For smokers not ready to quit, counselors encourage them to consider the pros and cons of continued smoking. Smokers enrolled in the program can receive up to five telephone counseling sessions over a 6-month period. The first assessment call is 45 minutes long and subsequent calls are 15–20 minutes. After the five sessions, additional support and encouragement calls are made by the counselor at the smoker's request.

When smokers called the QUITPLAN Helpline, the intake assistant asked for their reference code. The intake assistant then described the QUITPLAN Helpline services and asked if the smoker was interested in speaking with a counselor. Smokers expressing interest were transferred to a QUITPLAN Helpline counselor who enrolled them in the program.

The intake assistants received four 1-hour training sessions including role-play demonstrations of mock smoker calls. Monthly 1-hour refresher trainings and test calls were continued with the intake staff for quality assurance.

Measures

Support person baseline characteristics. Characteristics assessed were age, gender, education, marital status, tobacco-use history (all forms of tobacco), type of relationship and whether or not the support person lived with their smoker, and prior attempts to help their smoker quit. Support people also indicated the gender and race of their smoker.

Support Provided Measure (SPM). Participants completed the 22-item SPM[36] at baseline and at Week 4, which taps support delivered to a smoker over the previous 2-week period. Participants indicated whether or not the behavior occurred (i.e., *yes* or *no*). SPM items pertain to support provided to a smoker irrespective of their level of readiness to quit smoking and were derived based on the theoretical model of social support.[20] The SPM was shown to have high internal consistency (alpha=0.83) in a sample of 771 adults.[36] The total score is calculated by summing the number of items endorsed in the direction of supportive behaviors and can range from 0 to 22.

Support person treatment acceptability. Post-treatment, participants were asked to judge the perceived helpfulness of the overall program, the written materials, and the telephone counseling, in assisting them to encourage their smoker to call the QUITPLAN Helpline, and if they would recommend the program to another support person.

Support person treatment compliance. Counselors recorded whether or not each telephone session was completed with the support person, and the duration of each call.

Smoker calls to the QUITPLAN® Helpline. The proportion of the support person's smokers who called the Minnesota Helpline was assessed at least once during the interval from enrollment through 180 days (6 months) documented by the Minnesota Helpline intake staff. Any type of call, regardless of the disposition of the call, was counted. Intake staff recorded the reference code and the date, time, and disposition of the call (not interested, information only, or enrolled in the program). If the smoker could not recall or did not have the reference code, the intake assistant asked the smoker for the support person's name.

Smoker readiness to quit as measured by a support person. At baseline and at Week 4, support people indicated the smoker's readiness to quit as measured by the contemplation ladder.[26,32] The ladder operates as an 11-point Likert scale with anchors ranging from 0=*having no thoughts of quitting* to 10=*being engaged in action to change one's smoking behavior.*

Statistical Analyses

Differences on mean SPM and contemplation ladder scores were evaluated using a paired signed rank test. Two-tailed p values of ≤ 0.050 were considered significant.

Results

Participants

Support people were primarily women, married, and highly educated. As reported by the support people, their smokers were primarily Caucasian men (Table 2).

Table 2. Support person baseline characteristics (n=30)

Support person characteristics	% (n)[a] or mean±SD
Age (years)	49.2±10.7
Range	23–64
Female gender	93 (28)
Race	
Caucasian	93 (28)
African American	3 (1)
Native American	3 (1)
Married	67 (20)
Highest level of education	
High school/GED	7 (2)
Some college/trade school	17 (5)
College degree	30 (9)
Postgraduate degree	47 (14)
Employed	90 (27)
Tobacco use	
Never	37 (11)
Experimented	27 (8)
Former smoker	37 (11)
Prior attempts to help their smoker quit	
Never	13 (4)
Once	30 (9)
Two or more times	57 (17)
Gender of smoker, female	37 (11)
Race of smoker	
Caucasian	93 (28)
African American	3 (1)
Native American	3 (1)
Relationship to smoker	
Spouse/partner	37 (11)
Parent	7 (2)
Child	20 (6)
Sibling	13 (4)
Friend	3 (1)
Boyfriend/girlfriend	13 (4)
Other	7 (2)
Lives with smoker	60 (18)

[a]Because of rounding, not all percentages total 100.

Support Person Outcomes

Treatment acceptability, compliance, and study retention were high (Table 3). The mean and SD duration in minutes for each of the three sessions was: (1) 27.1 [SD=4.6, range 17–37]; (2) 19.6 [SD=4.4, range 13–30]; and (3) 21.0 [SD=6.0, range 10–35]. Most support people (83%) recommended no change in the number, and 93% recommended no change in the duration of sessions. A significant increase in the SPM score was observed among support people from baseline to post-treatment.

Smoker Outcomes

There was a significant increase in the smoker's contemplation ladder scores from baseline to post-treatment (Table 3). Five smokers (17%, 95% CI=6% to 35%) called the QUITPLAN Helpline. All five called only once and all enrolled in the QUITPLAN Helpline program. There was no significant association found between smoker calls to the quitline and baseline contemplation ladder or SPM scores (Table 4).

Table 3. Support person and smoker outcomes

Study outcome	% (n) or mean±SD
SUPPORT PERSON (n=30)	
Number telephone sessions completed	2.8±0.8
Range	0–3
All 3 sessions completed	93 (28)
Amount of written materials read	
All of it	83 (25)
Some of it	13 (4)
None	3 (1)
Study retention: completed post-treatment assessment	100 (30)
Perceived helpfulness of the overall program	
Not at all helpful	0 (0)
A little helpful	23 (7)
Somewhat helpful	40 (12)
Very helpful	37 (11)
Perceived helpfulness of written materials	
Not at all helpful	0 (0)
A little helpful	23 (7)
Somewhat helpful	40 (12)
Very helpful	37 (11)
Perceived helpfulness of telephone counseling	
Not at all helpful	0 (0)
A little helpful	10 (3)
Somewhat helpful	47 (14)
Very helpful	43 (13)
Recommend program to another support person	
Definitely would not	0 (0)
Probably would not	0 (0)
Probably would	33 (10)
Definitely would	67 (20)
Support provided measure score	
Baseline	11.2±3.4
Range	6–18
Post-treatment*	16.5±3.7
Range	8–22
SMOKERS (n=30)	
Contemplation ladder score[a]	
Baseline	4.7±2.1
Range	0–9
Score 7–10 (high motivation)	23 (7)
Post-treatment**	5.6±2.2
Range	0–10
Score 7–10 (high motivation)	37 (11)
Called the QUITPLAN® Helpline[b]	17 (5)
Number days since support person enrolled to call the QUITPLAN Helpline (n=5)	40.4±24.7
Range	6–67

[a]As reported by support people
[b]Smoker calls since support person's enrollment in study as documented by QUITPLAN Helpline intake staff
*p<0.001 from paired signed rank test comparing baseline and post-treatment means
**p=0.014 from paired signed rank test comparing baseline and post-treatment means

Table 4. Association of support person/smoker characteristics and smoker calls to the QUITPLAN® Helpline

Characteristic	Did smoker call the QUITPLAN Helpline?[a] Yes (n=5)	No (n=25)	p value[b]
Support person			
Age (years)	50.4±9.3	48.9±11.1	0.80
% female gender	80	96	0.31
% Caucasian	80	96	0.31
Baseline SPM score	12.4±4.3	11.0±3.2	0.56
Change in SPM score	5.4±2.8	5.3±3.7	0.93
% lives with smoker	80	56	0.62
Type of relationship			0.23
% spouse/partner	20	40	
% child	0	24	
% other	80	36	
Smoker			
% female gender	40	36	0.75
% Caucasian	96	80	0.31
mean baseline CL score	5.4±2.2	4.5±2.1	0.38
% baseline CL score 7–10	20	24	1.0

[a]All values are mean±SD except where noted.
[b]From two-sample rank sum test for continuous variables and Fisher's exact test for dichotomous variables
CL, contemplation ladder score (scores of 7–10 indicate high levels of readiness to quit); SPM, support provided measure score

Discussion

This preliminary study found that a telephone-based intervention for a support person to encourage smoker utilization of the QUITPLAN Helpline was acceptable and feasible, as indicated by excellent measures of treatment compliance and study retention. Similar to a previous study,[27] the program was successful in reaching smokers with low to moderate levels of readiness to quit (in contrast, most cessation trials recruit only highly motivated smokers). Moreover, a significant improvement in theoretically supportive behaviors was observed among support people's pre–post treatment.

Limited inferences can be made from this pilot study given the small sample size and lack of inclusion of a comparison or control group. One important aspect of feasibility was not examined, that is, the potential reach to the support person and how the intervention might affect quitting on a population level. The participants were mostly Caucasian, educated, and employed women. It is not clear if this is only a segment of the support person population that might be reached, or if these characteristics are representative of potential supporters. Zhu and colleagues[26] found that 6% of calls to the California Helpline were from nonsmokers seeking help on behalf of a smoker. These callers were primarily women (79%) and living in the same household as the smoker. A study of young adults (aged 18–24 years) found that women were more willing to help a smoker than men.[37]

The goal of the support person intervention was to prompt a smoker to call the QUITPLAN Helpline. It was encouraging that five smokers (17%) called and enrolled in the program, a percentage that was higher than the expected rate of 6%. However, an important caveat is that because all of the smokers in this study had a support person, the observed rate of quitline utilization is not directly comparable to prior studies examining the impact of promotional efforts to increase quitline utilization.[13–17] The cost of recruiting and training the support people also limits generalizability, but there are obviously costs with other advertising campaigns. If the intervention is found to be efficacious in the RCT, future studies could test this approach on a broader population level, using mass media targeted to nonsmoking family members and friends, and examining the effect on smoker call rates before and after the campaign. A support person intervention, utilizing natural networks to enhance behavioral change, may have an effect that would be at least as similar as the advertising campaigns used in prior studies. If this new system is found to be effective, potential adopters could include HMOs, health insurance plans, and employers.

Future studies are needed to examine the cost effectiveness of the intervention, based on the amount of resources spent to reach the support people, number of calls generated, and quitting among smokers[38] Future research could also examine the characteristics of the support person or smokers associated with increased utilization of quitlines. Although the sample size limits statistical power to detect differences, Table 4 provides some insights into these potential characteristics. Interestingly, smokers who called were similar to those who did not call on baseline readiness to quit; only one of the five smokers who called was highly motivated to quit. However, a higher proportion of smokers who called lived with their support person (80% vs 56%; p=0.62). Support people who live with their smoker may have more opportunities to provide support. Thus, in our future RCT, we are stratifying the randomization on whether or not the support person lives with their smoker. In conclusion, an intervention using natural support networks to encourage smoker utilization of the QUITPLAN Helpline is feasible and acceptable to support people.

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