NOVA
University of Newcastle Research Online

nova.newcastle.edu.au

Tzelepis, Flora; Paul, Christine L.; Walsh, Raoul A.; Wiggers, John; Duncan, Sarah L.; Knight, Jenny "Active telephone recruitment to quitline services: are nonvolunteer smokers receptive to cessation support?". Originally published in Nicotine & Tobacco Research Vol. 11, Issue 10, p. 1205-1215 (2009)

Available from: http://dx.doi.org/10.1093/ntr/ntp125

This is a pre-copyedited, author-produced version of an article accepted for publication in Nicotine & Tobacco Research following peer review. The version of record Tzelepis, Flora; Paul, Christine L.; Walsh, Raoul A.; Wiggers, John; Duncan, Sarah L.; Knight, Jenny "Active telephone recruitment to quitline services: are nonvolunteer smokers receptive to cessation support?", Nicotine & Tobacco Research Vol. 11, Issue 10, p. 1205-1215 (2009) is available online at: http://dx.doi.org/10.1093/ntr/ntp125

Accessed from: http://hdl.handle.net/1959.13/808792

Active telephone recruitment to quitline services: are non-volunteer smokers receptive to cessation support?

Flora Tzelepis, Christine L Paul, Raoul A Walsh, John Wiggers, Sarah L Duncan, Jenny Knight

Flora Tzelepis, BSc(Psych)(Hons), Christine L Paul, PhD, Raoul A Walsh, PhD, Sarah L Duncan BPsych(Hons), Centre for Health Research & Psycho-oncology (CHeRP), The Cancer Council New South Wales, The University of Newcastle & Hunter Medical Research Institute, New South Wales, Australia; John Wiggers, PhD, Jenny Knight MMedSci(HP); Hunter New England Population Health (HNEPH), Hunter New England Area Health Service, New South Wales, Australia.

Corresponding author:
Flora Tzelepis
Centre for Health Research & Psycho-oncology (CHeRP)
Cancer Council NSW & University of Newcastle
Room 230A, Level 2, David Maddison Building
Callaghan NSW 2308 Australia
Phone: +61 2 4913 8606
Fax: + 61 2 4913 8601
E-mail: Flora.Tzelepis@newcastle.edu.au

The Centre for Health Research & Psycho-oncology and Hunter New England Population Health performed this work.

Published in: Nicotine & Tobacco Research 2009:11(10):1205-1215.

Abstract

Introduction: Passive recruitment strategies relying on smoker-initiated contact probably contribute to particular groups of smokers using quitlines. Compared to the smoking population, smokers who call quitlines are more likely to be female, younger, higher educated, more addicted, quit previously and motivated to quit. Quitlines could adopt new recruitment approaches such as active telephone recruitment involving recruiter-initiated contact since this may enrol a broader representation of smokers. This study explored acceptability of active telephone recruitment to quitline support, smokers' use and acceptability of assistance and predictors of acceptability.

Methods: Smokers (*n*=1,562) randomly selected from the New South Wales telephone directory were actively recruited by telephone into a randomised controlled trial that offered proactive telephone counselling (*n*=769) or self-help materials (control: *n*=793). Overall, 1,369 completed the 4-month post-recruitment interview, which examined acceptability.

Results: Over 90% of 4-month interview respondents found active telephone recruitment to cessation assistance acceptable. Of smokers allocated to proactive telephone counselling (*n*=769), 90% accepted at least one and 65% three or more counselling calls. Of control participants who completed the 4-month interview, 84% read at least some self-help materials. Proactive telephone counselling recipients were significantly more likely than self-help material users to find the advice useful. Few characteristics predicted acceptability of proactive telephone counselling or self-help materials suggesting many types of smokers actively recruited by telephone are receptive to support.

Discussion: Active telephone recruitment could potentially enrol a broader representation of smokers to quitline services. Given these smokers are receptive to cessation assistance quitlines should consider active telephone recruitment.

Introduction

Telephone tobacco cessation services commonly known as quitlines provide effective cessation support (Fiore et al., 2008; Pan, 2006; Stead, Perera, & Lancaster, 2006) and have the potential to reach a broad population of smokers including those in rural and remote areas, with limited mobility and ethnic minorities (Zhu et al., 1995). However, this population-based cessation service only reaches 1-7% of smokers each year (Cummins, Bailey, Campbell, Koon-Kirby, & Zhu, 2007; Miller, Wakefield, & Roberts, 2003; Owen, 2000; Platt, Tannahill, Watson, & Fraser, 1997; Swartz Woods & Haskins, 2007). Further, just 12% of U.S. smokers who made a recent quit attempt have ever called a quitline (Hughes, Marcy, & Naud, 2009). Other behavioural cessation strategies or medications however are also underutilized (Hughes et al., 2009; Shiffman, Brockwell, Pillitteri, & Gitchell, 2008a, 2008b). Passive recruitment strategies requiring smokers to initiate contact with quitlines (e.g., mass media; Swartz Woods & Haskins, 2007; Zhu, Anderson, Johnson, Tedeschi, & Roeseler, 2000) are likely to have contributed to low utilization and the finding that quitline service users are a relatively select group of smokers (Abdullah, Lam, Chan, & Hedley, 2004; Owen, 2000; Platt et al., 1997; Prout et al., 2002). Compared to the general smoking population, smokers who call quitlines are more likely to be female, younger, higher educated, more addicted, previously quit and ready to quit within 30 days (Abdullah et al., 2004; Owen, 2000; Platt et al., 1997; Prout et al., 2002).

Active telephone recruitment that involves recruiter-initiated contact has the potential to substantially increase the proportion of smokers exposed to quitlines (McDonald, 1999; Tzelepis et al., under editorial review). Compared to smokers who seek cessation interventions themselves, smokers actively recruited by telephone are significantly more likely to be male, younger, less educated, married, less addicted, less likely to have attempted to quit and less motivated to quit (Fortmann & Killen, 1994; McBride et al., 1998). Given the characteristics of smokers actively recruited by telephone differ from smokers seeking treatment, actively recruited smokers'

interaction and acceptability of quitline services should be tested to determine if they are receptive to cessation support.

Proactive telephone counselling (i.e., quitline-initiated counselling calls) may be offered to smokers who seek treatment after their initial call (Centers for Disease Control and Prevention, 2004). Past studies of such smokers suggested that between 67%-76% received at least one (Borland, Balmford, Segan, Livingston, & Owen, 2003; Borland, Segan, Livingston, & Owen, 2001; Gilbert & Sutton, 2006; Smith et al., 2004; Zhu et al., 2002) and 40% at least three proactive telephone counselling calls (Borland et al., 2001). Furthermore, most smokers who sought assistance were satisfied with the number of proactive telephone counselling calls and found the interaction helpful and supportive (Rimer et al., 1994; Smith et al., 2004).

Few trials have examined the acceptability and number of proactive telephone counselling calls taken by smokers actively recruited by telephone (Abdullah, Mak, Loke, & Lam, 2005; Britt, Curry, McBride, Grothaus, & Louie, 1994; McBride et al., 1999). These studies found that between 80-84% of smokers actively recruited by telephone accepted at least one proactive counselling call while 60-66% accepted three counselling calls (Britt et al., 1994; McBride et al., 1999). Participation in proactive telephone counselling did not differ significantly by quitting intention although females and less addicted smokers were more likely to complete three counselling calls (Britt et al., 1994). Most found proactive telephone counselling calls encouraging and were satisfied with the number (McBride et al., 1999) and content (Abdullah et al., 2005). However, these trials targeted smokers from a health maintenance organization (Britt et al., 1994), following cervical cancer screening (McBride et al., 1999) or parents of young children (Abdullah et al., 2005). Therefore, research that actively recruits smokers by telephone from the wider general population is needed to determine if quitline services are well received by such smokers.

Self-help materials may also be offered by quitlines (Cummins et al., 2007). Evaluations of self-help materials mailed to smokers who call quitlines themselves indicated that the majority read most or all of the materials (Balanda, Lowe, & O'Connor-Fleming, 1999) and thought they were easy to understand, relevant and helpful (Miller et al., 2003). A trial of smokers actively recruited by telephone that incorporated both proactive telephone counselling and booklet conditions found that 39% of booklet recipients read it and 60% of these thought it was useful (Curry, McBride, Grothaus, Louie, & Wagner, 1995). Those with a strong desire to quit were significantly more likely to read the booklet (McBride et al., 1998).

The current study used active telephone recruitment to enrol adult daily smokers into a trial offering proactive telephone counselling or self-help materials (control). This article aims to explore the:

(i) acceptability of active telephone recruitment to cessation support;

(ii) number of proactive telephone counselling calls taken and acceptability of calls among intervention participants;

(iii) use and acceptability of non-tailored self-help materials among control participants;

(iv) usefulness of proactive telephone counselling compared to self-help materials; and

(v) characteristics that predicted acceptability of telephone recruitment call, proactive telephone counselling and self-help materials.

Methods

Participants

Recruitment occurred between September 2005 and April 2007. Eligibility criteria were: (i) use tobacco daily; (ii) aged 18 years or older; (iii) New South Wales (N.S.W.) resident, Australia; and (iv) English-speaking. Smokers were eligible regardless of their quitting intention.

Recruitment and evaluation

Telephone numbers (*n*=48,014) were randomly selected from the N.S.W. Electronic White Pages telephone directory. Households were mailed an information letter and an interviewer telephoned within two weeks. Of 43,710 households reached, 3,008 contained at least one eligible adult daily smoker. If two or more eligible smokers were residents, a computerized age grid randomly selected one smoker. The interviewer then invited this smoker to join a randomized controlled trial offering free proactive telephone counselling or self-help materials from the N.S.W. Quitline and baseline, 4-, 7- and 13-month post-recruitment interviews to assess smoking cessation (to be reported elsewhere).

Smokers who agreed to participate (*n*=1,562) completed a 15-minute baseline computer-assisted telephone interview (CATI). After the baseline interview items were finished the CATI used a random number generator to randomly allocate the smoker to proactive telephone counselling (*n*=769) or self-help materials (control: *n*=793).

In addition to assessing smoking cessation, the 4-month CATI also provided the opportunity to evaluate the acceptability of the telephone recruitment call and cessation support given it was the closest follow-up to recruitment and intervention delivery.

Figure 1 describes participant recruitment, the cessation support and 4-month assessment.

Conditions

Proactive telephone counselling

The contact details of each intervention participant, preferred days and times to call, and responses to selected baseline interview items were included in a referral form and securely e-mailed to the NSW Quitline the next working day.

The NSW Quitline called all intervention participants regardless of their quitting intention for proactive telephone counselling. The initial proactive counselling call typically occurred within one week of referral and aimed to provide smokers with motivation to set a quit date or move closer to quitting. At the end of the initial counselling call, participants were asked if they intended to quit within a month and counselling calls offered accordingly. Six attempts were made over a week to reach the participant at each scheduled call. Six attempts per call rather than the NSW Quitline's usual practice of three attempts were made to increase the likelihood of reaching participants.

"Ready to quit"callback schedule. Participants ready to quit within a month were offered an additional five proactive telephone counselling calls: on the quit date; and at 3, 7, 14, and 30 days after the quit date. This evidence-based call schedule accounts for the greatest probability of relapse, involves calls being scheduled close to the critical first two weeks following a quit attempt (Zhu, Stretch et al., 1996; Zhu, Tedeschi, Anderson, & Pierce, 1996) and mimics the standard call schedule offered by NSW Quitline. At the end of the counselling call the next session was scheduled (if accepted). Although calls were offered as per the schedule, each call was booked according to participant preference. The content of the "ready to quit" counselling calls included, smoking status assessment, identifying and coping with triggers, information on effective quitting aids, setting tasks to assist with quitting, relapse prevention strategies and promotion of self-efficacy.

Those who relapsed and set a new quit date within a month restarted the "ready to quit" schedule, whereas those who did not were offered a call in one-month time.

"Not ready to quit" callback schedule. Participants not ready to quit within a month were offered an additional three proactive telephone counselling calls: 1, 3 and 5 months after the initial

counselling call. At the end of each counselling call the next call was scheduled (if accepted). Although counselling calls were offered according to the schedule these calls were booked as per participant preference. As a result many smokers offered the “not ready to quit” callback schedule chose to receive proactive telephone counselling calls sooner. For instance, 29% of those who agreed to a second call received it within two weeks instead of at 1 month as per the protocol. The “not ready to quit” calls involved motivational interviewing (MI) that focused on countering self-exempting beliefs and encouraging participants to move towards setting a quit date.

If those in the “not ready to quit” schedule indicated during a counselling call that they were now ready to quit within a month, they began the “ready to quit” callback schedule on their nominated quit date.

Maximum number of proactive counselling calls. To account for movement between the “ready to quit” and “not ready to quit” callback schedules a maximum of twelve proactive counselling calls were offered regardless of quitting intention.

Advisor training

NSW Quitline training. NSW Quitline advisors receive comprehensive theoretical and practical training, including supervision with an experienced mentor before undertaking telephone counselling. A refresher course on cognitive behaviour therapy and MI is also provided. Quitline advisors meet regularly with each other and attend professional development sessions to maintain a high standard of counselling.

Study protocols training. Advisors attended a two-hour training session where researchers outlined the study protocols. Advisors contacted participants only after receiving this training.

It was anticipated that compared to quitline callers, more study participants would be unwilling to set a quit date. Therefore, booster MI training sessions were organised. Seventy percent of advisors who delivered the intervention were able to attend.

Self-help materials (control)

Control participants were mailed a non-tailored quit kit the next working day after their baseline interview. These materials were identical to those the NSW Quitline offers to their callers.

The quit kit contained:

- a letter outlining the contents and the quitline phone number;
- *Quit Because You Can* booklet, a guide to quitting;
- *Products to help you Quit smoking* brochure, that described effective pharmacotherapy and behavioural quitting strategies;
- *You can Quit* pocket guide, that included suggestions on how to remain smoke-free;
- *Quitline* brochure, explaining the telephone counselling services offered by the quitline; and
- a no-smoking sticker.

Measures

Baseline interview

Baseline items included gender, age, country of birth, education, marital status, employment, area of residence, age began regular smoking, time to first cigarette after waking, number of cigarettes smoked per day (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991), ever made a quit attempt, quit attempt in past 12 months (Gilpin, Pierce, Berry, & White, 2000), quitting intentions (Gilpin et al., 2000) and other household smokers.

4 month post-recruitment interview

Telephone recruitment call. Respondents in both conditions rated the acceptability of actively recruiting smokers by telephone to cessation assistance *(very acceptable, acceptable, unacceptable, very unacceptable).*

Proactive telephone counselling. Given the number of counselling calls was extracted from the quitline database, all smokers allocated to proactive telephone counselling (n=769) were included. The remaining items however are restricted to 4-month interview respondents. The 4-month interview respondents who received at least one counselling call reported whether they discussed smoking or quitting-related topics with an advisor *(yes, no)*. Those who answered affirmatively rated whether calls helped *(didn't help, helped a little, helped a lot)* with: motivation to try quitting or to stay quit; coping with cravings or situations that trigger smoking; motivation to try again if slipped; and avoiding slips. These participants also indicated the acceptability of the number of calls *(too many, about right, too few)*, spacing of calls *(very satisfied, satisfied, unsatisfied, very unsatisfied)*, proactive telephone counselling overall (*very acceptable, acceptable, unacceptable, very unacceptable)* and perceived future use of telephone counselling *(yes, no).*

Self-help materials. Control participants indicated whether they received the self-help materials *(yes, no)*, and for recipients the amount read *(in full, some parts, none)*. Those who read at least some, reported whether these materials helped *(didn't help, helped a little, helped a lot)* with: motivation to try quitting or to stay quit; coping with cravings or situations that trigger smoking; motivation to try again if slipped; avoiding slips; and whether they telephoned the quitline number in the brochures *(yes, no)*.

Analysis

Statistical analysis was completed using SAS software version 9.1 (SAS Institute Inc, Cary, NC). Categorical data were described using proportions and continuous data by means, standard deviations and medians. The chi-square test and *t*-tests were used to examine whether participants' baseline characteristics differed by condition. Chi-square tests also assessed the usefulness of cessation advice between conditions. Tests of significance were performed at α=0.05.

Chi-square tests were used to examine whether selected baseline variables (i.e., age, gender, education, cigarettes smoked per day, quitting intention) predicted the acceptability of: i) the telephone recruitment call; ii) proactive telephone counselling; and iii) self-help materials. The variables that were significant at p<0.25 in the univariate analysis were included in a backward stepwise logistic regression model. Non-significant variables were removed until the remaining variables were significant at α=0.05. Odds ratios and 95% confidence intervals were calculated.

Ethics approval

The University of Newcastle Human Research Ethics Committee and the Hunter New England Human Research Ethics Committee granted ethics approval.

Results

Overall, 1,562 smokers were recruited into the trial giving a recruitment rate of 51.9%. Table 1 describes participants' baseline characteristics by condition. With the exception of marital status (p=0.01) and number of cigarettes smoked per day (p=0.03) there were no other significant differences between the conditions at baseline.

Of those allocated to proactive telephone counselling, 665 (86.5%) completed the 4-month interview as did 704 (88.8%) in the self-help materials condition. Attrition rates did not differ significantly by condition.

Acceptability of active telephone recruitment call

Overall, 93.2% of 4-month interview respondents thought it was very acceptable/acceptable to actively telephone smokers and offer cessation assistance. This did not differ significantly between the proactive telephone counselling (92.9%) and self-help materials (93.5%) conditions.

Acceptability of proactive telephone counselling

From all smokers allocated to proactive telephone counselling (*n*=769), 9.6% received no counselling calls, 25.4% one or two calls, 39.9% three to five calls and 25.1% six or more calls. Of those who received calls (*n*=695), the mean was 4.4 calls (*SD*=2.9; median=4).

Among the 4-month interview respondents who received at least one proactive counselling call (*n*=611), 83.9% discussed smoking or quitting-related topics with an advisor. Participants who discussed these topics (*n*=502) were asked the remaining acceptability items. Most (80.7%) thought the number of calls was about right, 11.8% too few and 7.5% too many. The majority (91.1%) were very satisfied/satisfied with the spacing of calls. Overall, 93.6% found proactive telephone counselling very acceptable/acceptable and 76.7% perceived they would use quitline counselling again.

Acceptability of self-help materials

Of 4-month interview respondents in the control condition (*n*=704), 92.2% recalled receiving self-help materials. Amongst recipients (*n*=648), 41.9% said they read the materials in full, 41.7% read some parts and 16.4% did not read them.

A small minority (5.2%) who read at least some self-help materials also called the quitline.

Usefulness of proactive telephone counselling compared to self-help materials

Participants who discussed smoking or quitting during proactive telephone counselling (n=502) or read at least some self-help materials (n=541) rated the usefulness of the advice. Telephone counselling recipients were significantly more likely than those who read self-help materials to report the advice helped a lot/little with motivation to quit or stay quit (79.4% vs 70.8%; $\chi^2(1)=10.0$, $p=0.002$), coping with cravings or triggers (64.4% vs 55.4%; $\chi^2(1)=8.3$, $p=0.004$) and avoiding slips (62.7% vs 54.3%; $\chi^2(1)=7.0$, $p=0.008$), but not motivation to try again if slipped (77.1% vs 72.0%; $\chi^2(1)=3.3$, $p=0.07$).

Predictors of acceptability

Tables 2 and 3 report the baseline characteristics that significantly predicted acceptability of the telephone recruitment call and cessation support for the proactive telephone counselling and self-help materials conditions respectively.

Telephone recruitment call

Among self-help material participants those 31-50 years old (OR=2.1), Higher School Certificate (Year 12) or Technical and Further Education (TAFE) qualified (OR=2.8) and intending to quit within 30 days (OR=3.4) had greater odds of considering the recruitment call very acceptable/acceptable compared to the referent (see Table 3).

Proactive telephone counselling

Table 2 illustrated that compared to the oldest group, 31-50 year olds had larger odds of taking three or more proactive counselling calls (OR=1.4) and finding the counselling calls helped with motivation to quit or stay quit (OR=1.8). Those aged 18-30 (OR=2.1) or 31-50 (OR=1.6) had greater odds of reporting that the counselling calls helped with avoiding slips and 18-30 year olds

had half the odds of believing the number of counselling calls was about right.

Compared to those not intending to quit within 6 months, those interested in quitting in 30 days (OR=3.2) or within 6 months (OR=2.0) had at least two times the odds of discussing smoking or quitting-related topics with an advisor. Those who smoked 1-10 or 11-20 cigarettes per day (compared to 21 or more) or intended to quit within 30 days had about half the odds that they would use telephone counselling again.

Self-help materials

Table 3 reported that those aged 31-50 (referent=51+ year olds) had about half the odds, while those intending to quit within 30 days (OR=2.0) or within 6 months (OR=1.6) (referent=not interested in quitting within 6 months) had greater odds of reading the brochures in full. Those aged 18-30 and intending to quit within 30 days had about two times the odds of finding the brochures helped with motivation to quit or stay quit.

Compared to those not intending to quit within the next 6 months, those interested in quitting in 30 days (OR=27.3) or within 6 months (OR=9.4) had greater odds of calling the quitline themselves to speak with an advisor.

Discussion

The active telephone recruitment rate (52%) was substantially higher than the 1-7% of adult smokers using quitlines annually (Cummins et al., 2007; Miller et al., 2003; Owen, 2000; Platt et al., 1997; Swartz Woods & Haskins, 2007). The cost-per-smoker recruited of $AU71 (US$59) (reported in Tzelepis et al., under editorial review) compares favourably to the cost of various television (US$70-$1,629 per call) and radio (US$332-$1,053 per call) advertisements in generating quitline calls (Mosbaek, Austin, Stark, & Lambert, 2007). Overall, 93% of smokers interviewed at

4-months thought active telephone recruitment to cessation assistance was acceptable. If it is assumed that smokers who refused to participate in the trial (*n*=1,446) did so because they found the telephone recruitment call unacceptable then 42% (i.e., 1255/3008) of smokers approached found active telephone recruitment acceptable. However, given that many smokers refused for reasons unrelated to the telephone recruitment call (e.g., not wanting to quit and not wishing to participate in research) the assumption that all non-participants found the telephone recruitment call unacceptable seems overly conservative.

If those who received at least one proactive counselling call or read at least some self-help materials, are included in the numerator then 41% (i.e., 1236/3008) of eligible smokers contacted actively by telephone received quitline services. However, given use of self-help materials was measured at 4-months post-recruitment, control participants not completing this assessment (*n*=89) were assumed not to have read self-help materials. Consequently, 41% may be an under-estimate. This proportion is similar to research that reported that 41% of cold-called smokers who were already participating in research received quitline services (Van Deusen et al., 2007).

Of smokers allocated to proactive telephone counselling, 90% received at least one and 65% three or more counselling calls. These proportions are higher than studies of smokers who sought treatment themselves where corresponding proportions were 67%-76% (Borland et al., 2003; Borland et al., 2001; Gilbert & Sutton, 2006; Smith et al., 2004; Zhu et al., 2002) and 40% respectively (Borland et al., 2001). However, the higher proportions may be a result of making six attempts per call to reach participants, which was more than the usual quitline practice. Quitline services that make fewer call attempts may be unable to replicate our findings. Alternatively, more smokers recruited actively by telephone than quitline callers may have been unwilling to try quitting immediately and thus required more follow-up. The proportion of participants who accepted at least one (90%) or three (65%) counselling calls is comparable to past studies of smokers actively

recruited by telephone that reported 80-84% and 60-66% respectively (Britt et al., 1994; McBride et al., 1999). Most participants were satisfied with proactive telephone counselling.

Self-help materials were also well received with 84% reading at least some parts. This is comparable to research where 69-71% of quitline callers read most or all self-help materials (Balanda et al., 1999). A trial of smokers actively recruited by telephone to cessation support found that 39% read at least part of the booklet but classified those lost to attrition as not read (Curry et al., 1995). If we make the same assumption, 68% of our participants read at least some self-help materials, which still compares favourably with this past study. Unsolicited self-help materials may therefore be of interest to smokers. However, the findings suggested that smokers actively recruited by telephone found proactive telephone counselling more useful than self-help materials.

Unlike proactive telephone counselling participants, those in the self-help materials condition aged 51+ years, university/tertiary qualified and not intending to quit within 6 months were significantly less accepting of the telephone recruitment call. These groups may have expected more personalised support than a single mailing of non-tailored self-help materials particularly as smokers were actively recruited by telephone.

Although age predicted taking three or more counselling calls, the finding that baseline quitting intention was not a predictor is consistent with previous research (Britt et al., 1994) and highlights that less motivated smokers are as receptive to proactive telephone counselling as their motivated counterparts. Age was the most prevalent predictor, however, overall few baseline characteristics predicted acceptability of proactive telephone counselling suggesting many types of actively recruited smokers will take proactive telephone counselling calls and find them acceptable.

Those aged 51+ years and ready to quit within 30 days or within 6 months at baseline had greater

odds of reading self-help materials completely. This is similar to research reporting that actively recruited smokers with a stronger desire to quit are more likely to read a booklet (McBride et al., 1998) and may suggest that older smokers have or take the time to examine materials more thoroughly. Generally, few predictors were significantly related to the acceptability of self-help materials suggesting that actively recruited smokers with a range of characteristics find self-help materials acceptable.

Study limitations included that acceptability could not be measured among those who refused at baseline or were lost at 4-months post-recruitment. Consequently, the results may not be representative of all smokers approached or recruited as non-respondents may have been less satisfied. Further, social desirability may have influenced responses, in that participants overstated acceptability. However, this likelihood is reduced given the 4-month interviewers were not associated with nor employed by the NSW Quitline.

Most 4-month interview respondents (93%) found active telephone recruitment to cessation assistance acceptable. Ninety percent of intervention participants accepted at least one proactive counselling call and 84% of control participants who completed the 4-month interview read at least some self-help materials. Few characteristics predicted acceptability of proactive telephone counselling or self-help materials suggesting many types of smokers actively recruited by telephone are receptive to support. Given these findings and the potential to increase quitline utilization, quitlines should consider active telephone recruitment.

Funding

The project received funding from the Australian Research Council, National Heart Foundation, Hunter New England Population Health and The Cancer Council NSW.

Competing interests

The authors have no competing interests.

Acknowledgments

This project was undertaken by the Centre for Health Research & Psycho-oncology (CHeRP) and Hunter New England Population Health (HNEPH). CHeRP is funded by The Cancer Council NSW, The University of Newcastle and receives infrastructure support from the Hunter Medical Research Institute and the University of Newcastle Priority Research Centre for Health Behaviour. HNEPH is a unit of Hunter New England Health and receives infrastructure support from the Hunter Medical Research Institute and the University of Newcastle Priority Research Centre for Health Behaviour. The authors would like to sincerely thank the staff at the NSW Quitline and The Cancer Institute NSW for providing the proactive telephone counselling. We are very grateful to Prof Ron Borland for his helpful and generous advice, to Christophe Lecathelinais for statistical assistance and to Vibeke Hansen and Amy Waller for their help with data collection. The views expressed are not necessarily those of The Cancer Council NSW and Hunter New England Health.

References

Abdullah, A. S. M., Lam, T. H., Chan, S. S. C., & Hedley, A. J. (2004). Which smokers use the smoking cessation Quitline in Hong Kong, and how effective is the Quitline? *Tobacco Control, 13*, 415-421.

Abdullah, A. S. M., Mak, Y. W., Loke, A. Y., & Lam, T. H. (2005). Smoking cessation intervention in parents of young children: a randomised controlled trial. *Addiction, 100*(11), 1731-1740.

Balanda, K. P., Lowe, J. B., & O'Connor-Fleming, M. L. (1999). Comparison of two self-help smoking cessation booklets. *Tobacco Control, 8*(1), 57-61.

Borland, R., Balmford, J., Segan, C., Livingston, P., & Owen, N. (2003). The effectiveness of personalized smoking cessation strategies for callers to a Quitline service. *Addiction, 98*(6), 837-846.

Borland, R., Segan, C. J., Livingston, P. M., & Owen, N. (2001). The effectiveness of callback counselling for smoking cessation: a randomized trial. *Addiction, 96*(6), 881-889.

Britt, J., Curry, S. J., McBride, C., Grothaus, L., & Louie, D. (1994). Implementation and acceptance of outreach telephone counseling for smoking cessation with nonvolunteer smokers. *Health Education Quarterly, 21*(1), 55-68.

Centers for Disease Control and Prevention. (2004). *Telephone Quitlines: A Resource for Development, Implementation, and Evaluation.* (Final ed.). Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Cummins, S. E., Bailey, L., Campbell, S., Koon-Kirby, C., & Zhu, S. H. (2007). Tobacco cessation quitlines in North America: a descriptive study. *Tobacco Control, 16*(Suppl_1), i9-15.

Curry, S. J., McBride, C., Grothaus, L. C., Louie, D., & Wagner, E. H. (1995). A randomized trial of self-help materials, personalized feedback, and telephone counseling with nonvolunteer smokers. *Journal of Consulting & Clinical Psychology, 63*(6), 1005-1014.

Fiore, M. C., Jaen C. R., Baker T. B., et al. (2008). *Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline*. Rockville MD: U.S. Department of Health and Human Services. Public Health Service.

Fortmann, S. P., & Killen, J. D. (1994). Who shall quit? Comparison of volunteer and population-based recruitment in two minimal-contact smoking cessation studies. *American Journal of Epidemiology, 140*(1), 39-51.

Gilbert, H., & Sutton, S. (2006). Evaluating the effectiveness of proactive telephone counselling for smoking cessation in a randomized controlled trial. *Addiction, 101*(4), 590-598.

Gilpin, E. A., Pierce, J. P., Berry, C. C., & White, M. M. (2000). *Technical Report on Analytic Methods and Approaches Used in the 1999 California Tobacco Survey Analysis. Vol 1: Data Collection Methodology*. La Jolla, CA: University of California, San Diego.

Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K. O. (1991). The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. *British Journal of Addiction, 86*(9), 1119-1127.

Hughes, J. R., Marcy, T. W., & Naud, S. (2009). Interest in treatments to stop smoking. *Journal of Substance Abuse Treatment, 36*(1), 18-24.

McBride, C. M., Curry, S. J., Grothaus, L. C., Rosner, D., Louie, D., & Wagner, E. H. (1998). Use of self-help materials and smoking cessation among proactively recruited and volunteer intervention participants. *American Journal of Health Promotion, 12*(5), 321-324.

McBride, C. M., Scholes, D., Grothaus, L. C., Curry, S. J., Ludman, E., & Albright, J. (1999). Evaluation of a minimal self-help smoking cessation intervention following cervical cancer screening. *Preventive Medicine, 29*(2), 133-138.

McDonald, P. W. (1999). Population-based recruitment for quit-smoking programs: an analytic review of communication variables. *Preventive Medicine, 28*(6), 545-557.

Miller, C. L., Wakefield, M., & Roberts, L. (2003). Uptake and effectiveness of the Australian telephone Quitline service in the context of a mass media campaign. *Tobacco Control, 12*, ii53-ii58.

Mosbaek, C. H., Austin, D. F., Stark, M. J., & Lambert, L. C. (2007). The association between advertising and calls to a tobacco quitline. *Tobacco Control, 16*(Suppl_1), i24-29.

Owen, L. (2000). Impact of a telephone helpline for smokers who called during a mass media campaign. *Tobacco Control, 9*(2), 148-154.

Pan, W. (2006). Proactive telephone counseling as an adjunct to minimal intervention for smoking cessation: a meta-analysis. *Health Education Research, 21*(3), 416-427.

Platt, S., Tannahill, A., Watson, J., & Fraser, E. (1997). Effectiveness of antismoking telephone helpline: follow up survey. *British Medical Journal, 314*(7091), 1371-1375.

Prout, M. N., Martinez, O., Ballas, J., Geller, A. C., Lash, T. L., Brooks, D., et al. (2002). Who uses the Smoker's Quitline in Massachusetts? *Tobacco Control, 11*(Suppl 2), ii74-75.

Rimer, B. K., Orleans, C. T., Fleisher, L., Cristinzio, S., Resch, N., Telepchak, J., et al. (1994). Does tailoring matter? The impact of a tailored guide on ratings and short-term smoking-related outcomes for older smokers. *Health Education Research, 9*(1), 69-84.

Shiffman, S., Brockwell, S. E., Pillitteri, J. L., & Gitchell, J. G. (2008a). Individual differences in adoption of treatment for smoking cessation: demographic and smoking history characteristics. *Drug & Alcohol Dependence, 93*(1-2), 121-131.

Shiffman, S., Brockwell, S. E., Pillitteri, J. L., & Gitchell, J. G. (2008b). Use of smoking-cessation treatments in the United States. *American Journal of Preventive Medicine, 34*(2), 102-111.

Smith, P. M., Cameron, R., McDonald, P. W., Kawash, B., Madill, C., & Brown, S. (2004). Telephone counseling for population-based smoking cessation. *American Journal of Health Behavior, 28*(3), 231-241.

Stead, L. F., Perera, R., & Lancaster, T. (2006). Telephone counselling for smoking cessation. *The Cochrane Database of Systematic Reviews*(Issue 1), . Art. No.: CD002850. DOI: 002810.001002/14651858.CD14002850.

Swartz Woods, S., & Haskins, A. E. (2007). Increasing reach of quitline services in a US state with comprehensive tobacco treatment. *Tobacco Control, 16*(Suppl_1), i33-36.

Tzelepis, F., Paul, C. L., Walsh R. A., Wiggers, J., Knight, J., Lecathelinais, C., et al. (under editorial review). Telephone recruitment to smoking cessation support: does cold calling reach more smokers? *American Journal of Preventive Medicine.*

Van Deusen, A. M., Hyland, A., Abrams, S. M., Celestino, P., Mahoney, M. C., & Cummings, K. M. (2007). Smokers' acceptance of "cold calls" offering quitline services. *Tobacco Control, 16*(Suppl_1), i30-32.

Zhu, S. H., Anderson, C. M., Johnson, C. E., Tedeschi, G., & Roeseler, A. (2000). A centralised telephone service for tobacco cessation: the California experience. *Tobacco Control, 9*(Suppl II), ii48-ii55.

Zhu, S. H., Anderson, C. M., Tedeschi, G. J., Rosbrook, B., Johnson, C. E., Byrd, M., et al. (2002). Evidence of real-world effectiveness of a telephone quitline for smokers. *New England Journal of Medicine, 347*(14), 1087-1093.

Zhu, S. H., Stretch, V., Balabanis, M., Rosbrook, B., Sadler, G., & Pierce, J. P. (1996). Telephone counseling for smoking cessation: effects of single-session and multiple-session interventions. *Journal of Consulting & Clinical Psychology, 64*(1), 202-211.

Zhu, S. H., Tedeschi, G. J., Anderson, C. M., & Pierce, J. P. (1996). Telephone counseling for smoking cessation: What's in a call? *Journal of Counseling & Development, 75*(2), 93-102.

Zhu, S. H., Rosbrook, B., Anderson, C., Gilpin, E., Sadler, G., & Pierce, J. P. (1995). The demographics of help-seeking for smoking cessation in California and the role of the California Smokers' Helpline. *Tobacco Control, 4*(S1), S9-S15.

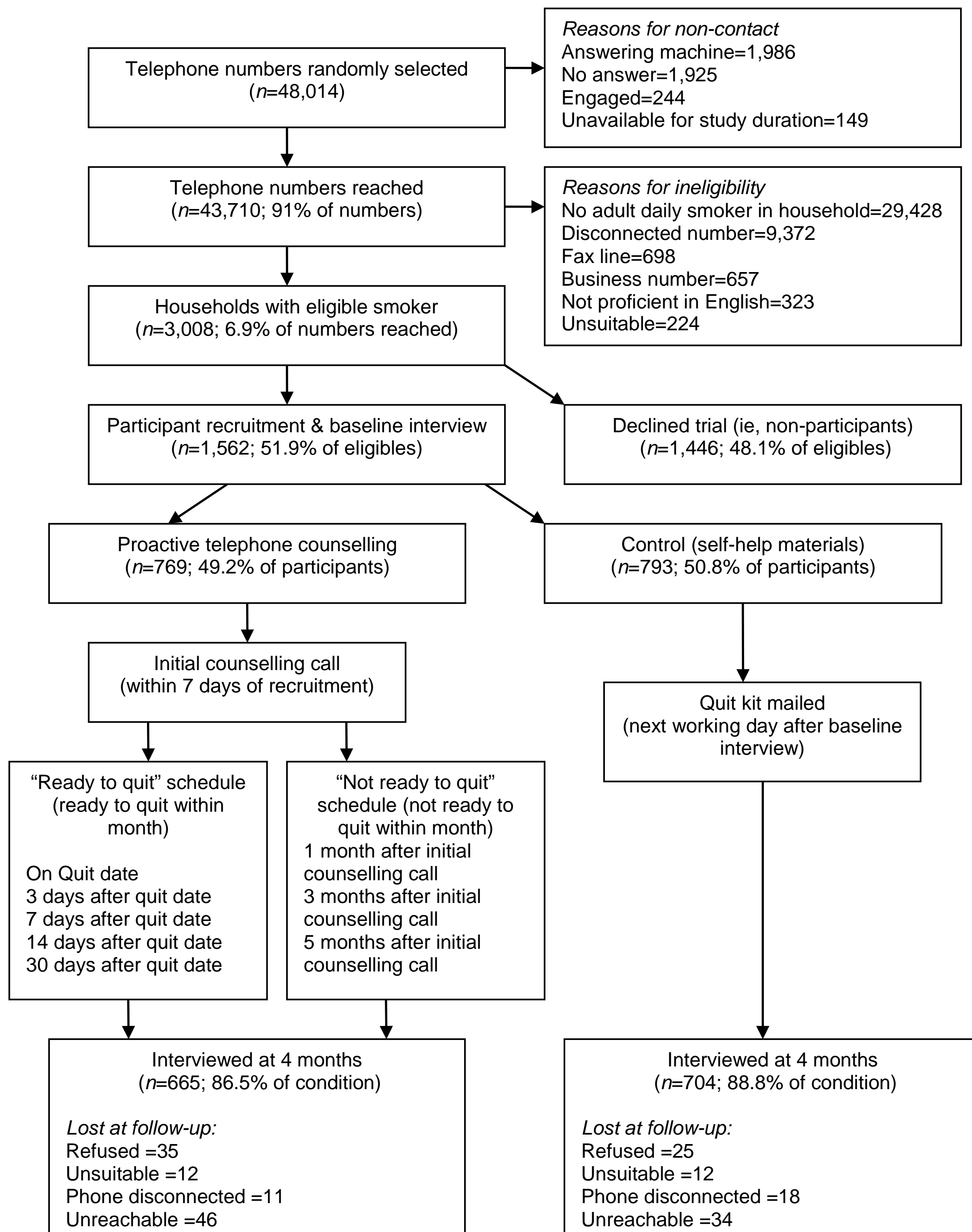

Figure 1: Participant recruitment, cessation support and 4-month assessment

Table 1: Characteristics of participants at baseline

Characteristic	Proactive telephone counselling (n=769)[a]	Self-help materials (n=793)[b]	*p* value
Gender (%)			
Male	50.2	48.5	0.5
Female	49.8	51.5	
Age (years)			
Mean (SD)	45.4 (12.7)	44.4 (13.8)	0.2
Median	45	44	
Country of birth (%)			
Australia	81.8	79.9	0.4
Other	18.2	20.1	
Education (%)			
Primary only	0.9	1.0	0.5
Year 7-10	32.9	31.3	
HSC or TAFE[c]	46.7	46.2	
University or tertiary	18.2	19.2	
Other	1.3	2.4	
Marital status (%)			
Married/defacto	52.6	57.4	0.01*
Divorced/separated	23.4	16.8	
Widowed	3.9	4.7	
Never married	20.1	21.1	
Employment status (%)			
Employed full time	45.1	44.6	0.4
Employed part time/casual	20.8	18.5	
Unemployed	6.1	6.9	
Student	2.0	2.6	
Retired	9.6	11.5	
Permanently unable to work	6.0	4.7	
Home duties	7.5	9.2	
Other	2.9	1.9	
Area of residence (%)			
Metropolitan	43.4	42.0	0.6
Non-metropolitan	56.6	58.0	
Age began regular smoking			
Mean (SD)	17.3 (4.4)	17.6 (4.7)	0.2
Median	17	17	
Time to first cigarette (minutes)			
Mean (SD)	47.1 (84.4)	55.4 (114.4)	0.1
Median	20	20	
Cigarettes per day			
Mean (SD)	19.9 (9.6)	18.9 (9.9)	0.03*
Median	20	20	
Ever quit for 24+ hours (%)			
Yes	89.1	89.7	0.7
No/Don't know	10.9	10.3	
Quit attempt in past 12 months (%)			
Yes	47.6	47.3	0.9
No	52.4	52.7	
Quitting intentions (%)			
Will quit in next 30 days	29.0	26.9	0.3
Will quit in next 6 months	40.8	38.7	
Will not quit in next 6 months	25.7	29.9	
Don't know	4.4	4.5	
Other household smokers (%)			
Yes	24.1	25.0	0.7
No	75.9	75.0	

[a] missing data range 0-7
[b] missing data range 0-7
[c] HSC=Higher School Certificate (Year 12); TAFE=Technical and Further Education
* $p<0.05$

Table 2: Significant predictors of acceptability of telephone recruitment call and proactive telephone counselling among intervention participants

	Acceptability of recruitment call *(very acceptable/ acceptable)*	Number of counselling calls taken *(3 or more)*	Smoking or quitting-related topics discussed with advisor *(yes)*	Counselling calls helped with motivation to try quitting or stay quit *(helped a lot/little)*	Counselling calls helped with cravings and triggers *(helped a lot/little)*	Counselling calls helped with motivation to try again if slipped *(helped a lot/little)*	Counselling calls helped with avoiding slips *(helped a lot/little)*	Acceptability of number of counselling calls *(about right)*	Satisfaction with spacing of counselling calls *(very satisfied/ satisfied)*	Perceived future use of telephone counselling *(yes)*	Overall acceptability of proactive telephone counselling *(very acceptable/ acceptable)*
Baseline characteristic	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)
Age 18-30 31-50 51+	-	0.8(0.5-1.3) 1.4(1.001-1.9)* Referent	-	2.1(0.97-4.7) 1.8(1.1-2.9)* Referent	-	-	2.1(1.1-3.9)* 1.6(1.05-2.4)* Referent	0.5(0.2-0.9)* 0.9(0.6-1.6) Referent	-	-	-
Gender Male Female	-	-	-	-	-	-	-	-	-	-	-
Education Year 10 or below HSC/TAFE[a] University/tertiary	-	-	-	-	-	-	-	-	-	-	-
Cigarettes per day 1-10 11-20 21+	-	-	-	-	-	-	-	-	-	0.5(0.3-0.9)* 0.6(0.3-0.9)* Referent	-
Quitting intention Within 30 days Within 6 months Not within 6 months	-	-	3.2(1.7-5.9)* 2.0(1.2-3.4)* Referent	-	-	-	-	-	-	0.5(0.3-0.9)* 1.0(0.5-1.8) Referent	-

[a] HSC=Higher School Certificate (Year 12); TAFE=Technical and Further Education
* $p<0.05$

Table 3: Significant predictors of acceptability of telephone recruitment call and self-help materials among control participants

	Acceptability of telephone recruitment call *(very acceptable/ acceptable)*	Read brochures *(in full)*	Brochures helped with motivation to try quitting or stay quit *(helped a lot/little)*	Brochures helped with cravings and triggers *(helped a lot/little)*	Brochures helped with motivation to try again if slipped *(helped a lot/little)*	Brochures helped with avoiding slips *(helped a lot/little)*	Called quitline themselves and spoke to advisor *(yes)*
Baseline characteristic	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)
Age							
18-30	2.4(0.8-7.3)	0.7(0.4-1.2)	2.0(1.1-3.7)*				
31-50	2.1(1.04-4.4)*	0.6(0.4-0.8)*	1.3(0.8-1.9)	-	-	-	-
51+	Referent	Referent	Referent				
Gender							
Male	-	-	-	-	-	-	-
Female							
Education							
Year 10 or below	2.2(0.96-5.0)						
HSC/TAFE[a]	2.8(1.2-6.5)*	-	-	-	-	-	-
University/tertiary	Referent						
Cigarettes per day							
1-10							
11-20	-	-	-	-	-	-	-
21+							
Quitting intention							
Within 30 days	3.4(1.2-9.6)*	2.0(1.3-3.1)*	1.9(1.1-3.1)*				27.3(4.6-Infinity)[b]*
Within 6 months	1.3(0.6-2.6)	1.6(1.1-2.4)*	1.5(0.96-2.4)	-	-	-	9.4(1.5-Inifinity)[b]*
Not within 6 months	Referent	Referent	Referent				Referent

[a] HSC=Higher School Certificate (Year 12); TAFE=Technical and Further Education
[b] Exact odds ratios due to a zero cell.
* $p<0.05$