Pergamon

ADDICTIVE BEHAVIORS

Addictive Behaviors 27 (2002) 139–144

Brief report

Effectiveness of telephone contact as an adjunct to a self-help program for smoking cessation A randomized controlled trial in Spanish smokers

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Abstract

This study evaluated the effect of telephone counseling as an adjunct to a self-help program for smoking cessation conducted through the mail. We obtained demographic and consumption information on those smokers who requested participation in the study. These participants ($N = 200$) were randomized into two study groups: (1) the standard self-help group ($n = 100$) (median age: 35.1 years; pretreatment consumption of 28.0 cigarettes/day); (2) the self-help group receiving additional multiple-contact telephone counseling ($n = 100$) (median age: 36.7 years; pretreatment consumption of 27.3 cigarettes/day). At the 12-month follow-up, the carbon monoxide in expired air was used to distinguish nonsmokers from smokers. Significant differences were found in the rates of continuous abstinence in both groups for each period evaluated. In the standard self-help group, the continuous abstinence rate at the 3-month follow-up was 21%, 18% at the 6-month follow-up, and 14% at the 12-month follow-up. The telephone counseling group yielded a 48% continuous abstinence rate at the 3-month follow-up, 40% at the 6-month follow-up, and 27% at the 12-month follow-up. The results of this randomized controlled trial show that telephone counseling was an effective aid for the smoking cessation program.

Keywords: Smoking cessation; Telephone; Self-help program; Counseling

1. Introduction

Previous reviews have concluded that there is limited evidence that self-help interventions have a significant effect on improving cessation (Curry, 1993; Lancaster & Stead, 1999).

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0306-4603/02/$ – see front matter
PII: S0306-4603(00)00166-0

Increasing the intensity of intervention by providing telephone counseling appears to increase quit rates, especially proactive calls from a counselor (Brown, Hunt, & Owen, 1992; Curry, McBride, Grothaus, Louie, & Wagner, 1995; Orleans et al., 1991; Ossip Klein, Carosella, & Krusch, 1997; Prochaska, DiClemente, Velicer, & Rossi, 1993; Zhu et al., 1996). Previously implemented interventions vary in the number of sessions provided (ranging from 1 to 6 in published studies). It seems that multiple-session counseling yields better results than single-session counseling (Zhu et al., 1996). However, there are still certain issues that need to be researched. For example, the majority of the research has studied the effect of the telephone calls after the quit date, but the authors have not found any study on the effect of multiple-session telephone counseling before the quit date. Moreover, all but one of the telephone intervention trials studied were carried out in the USA. Thus, further research might be needed to make sure that the effect can be generalized to other countries.

The purpose of this study was to evaluate the effects of adding multiple-session telephone counseling to a self-help intervention prior to the quit date and compare it with the results of a self-help approach alone.

2. Method

Participants were recruited in Galicia (Spain) during the months of November and December of 1996 through advertisement in newspapers, radio, and local television. The first 200 responders were randomly assigned to one of two experimental groups (see Table 1). At the 12-month follow-up, three participants were not contacted. For the purpose of data analysis, we considered them as current smokers with the same cigarette consumption that they had had in the pretreatment.

The intervention applied in this research was an adaptation of a multicomponent behavioral program (Becoña, 1993) that has been evaluated in clinical settings (e.g., Vázquez & Becoña, 1999). Each participant received a packet with a personalized letter mailed detailing the characteristics of the program and offering instructions on self-monitoring and the graphic representation of cigarette consumption. The following week, they began the treatment program. The participants were mailed a self-help manual along with the following items: (1) a personalized letter assigning weekly readings and tasks to be completed, (2) seven self-monitoring forms, and (3) a self-evaluated adherence form for that week. Five more packets, containing the same three items (excluding the manual), were mailed throughout the program. The telephone counseling group received six calls, each 1 week apart, beginning after the first mailing of the self-help materials. Each telephone call lasted 10 min. During the first four calls, the counselor provided motivational and cessation strategies, while during the last two, maintenance strategies.

Continuous nonsmoking at each follow-up was defined as the no smoking of cigarettes (not even a puff) since initial quitting. Initial quit rate was assessed based on the affirmative response to one question: “Did you stop smoking after you received the materials?”. End of treatment (initial quitting) and follow-up interviews were conducted by trained interviewers who were blind with respect to the group to which each subject belonged. At the end of treatment and at the 3- and 6-month follow-ups, data were

Table 1
Participant profile

	Total ($N=200$)		Self-help ($n=100$)		Telephone ($n=100$)	
Characteristics	*n*	%	*n*	%	*n*	%
Sex						
Male	124	62.0	62	62.0	62	62.0
Female	76	38.0	38	38.0	38	38.0
Age						
M	35.9		35.1		36.7	
S.D.	8.9		8.8		8.9	
Marital status						
Single	69	34.5	38	38.0	31	31.0
Married	120	60.0	57	57.0	63	63.0
Divorced/widowed	11	5.5	5	5.0	6	6.0
Education						
Elementary	41	20.5	20	20.0	21	21.0
High school	76	38.0	41	41.0	35	35.0
College/university	83	41.5	39	39.0	44	44.0
No. of cigarettes per day						
M	27.7		28.0		27.3	
S.D.	10.3		10.3		10.3	
Dependence (FTND)						
M	5.4		5.6		5.2	
S.D.	2.3		2.2		2.4	
No. of years smoking						
M	18.6		17.7		19.5	
S.D.	8.3		8.3		8.3	
Had they attempted to stop smoking in the last year?						
Yes	79	39.5	32	32.0	37	37.0
No	121	60.5	68	68.0	63	63.0
Desire to quit smoking (0–10)						
M	8.8		8.6		9.0	
S.D.	1.6		1.7		1.4	
Stages of change						
Precontemplation	0	0.0	0	0.0	0	0.0
Contemplation	150	75.0	77	77.0	73	73.0
Preparation	50	25.0	23	23.0	27	27.0

FTND = Fagerström test for nicotine dependence.

collected regarding the status of the smoker either by letter or telephone. To improve the veracity of self-reported smoking status during these interviews, each began with a reminder that the participant might be asked for a carbon monoxide test, creating a sort of bogus pipeline (Murray & Perry, 1987). At the 12-month follow-up, subjects who reported abstinence were given home interviews in which their claims were validated with a carbon monoxide test.

3. Results

3.1. Demographic, consumption variables, and continuous abstinence

Table 1 shows the demographics and consumption data for both experimental conditions. The randomization process appears to have yielded comparable groups. No variable was significantly different between two groups. Pairwise comparisons indicated that the telephone counseling group had a significantly higher continuous abstinence rate than those of the standard self-help group at 3-, 6-, and 12-month follow-ups (see Table 2).

Excluding those who were abstinent at the 12-month follow-up, the telephone intervention group also had the highest reduction in daily cigarette consumption (Table 3). The rate of decrease in daily consumption of cigarettes ranged from 9 to 24 in the telephone intervention group and from 8 to 12 in the self-help group, depending on the period evaluated.

3.2. Quantity of material read and use of self-help materials

The number of self-help manual sections read by the participants served as an index to evaluate the quantity of material read. Of the self-help group participants, 53.0% read all five sections of the manual, while 25.0% read between one and four sections, and 22.0% only glanced at or did not read the manual at all. In contrast, 80.0% of the telephone counseling group read the entire manual, 13.0% read between one and four sections, and only 7.0% either glanced at or did not read the manual at all. The difference between the two groups was found to be significant [χ^2 (1, $N = 198$) = 17.02, $p < .0005$].

Self-evaluated adherence forms, returned weekly by mail, were monitored as an index of active use of the materials and compliance. The participants from the self-help group returned

Table 2
Continuous nonsmoking rates (%)

	Groups				
Outcome	Self-help ($n = 100$)	Telephone ($n = 100$)	p	OR	CI
3 months	21	48	.0001	3.4	1.8–6.4
6 months	18	40	.0008	3.0	1.5–5.8
12 months	14	27	.0249	2.2	1.1–4.6

Odds ratios and 95% confidence intervals from a logistic regression analysis for pairwise comparisons of self-help group with telephone intervention are presented when the p value for the overall chi-square test was $\leq .05$.

Table 3
Changes in cigarette consumption in those still smoking at the 12-month follow-up

	Self-help group		Telephone group			
Times	*M*	*S.D.*	*M*	*S.D.*	*t*	*p*
Before treatment	28.8	10.5	28.2	10.7	0.39	.696
End of treatment	16.5	13.0	4.7	8.3	6.67	.001
3 months	18.9	12.5	12.3	11.2	3.46	.001
6 months	19.9	12.1	15.3	13.0	2.29	.023
12 months	21.3	11.9	19.0	12.2	1.17	.241

41.9% (*S.D.* = 39.4) of the self-evaluated adherence forms and those of the telephone counseling group returned 68.2% (*S.D.* = 37.8). There were significant differences between the telephone counseling and self-help groups in the average of returned forms (t (1, 198) = 4.82, $p < .001$).

4. Discussion

This randomized controlled trial proved that telephone counseling significantly increases the short- and long-term abstinence rates of the self-help intervention employed in this study. Other previous randomized self-help programs have yielded similar outcomes (e.g., Orleans et al., 1991; Zhu et al., 1996). Nevertheless, some of these findings indicated that telephone contact provided only short-term effectiveness (e.g., Curry et al., 1995). Zhu et al. (1996) reported that multiple sessions of counseling did not affect the number of attempts to quit, but were beneficial in reducing relapse. Conversely, this study shows that multiple counseling calls before the quit date not only reduce relapse, but increase abstinence rates as well. In addition, the results suggest that the effects of the telephone contact may be generalized to other countries, particularly Spain.

The observed counseling results are difficult to compare with other studies due to differences in participant characteristics and telephone counseling protocol — for example, the number of telephone contacts, the length of contact, and the setting. However, the length of the telephone calls is an important factor that must be taken into account in this type of intervention. Zhu et al. (1996) made five telephone calls lasting 20 min, and one lasting 50 min. In total, each participant received a little less than 3 h of telephone counseling. Subjects in this study received six telephone calls, each lasting 10 min. Thus, each participant received a total of 1 h of telephone counseling. Therefore, it seems likely that subjects could take away the same benefits from a shorter telephone contact. The decrease in the length of time, provided it does not negatively influence the outcome, would make these interventions more cost-effective.

There were a few limitations in this study. Previous intervention trials have shown that smoking cessation rates based on self-help reports need to be interpreted conservatively due to a high implicit demand on subjects to report positive changes. This bias is unlikely to have significantly influenced the findings presented here due to the confirmation of self-reported abstinence using the bogus pipeline technique as well as an objective

measure like carbon monoxide testing. However, these results should be interpreted with some caution because carbon monoxide has a short half-life. In addition, the lack of an untreated control group further limits the conclusions that can be drawn regarding the efficacy of both interventions.

Nevertheless, the results from a recent randomized controlled trial carried out in Spain, in which a waiting list control group was utilized, indicated that continuous abstinence in the control group at the 6-month follow-up was less than 1% and that the point prevalence was 3% (Becoña & Vázquez, in press). Finally, because most smokers are not prepared to quit, the potential impact of the intervention is already diminished.

In conclusion, telephone counseling is an effective aid in a self-help smoking cessation program. However, more research is needed to clarify the therapeutic mechanisms underlying the effectiveness of telephone counseling. Additional studies are required to determine the optimal number and length of telephone contacts needed for maximum cost-efficacy. Furthermore, future investigations should attempt to identify the subset of smokers that would benefit the most from telephone counseling.

References

Becoña, E. (1993). *Programa para dejar de fumar* (Program for smoking cessation). Santiago de Compostela, Spain: Servicio de Publicaciones de la Universidad de Santiago de Compostela.

Becoña, E., & Vázquez, F. L. (in press). Effectiveness of personalized written feedback through a mail intervention for smoking cessation: a randomized controlled trial in Spanish smokers. *Journal of Consulting and Clinical Psychology*.

Brown, S., Hunt, G., & Owen, N. (1992). The effect of adding telephone contact to self-instructional smoking-cessation materials. *Behavior Change*, *9*, 216–222.

Curry, S. J. (1993). Self-help interventions for smoking cessation. *Journal of Consulting and Clinical Psychology*, *61*, 790–803.

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 non-volunteer smokers. *Journal of Consulting and Clinical Psychology*, *63*, 1005–1014.

Lancaster, T., & Stead, L. F. (1999). Self-help interventions for smoking cessation. (Cochrane review). In: *The Cochrane library*, (Issue 1). Oxford, UK: Update Software.

Murray, M. D., & Perry, C. L. (1987). The measurement of substance abuse among adolescents. When is the bogus pipeline a method needed? *Addictive Behaviors*, *12*, 225–233.

Orleans, C. T., Schoenbach, V. J., Wagner, E. H., Quade, D., Salmon, M. A., Pearson, D. C., Porter, C. Q., & Kaplan, B. H. (1991). Self-help quit smoking interventions: effects of self-help materials, social support instructions, and telephone counseling. *Journal of Consulting and Clinical Psychology*, *59*, 439–448.

Ossip Klein, D. J., Carosella, A. M., & Krusch, D. A. (1997). Self-help interventions for older smokers. *Tobacco Control*, *6*, 188–193.

Prochaska, J. O., DiClemente, C. C., Velicer, W. F., & Rossi, J. S. (1993). Standardized, individualized, interactive and personalized self-programs for smoking cessation. *Health Psychology*, *12*, 399–405.

Vázquez, F. L., & Becoña, E. (1999). Depression and smoking in a smoking cessation program. *Journal of Affective Disorders*, *55*, 125–132.

Zhu, S., 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 and Clinical Psychology*, *64*, 202–211.