

Family Practice

Randomized clinical trial of supportive follow-up for cigarette smokers in a family practice

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The staggering toll of disability and untimely death from cigarette smoking is well documented for individual smokers, their spouses and children (from second-hand smoke and house fires), the environment (from forest and hotel fires) and society in general. It is not surprising, therefore, that a host of strategies have been devised and advocated for helping individuals to stop smoking, including involvement in special groups and "clinics", and the use of tranquillizers, gum containing nicotine, acupuncture and a variety of behavioural therapeutic maneuvers. However, even among individuals who want to stop smoking, these strategies are only marginally effective.^{1,2}

More recently, family physicians have begun to test the feasibility and effectiveness of certain strategies in primary care settings. These strategies, applied to all smokers who attend a practice, whether they wish to stop smoking or not, have been moderately successful. For example, in contrast to the negative results of an earlier trial,³ Russell and colleagues,⁴ who gave half their smoking patients advice plus a pamphlet, found that 5.1% of these patients stopped smoking for 1 year, compared with only 0.3% of the patients who did not receive advice or a pamphlet.

Because our synthesis of the literature on smoking cessation suggested the need for long-term interventions, and because family practice is an ideal setting for providing continuing support, we decided to conduct a randomized trial to answer the question: Does the addition of follow-up support to an initial counselling session increase the rate at which cigarette smokers quit?

Patients and methods

The trial took place in two middle-class, university-based family practices (both of which were formerly community-based) in Hamilton, Ont. All the patients

more than 16 years old attending either practice between Dec. 10, 1979 and May 27, 1980 were asked to complete a questionnaire on smoking. The questionnaire was designed to facilitate the recording of a comprehensive smoking history, which included such items as age at time of starting smoking, amount smoked, insight about smoking-related diseases and desire and motivation to stop smoking. Nonsmokers, pregnant women who smoked and smokers with communication disorders or terminal illnesses were excluded from the trial. All the remaining patients were treated for their presenting complaints, and then each received a 3- to 5-minute counselling session that covered the following: (a) the patient's smoking history, previous attempts to quit smoking and degree of motivation; (b) the effects of smoking on health, which were also outlined in a pamphlet given to the patient at this point;⁵ (c) a review of strategies for quitting smoking (cold turkey, self-monitoring, aversion techniques, acupuncture, hypnosis, group sessions and the use of gum containing nicotine); and (d) a confrontation about the patient's smoking habits and a strong recommendation that he or she quit smoking.

Following the counselling session, patients were randomly assigned to a control or experimental group. The patients in the control group received follow-up appointments as necessary for their chief complaints but no further counselling or support concerning cigarette smoking. The patients in the experimental group were given appointments for 1, 3 and 6 months later to review their progress and identify and solve problems they may

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Family physicians are in an excellent position to advocate strategies to enable their patients to attempt to stop smoking. Dr. Douglas Wilson and his colleagues, who employ the CHEST technique — Confrontation, History, Education, Strategies and Treatment — with their patients, have found that cigarette smokers who are requested to return for follow-up visits (i.e., treatment) after the brief counselling session are twice as likely to refrain from cigarette smoking for at least 6 months. Patients who smoke regular-tar, rather than low-tar, cigarettes are more likely to quit smoking. Surprisingly, patients who consider themselves susceptible to lung disease, stroke or heart attack are less likely to quit.

have had in trying to quit smoking. At each subsequent visit these patients received support and assistance in their efforts to quit. Six months after their initial visit, these patients were given a questionnaire or, if necessary, telephoned so that we could determine their self-reported smoking status.

The sample size selected for the trial sought to detect, at a one-sided α -value of 0.05 and a β -value of 0.20, a doubling, from 15%* to 30%, of the proportion of patients who were able to stop smoking for 6 months after the initial visit. Allowing for a 10% dropout rate, the trial required 103 patients per group.

Results

During the study period 866 patients more than 16 years old attended the two practices and were seen by family physicians, nurse-practitioners or family practice residents. Of the 866 patients 234 (27%) were current cigarette smokers and 26% were exsmokers. Nine (4%) of the smokers refused to answer the questionnaire and another 14 (6%) did not meet the criteria for entering the trial. Thus, the trial included 105 smokers in the control group and 106 smokers in the experimental group. The baseline characteristics of the patients in both groups are summarized in Table I. The randomization produced similar features in the two groups. Although the control group tended to have a greater desire to quit and were previously able to quit for longer periods than the experimental group, neither of these differences was statistically significant.

In the experimental group 86% of the patients received supportive follow-up care at least once in the

first 6 months after entering the trial; 63%, 48% and 26% received such care two or more, three or more and four or more times respectively. Those who refused follow-up care for the specific purpose of quitting smoking were given support when they attended the practice for other reasons.

Smoking status after the initial visit could be determined for only 184 (87%) of the patients (93 in the control group and 91 in the experimental group). From the patients' reports 6 to 14 months after entry into the trial we found that, overall, only 12% of the patients in the control group but 23% of those in the experimental group had quit smoking (Table II); this difference was unlikely to be due to chance ($P = 0.034$ by Fisher's exact test).

The data were further examined to determine whether the difference in outcome between the control and experimental groups was influenced by certain prognostic factors. Of the seven variables displayed in Table II, only the type of cigarette smoked influenced the difference in outcome. Specifically, although there was little difference in outcome for the patients who smoked low-tar cigarettes, the proportion of patients who quit smoking was almost five times as great in the experimental group as in the control group among those who smoked regular-tar cigarettes ($\chi^2_1 = 5.91$, $P < 0.05$). The only other prognostic factor approaching statistical significance was sex ($\chi^2_1 = 2.62$, $P = 0.11$), the success rate being somewhat greater in men. Table III shows that the patient's sex and the type of cigarette smoked were highly associated: 60% of the men, compared with 25% of the women, smoked regular-tar cigarettes ($\chi^2_1 = 22.6$, $P < 0.001$). Thus, it seems that the trend observed with sex is related to the difference in the type of cigarette smoked. In fact, even if the analysis is restricted to the patients who smoked regular-tar ciga-

*In the few studies cited on smoking and health there is a range of 5%³ to 13%⁶ to 22%.⁷ We have arbitrarily chosen 15% as a mean, recognizing that there are a number of dissimilarities in design.

Table I—Baseline characteristics of patients in the experimental and control groups

Variable	Proportion of patients (%)			
	Men		Women	
	Control group	Experimental group	Control group	Experimental group
Age (yr)				
16-20	9	13	18	24
21-30	28	25	24	25
31+	63	62	58	51
No. of cigarettes smoked per day				
< 10	24	22	32	34
10-20	59	59	60	63
21+	17	19	8	3
Type of cigarette				
Regular-tar	56	65	28	23
Low-tar	44	35	72	77
Desire to quit				
Yes	72	64	72	57
No	9	14	9	12
Don't know	19	22	19	31
Previously able to quit				
No	13	19	19	19
For < 1 mo	32	31	36	37
For 1-6 mo	24	26	15	25
For 7-12 mo	20	9	8	12
For 13+ mo	11	15	22	7
Locus of control				
Strong internal	38	47	38	33
Weak internal	31	37	42	45
Neutral or external	31	16	20	22

rettes the difference in outcome between the groups did not vary significantly between men and women.

When the characteristics of the patients were examined as predictors of quitting smoking, we made some interesting observations. As predicted, the "locus of control" tended to be related to quitting ($P = 0.09$ by a one-tailed t -test): one third of the 33 patients in the experimental group with a strong internal locus of control (those who believed in their own willpower and ability) quit, compared with 22% of the 37 patients with a weak internal locus of control and 11% of the 18 patients who were either neutral or had an external locus of control (those who were more fatalistic and dependent on forces outside themselves)⁸. Surprisingly, the patients in the experimental group who perceived that they were susceptible to lung cancer, emphysema, bronchitis, stroke or heart attack were less likely to report quitting than those who considered themselves

not susceptible; for bronchitis this trend was statistically significant ($P = 0.02$ by a two-tailed t -test). Whether patients had previously attempted to quit smoking was a very powerful predictor. Among the 77 patients in the experimental group who had previously attempted to quit 27% reported that they had tried to quit at 6 to 14 months, whereas of the 14 patients who had never tried to quit none reported that they had quit during the trial ($P = 0.02$); similarly, of the 11 patients in the control group who had never tried to quit none quit during the trial. Finally, only 1 of 20 (5%) patients in the experimental group who judged it would be extremely difficult to quit smoking subsequently reported doing so, as opposed to 31% of the 64 patients who judged it would be less difficult ($P = 0.013$).

Discussion

The high incidence and serious consequences of smoking-related diseases, the opportunity for family physicians to meet 75% of their patients in a year, and the skills of these physicians in monitoring long-term disease place family physicians in an ideal position to monitor long-term smoking behaviour. Our results demonstrate that family physicians can, indeed, play a key role in counselling and supporting their patients to quit smoking. That counselling is more effective in patients who smoke regular-tar cigarettes may indicate that patients who smoke low-tar cigarettes feel they have already taken action that will benefit their health and thus may be less susceptible to further change.

We suggest that family physicians employ our "CHEST" maneuver, which simply consists of Confrontation, History, Education, Strategies and Treatment ("treatment" being a simple invitation to book a follow-up visit to assess smoking behaviour).

We are grateful for the tutorship of Dr. David L. Sackett and the statistical assistance of Joel Singer. We also thank our staff physicians C.A. Moore and K.V. Rudnick, nurse-practitioners D. James and S. Hirst and the numerous residents, students, receptionists and registered nursing assistants for their help in this project.

This work was supported in part by the Hamilton-Wentworth Lung Association.

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Table II—Proportions of patients who quit smoking, according to their characteristics

Variable	No. of patients who quit/total no. of patients (and %)		P values*
	Control group	Experimental group	
Age (yr)			
16-20	3/15 (20)	5/17 (29)	0.75
21-30	2/23 (9)	5/20 (25)	
31+	6/55 (11)	11/54 (20)	
No. of cigarettes smoked per day			
< 10	4/29 (14)	6/28 (21)	0.80
10-20	6/53 (11)	14/54 (26)	
21+	1/11 (9)	1/9 (11)	
Type of cigarette			
Regular-tar	3/37 (8)	14/36 (39)	0.02
Low-tar	8/56 (14)	7/53 (13)	
Desire to quit			
Yes	9/62 (15)	16/51 (31)	0.82
No	1/9 (11)	1/9 (11)	
Don't know	1/15 (7)	3/20 (15)	
Previously able to quit			
For < 1 mo	3/34 (9)	8/36 (22)	0.30
For 1-6 mo	2/18 (11)	6/23 (26)	
For 7-12 mo	3/12 (25)	1/11 (9)	
For 13+ mo	3/17 (18)	6/10 (60)	
Locus of control			
Strong internal	5/35 (14)	11/33 (33)	0.73
Weak internal	4/30 (13)	8/37 (22)	
Neutral or external	2/22 (9)	2/18 (11)	
Sex			
Male	4/39 (10)	13/38 (34)	0.11
Female	7/54 (13)	8/53 (15)	

*Calculated with the BMDP log-linear program testing for a significant third-order interaction based on a chi-square statistic with one degree of freedom.

Table III—Relation of sex and cigarette type in patients who quit smoking

Sex; type of cigarette	No. of patients who quit/total no. of patients (and %)	
	Control group	Experimental group
Male		
Regular-tar	1/22 (5)	11/24 (46)
Low-tar	3/17 (18)	2/13 (15)
Female		
Regular-tar	2/15 (13)	3/12 (25)
Low-tar	5/39 (13)	5/40 (13)