Randomized Trial of Brief Individual Treatment for Smoking Using Nicotine Chewing Gum in a Workplace Setting

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Abstract: In a controlled trial of brief treatment for smoking using nicotine chewing gum in a workplace setting, 270 of 334 cigarette smokers who expressed interest were invited to take part in the program, which consisted of two individual consultations; 172 attended. The remaining 64 smokers constituted a no-intervention control group. Using a criterion of sustained one-year abstinence with biochemical validation, success rates were 12 per cent among participants, 1 per cent among those who were invited but did not attend, and 2 per cent in the control group. (*Am J Public Health* 1987; 77:1210–1211.)

Introduction

Nicotine chewing gum as an aid to smoking cessation has been tested both in clinics and in general practice.[1–3] Studies conducted in specialized clinics have found the gum to be more effective than placebo with sustained one-year abstinence rates of around 30 per cent.[4–6] A recent study demonstrated its value as an adjunct to advice given by family doctors to their patients[7] and other studies conducted in general practice or similar settings have yielded encouraging results,[8,9] although one study was inconclusive[10,11] and a large multicenter trial showed no advantage of the gum over placebo and no advantage of either compared with verbal advice.[12]

Although the workplace has a number of advantages as an arena for health promotion, there have been few controlled evaluations of smoking cessation programs in this setting.[13–15] In the present study, we investigated the efficacy of a brief treatment course based on nicotine chewing gum in a workplace setting.

Methods

The study was carried out at the London head office of a large retailing company specializing in clothing, food, and household goods. A short questionnaire was sent to all 3,253 employees by way of the company's internal mail system (92 per cent response rate, 681 cigarette smokers, cigarette smoking prevalence of 23 per cent); 334 cigarette smokers said that they would be interested in taking part in a forthcoming "stop smoking program" (Table 1). Of these, a randomly selected 270 were sent a personal invitation from the chief medical officer to take part in a program based on the use of nicotine chewing gum and involving two individual consultations two weeks apart. The remaining 64 smokers were not sent an invitation and thus constituted a randomized no-intervention control group. Of the 270 who were invited to take part, 172 (64 per cent) actually attended for treatment. There was a small amount of contamination between groups in that four members of the control group asked for and were given treatment.

The intervention stage was completed within a two-month period. The consultations took place during work time and were given by one or other of the authors. A maximum of 30 minutes was allowed for the first consultation and 15 minutes for the second. In the first consultation, subjects were questioned about their smoking habits and their expired-air carbon monoxide (CO) was measured.[16] The rationale and procedure for using the gum were explained, based on recommendations given by Russell and Jarvis.[17] Finally, subjects were given a private prescription for four boxes of 2 mg Nicorette, an information sheet about using and obtaining the gum, and a copy of the manufacturer's booklet. The gum was available from a local pharmacist at a concessionary price of £5.60 per box.

The second consultation took place two weeks later. Subjects were asked about their smoking and gum use in the intervening period and their CO level was measured. Any problems raised by the subjects were discussed and further encouragement to stop or stay off smoking was given. They were reminded about how the gum should be used and a second prescription was given if necessary. They were told that they would be contacted after one year and that if they needed more gum they should contact the occupational health department. Nine of the 172 participants were unable or unwilling to attend the second consultation. Of these, all but one were questioned by telephone.

One year after the start of the intervention period, participants were contacted by telephone and asked to attend for a brief interview, at which their CO level was again measured. Those in the two other groups were contacted and interviewed in the same way. All but three of the 334 cigarette smokers were contacted, a follow-up rate of 99 per cent, although 31 were not seen in person.

We used two criteria of sustained abstinence. According to the "lenient" criterion, successes were those who claimed to have smoked no more than 20 cigarettes or five cigars in total throughout the one-year follow-up period (no one smoked a pipe). "Strict" abstainers were those who claimed to have been totally abstinent from tobacco throughout the follow-up period. All those who were successes according to either definition had one-year CO levels no higher than 10

TABLE 1—Descriptive Data for the Sample (N = 334)

Variable	% or Mean
Sex	
% of women	70
Grade	
% senior management	45
% middle management	42
% non-management	14
Age	34.3*
Cigarette consumption (per day)	15.5**

*SD 10.6, Range 17–64
**SD 7.6, Range 1–40

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TABLE 2—Sustained One-Year Abstinence Rates in the Three Groups and 95% Confidence Intervals (CI) for the Differences between the Invited Group and the Control Group

Outcome[a] Criterion	Invited: Attended A N = 172	Invited: Did not Attend B N = 98	Control C N = 64	Difference between (A+B) and C (95% CI)
Lenient	13% (22)	2% (2)	2%[b] (1)	7% (3%, 12%)
Strict	12% (20)	1% (1)	2%[b] (1)	6% (2%, 11%)

[a]See text for definitions of "lenient" and "strict".

[b]Four people in the control group asked for and were given treatment. One of these was a long-term abstainer and is classified as a control group success. If these four "unofficial" attenders are excluded from the analysis, the difference between (A+B) and C is 9% (95% CI: 6%, 12%) for the lenient criterion and 8% (95% CI: 5%, 11%) for the strict criterion.

ppm. The three subjects who could not be contacted were counted as continuing smokers.

Results

The abstinence rates among non-participants were extremely low and did not differ between those who were invited to take part but did not attend and the control group (Table 2). By contrast, 12 per cent of those who attended for treatment were totally abstinent throughout the one-year follow-up period.

Ninety-two per cent of participants used the gum, although the majority (66 per cent) of these used only one box (105 pieces) or less. Among those who used more than a box, 19 per cent were totally abstinent throughout the follow-up period compared with 9 per cent among those who used one box or less. Only one subject was still using the gum regularly (one or two pieces a day) at follow-up.

Discussion

The results of this study suggest that the offer of brief individual treatment for smoking based on the use of nicotine chewing gum can have a useful effect on long-term abstinence in a workplace setting. Furthermore, the pattern of results (a virtually zero abstinence rate except among those who attended for treatment) suggests that the higher success rate among the treated group was due to the treatment itself rather than to self-selection of potential successes into that group. Our results replicate those of an earlier study also conducted in a workplace setting and using a similar design.[18]

Our study was not designed to ascertain the extent to which any observed treatment effect could be attributed to pharmacological factors or whether the gum itself was a necessary component of the treatment. In addition to the gum, the treatment included a number of other components that may have contributed to the treatment effect, for example, giving subjects information about their CO levels. On the other hand, the finding that those subjects who used more gum were more likely to be long-term abstainers is consistent with the hypothesis that the gum was an important part of the treatment.

Our findings suggest that workplace smoking cessation programs based on nicotine chewing gum are practicable and worthwhile. The success rate of 12 per cent was achieved with only two consultations involving a maximum of 45 minutes of patient-therapist contact. The great advantage of nicotine chewing gum is that it reduces the need for long-term support. Once the therapist has explained how to use the gum and the client has obtained a supply, it becomes a self-administered treatment.

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