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Does tailoring matter? The impact of a tailored guide on ratings and short-term smoking-related outcomes for older smokers

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Abstract

There is new evidence that smokers of all ages benefit from cessation of smoking. Although most older smokers, like younger smokers, prefer to quit on their own, at the time this project was started, there were no materials or programs targeted to older smokers. Using the literature, focus groups with older smokers and a national survey of older smokers, we created *Clear Horizons*, a self-help guide for older smokers, and a telephone counseling protocol tailored to the needs of older smokers (age 50–74). Smokers were recruited from around the United States and assigned randomly to a control guide, *Clearing the Air, Clear Horizons* alone or *Clear Horizons* and two counselor calls. Follow-up of nearly 2000 smokers was conducted by telephone 3, 6, 12 and 24 months after delivery of the self-help guides. This report focuses primarily on results at 3 months because that was the measurement for reactions to the interventions. At the 3 month interview, those in the tailored interventions rated their guides more highly than did those in the control group. They also read more of their guides and were more likely to reread them. Quit rates were significantly higher among smokers who received a combination of the tailored guide and telephone counseling. At 3 months, the combination of the guide and telephone counseling was most effective in helping smokers to quit. By 12 months, both the tailored guide alone and the tailored guide and calls groups had higher quit rates than the control guide but were not statistically different from one another.

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Introduction

In recent years, there has been increased attention to the benefits of quitting smoking at older ages and the consequences of continued smoking for older adults (Rimer *et al.*, 1990; USDHHS, 1990; Orleans *et al.*, 1991). Likewise, growing attention has been given to the needs of the older population in the US (Dychtwald, 1989). Smoking is a serious health hazard for older adults (Salive *et al.*, 1992). Not only is it a major risk factor in six of the top 14 causes of death for people age 65 and older (Orleans *et al.*, 1990), it also complicates illnesses and conditions which are more prevalent in older people (Mellstrom *et al.*, 1982; Achkar, 1985; Somerville *et al.*, 1986) and affects mean levels for drugs. This is important since older adults consume more over-the-counter and prescription medications than any other group (Soumerai and Ross-Degman, 1990).

Moreover, there is now substantial evidence that cessation of smoking, even at older ages, exerts a protective action which increases with the number of years since stopping (Orleans *et al.*, 1990). Among older smokers, the benefits of cessation for coronary heart disease and stroke are almost immediate, with a rapid decrease in mortality, while the benefits on respiratory function occur over a longer period of time. Even moderately ill patients show improved survival when they stop smoking (Gordon *et al.*, 1974; Schuman, 1981; Jajich *et al.*, 1984; Pathak *et al.*, 1986; Hermanson *et al.*, 1988). Significant improvements in circulation and

pulmonary perfusion occur rapidly also when older people stop smoking, with most of the improvement occurring in the first year. Quitting smoking extends both years of life and years of active life, by preventing chronic illnesses that limit independence.

Although a significant proportion of older Americans already have quit smoking, current smoking rates for adults 50–74 years old remain about 20% with highest rates for those 50–65 years (32% for men 50–64 years and 27% for women of the same age). According to the 1990 Surgeon General's Report, there are approximately 15 million smokers aged 50 and older, and eight million smokers aged 60 and over (Orleans *et al.*, 1990). Between 1965 and 1985, the population of older women with a history of regular cigarette use, past or present, increased over 3-fold. This has major implications for future lung cancer and heart disease rates.

Though the prevalence rates for older adults are lower than younger adults, current smokers aged 50–74 are especially at risk from continued smoking because (1) they have smoked longer, (2) they have been and continue to be heavier smokers, and (3) they are more likely to have chronic diseases which may be worsened by smoking. Since one in four persons will be aged 55 and older by 2010, the implications of these smoking rates are profound (Orleans *et al.*, 1991).

In recent years, many health educators have argued that educational strategies, including smoking cessation guides, should be tailored to the smoking-related, sociodemographic and cultural characteristics of smokers (e.g. Strecher *et al.*, 1989; Glynn *et al.*, 1990a,b). Since most smokers prefer to quit on their own (Fiore *et al.*, 1990), there has been considerable attention to the question of how to create the most effective self-help materials. Windsor *et al.* (1993) found that a pregnancy-tailored self-help guide was more effective than a generic guide. The results of other trials tend to support a conclusion that since most guides contain basically the same information, tailoring does not seem to result in higher quit rates (e.g. Cummings *et al.*, 1989; Davis *et al.*, 1992). Whether tailoring makes a difference remains an important empirical question for those concerned with health communication and behavior change. There are important resource implications, as well, since tailoring usually requires significant outlay of dollars and staff time.

Clear Horizons was a 5 year National Cancer Institute-funded trial designed to determine whether a *Clear Horizons* guide tailored especially for older smokers is more effective in increasing smoking cessation among smokers aged 50–74 than a generic NCI guide, *Clearing the Air* or the *Clear Horizons* guide plus two calls from a telephone counselor. Although there has been much discussion of tailoring in health education (e.g. Strecher *et al.*, 1989), there still has been little attention to the questions of 'how to?' and 'so what?'. At the time this program was developed, there were no quit smoking materials with models and messages specifically geared to older smokers. Thus, this was the first study anywhere to focus on the older smoker. Here, we discuss how the tailored *Clear Horizons* program was created and present initial short-term (3 month) measures of process and impact, both in terms of intervention use and satisfaction and 3 month self-reported quit rates.

Development of the *Clear Horizons* guide

Rationale for a new guide for older smokers

An extensive literature search in 1987, when this project was initiated, indicated that although medical research showed benefits to quitting for older smokers, virtually no behavioral interventions had been developed or evaluated in this population. A number of studies indicated that older smokers faced age-specific obstacles to quitting, such as: decreased self-efficacy due to greater number of lifetime quit attempts (Remington *et al.*, 1985); longer smoking history and a tendency to be heavier, addicted smokers (Moss, 1979; Remington *et al.*, 1985; Shopland and Brown, 1987); and skepticism about the benefits of quitting. Moreover, a common misconception among lay and professional populations was that it was 'too late' for older smokers. However, the only existing self-help materials were

aimed at young adults, primarily for smokers aged 18–44. Hence, our objective was to develop and produce a self-help guide tailored to the mid-life and older smoker which would dispel the misconception that 'it's too late' to quit and address the unique barriers and facilitators to quitting in this underserved population. A deeper understanding of the perceptions and concerns of mid-life and older smokers was needed to develop a guide that would be relevant and useful.

The *Clear Horizons* self-help guide was developed using an iterative, user-oriented developmental process, based on the careful analysis of both qualitative and quantitative data collected from a number of data sources (Strecher *et al.*, 1989). In the early phases of program development, we conducted focus groups with mid-life and older smokers, and a national random sample survey of 6000 American Association for Retired Persons (AARP) members to inform decisions about the appropriate health education medium and content of the intervention. These findings suggested that a tailored self-help guide would be the most acceptable strategy for mid-life and older smokers. A draft version of the guide was pre-tested extensively with smokers prior to final production. These developmental processes are discussed further in the next section.

Focus groups with older adults

The first step in the development process was to conduct nine focus groups with 61 older adults recruited from community and worksite groups. Four groups were comprised of current smokers; five groups were comprised of former smokers who had quit within the last 5 years. The sociodemographic composition of the groups was diverse. The participants were equally divided by gender, and between mid-life (50–64 years of age) and older (65 years and older) adults. Only 22% had more than a high school education, and one-fourth were minorities, predominantly African Americans.

A facilitator's guide was developed to insure the consistency of the discussion across the groups and included questions on the predisposing, enabling and reinforcing factors (Green and Kreuter, 1990) affecting smoking behavior. Topics included: positive and negative aspects of smoking; attitudes toward quitting; personal experiences with quitting; and reactions to specific smoking cessation programs and methods. In addition, a structured questionnaire was completed prior to the group discussion and included items on: smoking behavior and motivation to quitting; sources of health information and program preferences; and sociodemographic items. This questionnaire provided key background information about the focus group participants and served as a pre-test for the AARP survey conducted in early 1988.

Focus group findings highlighted the need for age-specific quitting strategies. Figure 1 illustrates the Precede–Proceed framework ultimately used to develop interventions for older smokers. The following predisposing factors were suggested by many of the participants: a lack of perceived susceptibility to smoking-related illnesses, lack of belief in benefits of quitting, concern about the sense of loss associated with quitting, pleasure of smoking, lack of self-efficacy and addiction to cigarettes. The most common theme throughout both groups of smokers and former smokers was the motivational impact of a personal experience with a smoking-related symptom or condition. For the majority of former smokers, their own health problem or that of a friend or family member was the primary reason for quitting. As one participant said, "nature gives you warning signs to stop". Current smokers supported this information. They emphasized that although they knew about the health risks of smoking, they had not personalized these risks. In fact, a number of them said they wanted proof that smoking was personally affecting their health. Current smokers were asked if they felt it was 'too late' to quit; there were mixed responses ranging from a fatalistic viewpoint "what's the point in quitting—it's all I have left" to a more pragmatic view of quitting that "if I knew that quitting would definitely lengthen my life, I'd quit". A number of barriers to quitting also were raised, such as the sense of loss associated with quitting, the fear of withdrawal and the pleasurable effects of smoking, especially as a stress reducer. Many smokers said

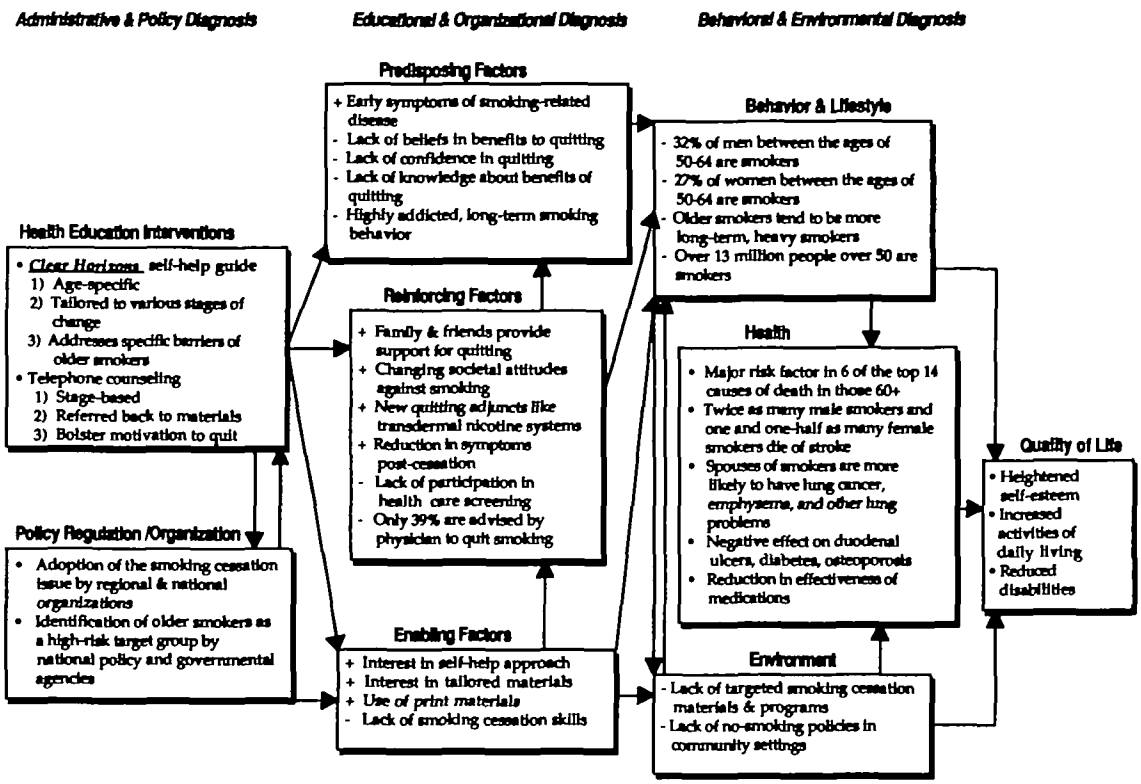

Fig. 1. Precede–proceed framework. *Clear Horizons*: a minimal-contact smoking cessation program for mid-life and older adults (Green and Kreuter, 1990).

that smoking was "all I have left" or that quitting would be like the "death of a good friend". Addressing these unique barriers of older, long-term smokers became an important element in the guide.

Questions both in the focus group discussions and questionaire addressed a number of enabling factors, including use of quit smoking skills in the past, interest in new quitting techniques and preferences for specific program strategies. Many current smokers reported that a self-help booklet would be one of their top choices. Only 7% said they would be interested in a group smoking cessation program. Reasons for not using a group program were lack of transportation, lack of privacy, too structured and the burden of record keeping. The focus group participants also reported a preference for materials that were tailored to them with visuals and photographs that showed 'good-looking' older adults. Findings from the questionnaire indicated that the majority of respondents reported that they rarely or never listened to audiotapes (68%) or used a videotape recorder (67%). However, the majority stated they 'sometimes' or 'often' read the newspaper (87%) or magazines (75%). These data provide additional support for using a tailored, self-help publication as a viable health communication medium with this population.

A number of reinforcing factors were addressed, including social support, cessation messages from physicians, improved sense of well-being and reduction of smoking-related symptoms by quitters. Many smokers felt that family and friends could be a strong, positive influence in their quitting attempts. In fact, many former smokers reported that their primary reason for quitting was for their families. One man said he quit when his 14 year old daughter cried that he would not see her grow up. Another former smoker said that she quit as a 60th birthday

present to herself and her husband. The discussion also highlighted the importance of a clear, quit message from physicians. A physician's statement of a "clean bill of health" was interpreted to mean there's no danger in continuing to smoke. Finally, former smokers mentioned their improved physical functioning as one of the benefits to quitting. One woman said, "I'm amazed at how much better I feel".

A number of themes emerged from these groups, for example, that the medical and potential medical problems are critical motivating factors to stopping smoking; smoking cessation messages should be clear and specific; older adults prefer materials that picture older people, but not exclusively; and self-help is preferred to group programs. Older adults want clear evidence that smoking is negatively affecting their health and they need assurance of the benefits to quitting. These themes and format preferences ultimately were incorporated into the program we developed.

National survey of older smokers

Although these focus group discussions provided a wealth of information to guide the development and content of the self-help guide, the generalizability of focus group findings is always limited, because they do not represent a random sample of the population. Therefore, the second step in the process was to conduct a national random sample survey of the AARP members to gather additional quantitative data about the quitting motivations and experiences of mid-life and older smokers. The survey was conducted through a collaborative effort with the AARP (Rimer *et al.*, 1990; Orleans *et al.*, 1991; Rimer and Orleans, 1993). Six thousand AARP members were sent questionnaires; 3147 were returned; 289 were from current smokers. Neary half of the smokers reported one or more smoking-related symptom. Although almost 75% of the respondents reported at least one health care visit in the past year, only 42% reported medical advice to quit smoking in the same period.

The majority of smokers were long-term ($\bar{x}$=44.6 years), heavy smokers ($\bar{x}$=23 cigarettes/day) who had moderate desire to quit but expressed low confidence in their ability to do so. They also had little information about the benefits associated with quitting or the harms associated with continued smoking. For example, 47% of current smokers did not believe that quitting smoking could improve their health. Thus, it was clear that any cessation program would have to convey this information. Moreover, current smokers had a number of concerns about quitting. These included concerns about cravings (68%), being irritable (52%), being tense or nervous (51%) and gaining weight (47%). More addicted smokers were more concerned. Like younger smokers, these older smokers were more interested in self-help than formal treatment groups.

While the focus groups provided useful information regarding the types of programs and materials that would appeal to older smokers, the survey data were helpful in developing a profile of the older adult who smokes. For example, he/she is a long-term heavy smoker who may not see a physician regularly and who does not necessarily believe in the benefits of quitting. Both the focus groups and survey data highlighted the appeal of self-help methods.

Pre-testing of the new guide

The last step in the process was to pretest alternative cover art, program logo and a draft version of the guide prior to its final production. In-depth interviews were conducted with 29 current smokers aged 50 and older recruited from community groups in the Philadelphia area. The interview addressed the appeal, acceptability and relevance of the guide, including cover art; realistic nature of the characters in the photovignettes; what, if any, of the information was new; and usefulness of the guide. Results of the pretesting indicated that the guide was easy to follow and interesting. For example, 86% said the guide was "quite a bit" or "very useful" and as one respondent said, "I liked the depth it went into...how smoking affects your health". In addition, 75% agreed that the guide was written for a person like themselves and comments indicated that "it was written for someone who has smoked a long time" and "the characters looked like people I know". These pre-test findings confirmed that the format,

style and type size were appropriate for the target audience.

Methods

Interventions

Control guide

Clearing the Air is a 24 page booklet published by the National Cancer Institute (1989) aimed at smokers of all ages. Like *Clear Horizons*, it was designed to be attractive and easy-to-read. Written at an eighth grade reading level, it combines simple multiracial photovignettes and text recommending similar state-of-the-art cognitive behavioral quitting and maintenance strategies (e.g. ways to overcome or cope with common quitting barriers like weight gain and withdrawal reactions) and provides similar referral information for further help in the event of quitting difficulties or a relapse. This booklet has proven as effective as other self-help guides in previous controlled outcome research (e.g. Davis *et al.*, 1992).

Tailored guide

Clear Horizons is a 48 page guide specifically tailored to the smoking habits, quitting needs and lifestyles of the older smoker. It was developed following principles of adult learning (Tamir, 1980). To appeal stylistically to older smokers, we adopted a magazine-style format, based on the AARP magazine *Modern Maturity*, blending entertainment and information and using a large, clear typeface. It too is written at an eighth grade reading level. Photos and photovignettes featuring multi-racial smokers in their 50s, 60s and 70s were employed to provide inspiration and information about quitting that would appeal to a broad spectrum of older smokers. Health messages highlight the benefits of quitting for older smokers. It includes state-of-the-art advice regarding getting ready to quit, quitting and staying off cigarettes.

The *Clear Horizons* guide included simply tailoring not only of messages, but also of photos, themes, print and format. The *Clear Horizons* guide differs in a number of ways from *Clearing the Air*. It includes advice about nicotine chewing gum (the nicotine patch was not available), habit breaking and nicotine fading. Unlike *Clearing the Air*, it is stage-based and does not assume that all smokers are ready to quit at the time of reading the guide. Moreover, the *Clear Horizons* guide has a higher production value than *Clearing the Air*, e.g. it is four color compared to two color, and is larger in the size of type and actual dimensions. Recommendations about exercise, diet and the benefits of quitting all are specific to older adults. Thus, tailoring consisted of creating a specialized guide for older smokers that differs in appearance from *Clearing the Air*, in length and in some areas of content.

Both the *Clear Horizons* guide and the telephone counselor calls (discussed below) were based on the transtheoretical stages of change model (Prochaska and DiClemente, 1983; Velicer *et al.*, 1992), which posits that a series of stages characterize the behavior change process. These stages include: precontemplation (not thinking about quitting smoking), contemplation (thinking about quitting), preparation (getting ready to quit), action (in the process of quitting) and maintenance (remaining off cigarettes). The *Clear Horizons* guide is organized into four major sections corresponding to progressive stages of change: precontemplation/contemplation, preparation, action, maintenance and relapse/re-cycling.

Telephone counseling

Telephone counseling was added as another intervention because of its success in facilitating behavior change in previous studies. For example, Orleans *et al.* (1991) found that telephone counseling increased adherence to quitting plans and boosted quit rates by 50% among smokers in a large HMO. In addition to the *Clear Horizons* guide, subjects in the third group received two brief (10–15 min) pre-scheduled phone calls at 4–8 weeks and again at 16–20 weeks after receiving the guide and were invited to call the *Clear Horizons* Quitline for additional help whenever needed.

Counselors were four BA or MA level health educators with varying past experience in smoking cessation counseling. They followed a *Clear Horizons* Counselors Guide and written stage-based protocols for each call. Call protocols were adopted from those found effective in boosting quit rates in

a similar self-help trial (Orleans *et al.*, 1991). Following social learning theory (Bandura, 1982) and Janis' (1982) theory of short-term counseling, calls were designed to bolster and reinforce subjects' quitting motivation and self-efficacy, and promote adherence to the quitting, maintenance or re-cycling strategies presented in the guide by (1) providing positive, non-judgmental feedback and reinforcement geared to the quitter's particular stage of change; (2) addressing each subject's unique quitting motives and barriers; and (3) following smokers' preferences regarding methods and timing of a quit attempt in mapping out and committing to an individual quitting plan using the methods in the guide. Hence, the calls combined tailoring and solid support elements in addition to serving as important cues to action.

Study hypotheses

We hypothesized that the tailored guide, *Clear Horizons*, would be rated more highly by older smokers than *Clearing the Air* on a number of characteristics including how helpful, attractive and appealing it was. Also, *Clear Horizons* would result in higher quit rates than *Clearing the Air* at each measurement. The combination of *Clear Horizons* and two telephone calls designed to promote adherence to *Clear Horizons* quitting strategies would be superior to either guide alone.

Study design

Smokers aged 50−75 were recruited to the study in 1988 from across the US through a 3-inch announcement in *Modern Maturity*, the official publication of the AARP. Those interested in learning more about *Clear Horizons* were asked to return a postcard with their name, address and telephone number. They were sent a brief recruitment survey that contained questions about smoking history, barriers to quitting and socio-demographics. All respondents were assigned randomly to one of three groups, *Clearing the Air*, *Clear Horizons* alone or *Clear Horizons* plus two calls from a telephone counselor. The smokers were blinded to the objectives of the study and to whether they were in the experimental or control condition. Overall, over 10 000 smokers responded to the announcement by requesting further information; 1867 fulfilled the eligibility criteria and completed the recruitment brochure. Many others could not be included in the study *per se* due to the timing of their responses and cost constraints but were provided information about cessation. In total, 642 smokers were assigned randomly to the control group, 609 to *Clear Horizons* guide only and 616 to *Clear Horizons* plus counselor calls.

Instruments and measures

Data were obtained from smokers at baseline and then subsequently at 3, 6, 12 and 24 months after delivery of either *Clear Horizons* or *Clearing the Air*. The baseline questionnaires obtained self-reported sociodemographic data, smoking and health history, barriers, and reasons for quitting. Follow-up data were collected through telephone interviews. Interviews were conducted by professional telephone interviewers who followed a computer assisted telephone interviewing (CATI) program and were specially trained to interview and follow older adults. Interviewers were blind to the purpose of the study.

Current smokers were asked about their smoking rate, level of nicotine dependence (Fagerstrom, 1978; Pomerleau *et al.*, 1990), past self-efficacy (Bandura, 1982), beliefs about the harmful health effects of smoking and the benefits of quitting, anticipated social support for quitting, medical advice to quit, stage of quitting (precontemplation/contemplation; Prochaska and DiClemente, 1983), and interest in a variety of cessation treatments. Smoking history items were adapted from those used in national surveys, e.g. the National Health Interview Survey and the Adult Use of Tobacco Survey (AUTS)] and those recommended by the National Cancer Institute's (1986) self-help smoking cessation grantees.

The 3 month follow-up interview covered quit attempts, smoking status, smoking rate, quitting motivation and self-efficacy, use of quitting and prequitting strategies, amount of quitting support received from friends and family, use of and ratings of the guide, ratings of the telephone counseling, and use of outside quitting treatments and resources. The 3 month interview was the only one in which detailed questions were asked regarding reactions to the guides. Measures of quitting and prequitting strategies were adapted from checklists previously

developed to assess general approaches to quitting as well as specific cognitive and behavioral coping strategies (Cummings *et al.*, 1989).

The primary outcome variable was self-reported smoking status defined, according to National Cancer Institute (1986) recommendations, in terms of the proportion of subjects reporting tobacco abstinence (cigarettes and other tobacco products) for at least 7 days prior to the 3 month follow-up phone call. Biochemical verification or bogus pipeline strategies were not practical in the present study given that subjects were recruited nationwide, residing in nearly every state in the US. As Velicer *et al.* (1992) have pointed out, however, rates of false reporting are unlikely to exceed 5–10% in population-based intervention trials, such as this one, which involve minimal interventions and limited interactions with smokers and similar demand characteristics across the interventions being compared. In fact, in a similar self-help trial using a similar intervention, misreporting rates were approximately 2% and did not vary by intervention condition (Orleans *et al.*, 1991). These rates referred to those claiming to have quit smoking.

Description of the study sample

Of the 1867 respondents, 1553 completed 3 month interviews, a response rate of 83%. We examined 44 baseline sociodemographic and smoking-related characteristics of those who did versus those who did not complete the 3 month interviews. Non-respondents differed significantly in several ways. Compared with respondents, smaller proportions of non-respondents were from the northeast and midwest, and larger proportions were from the south and west. There was no obvious pattern in the proportions of non-respondents having various numbers of smoking-related symptoms compared with respondents. However, a smaller proportion of non-respondents had one symptom, while a higher proportion had four symptoms. Also, non-respondents had a higher mean sum of how problematical craving cigarettes and how problematical nervousness would be if they quit smoking. Although these differences were significant statistically, it is unlikely that they were significant clinically. For example, the non-respondents' mean sum of how much of a problem craving and nervousness would be was 6.6 compared with a mean of 6.4 for respondents. Thus, it does not appear that non-response introduced major biases into the data.

Tables I and II show demographic and smoking-related baseline characteristics of those who completed the three-month follow-up. There were no significant differences in the demographic or smoking-related baseline characteristics of the three randomized groups. Among the 1867 subjects in the baseline sample, the mean age was 61.4 years (Table I). Most subjects were under 65 (65%); 63% were women. They were predominantly heavy, highly addicted smokers. They smoked, on average, 27 cigarettes per day, with 53% qualifying as heavy smokers (25 cigarettes or more per day) and 90% reported smoking within 30 min of arising, a reliable index of high nicotine dependency (Pomerleau *et al.*, 1990). Almost two-thirds of participants (65%) reported past medical advice to quit and the vast majority (92%) reported one or more past quit attempts. An unexpectedly high proportion of subjects reported past formal clinic treatment (37%) or use of nicotine gum (42%). Thus, these respondents can be regarded as highly experienced quitters.

Results

Introduction

Bivariate techniques were used to investigate relationships between the independent and dependent outcomes and the baseline and demographic variables. Chi-square, Wilcoxon and Kruskal–Wallis tests were used for this purpose. Logistic modeling was done to investigate the impact of the *Clear Horizons* guide alone and the *Clear Horizons* guide and calls on 3 month quit status, after controlling for confounding variables.

Use and ratings of guide and calls

An important goal of the 3 month process evaluation was to assess participants' reactions to the interventions, specifically, the guides and calls. These questions were asked at the 3 month interview so that they would be salient and closest in time to use of

Table I. *Demographic baseline characteristics of those who completed the 3 month follow-up by study group*

	Control (N=537) (% or mean)	*Clear Horizons* guide only (N=511) (% or mean)	*Clear Horizons* guide plus calls (N=505) (% or mean)
Mean age (in years)	62	61	61
Aged less than 65 (%)	63	66	69
Education			
less than high school graduate	8	5	8
high school graduate	33	34	36
more than high school graduate	59	62	56
Sex: female	62	63	64
Race:			
white	98	96	96
African American	2	2	2
other	1	2	1
Household size: live alone	35	35	32
Marital status: married	55	56	57
Employed for salary/wages			
not employed	62	59	57
part-time	12	12	12
full-time	27	29	31
Region of residence[a]			
northeast	32	31	31
midwest	23	23	23
south	26	28	30
west	19	18	15

Chi-squares or Kruskal-Wallis test. All variables not significant, $P > 0.05$.

Table II. *Smoking-related baseline characteristics of those who completed the 3 month follow-up by study group*

	Control (N=537) (% or mean)	*Clear Horizons* guide only (N=511) (% or mean)	*Clear Horizons* guide plus calls (N=505) (% or mean)
Mean number of cigarettes/day	26	27	27
Heavy smoker	51	54	55
Smoke within 30 min of arising	90	91	90
Doctor advised quitting within past year (at baseline)	65	64	67
One or more past quit attempts	93	92	91
Tried quit-smoking clinic	39	39	36
Tried Nicorette	44	44	41

Chi-square or Kruskal–Wallis test. All variables not significant, $P > 0.05$.

the guides. Smokers were asked to rate the guides on several dimensions, including whether the ideas were "new", whether the people were "like people you know", whether it was "helpful", written for "people like you" and "easy to use". Each rating ranged from 0 (not at all) to 4 (completely). In addition, these five items were summed to create a summary guide rating scale (Cronbach's alpha = 0.71).

As Table III shows, there was no significant

Table III. *Ratings of guides*

	Control (%)	*Clear Horizons* guide only (%)	*Clear Horizons* guide plus call (%)	*P*-value
Ideas are new				0.001
Not at all/A little	46	36	30	
Somewhat	29	29	33	
Quite a bit/Completely	26	35	37	
People you know				0.861
Not at all/A little	14	14	16	
Somewhat	26	23	24	
Quite a bit/Completely	61	62	60	
Helpful				0.001
Not at all/A little	11	7	4	
Somewhat	22	16	14	
Quite a bit/Completely	67	77	82	
Written for you				0.005
Not at all/A little	8	8	7	
Somewhat	23	18	14	
Quite a bit/Completely	69	74	80	
Easy				<0.001
Not at all/A little	8	6	4	
Somewhat	19	12	9	
Quite a bit/Completely	74	81	86	

Scale: 0, not at all; 1, a little; 2, somewhat; 3, quite a bit; 4, extremely. Test: chi-square test.

difference between the study groups on the "people you know" rating. There were significant differences on the other four ratings. Compared with the control subjects, higher proportions of the subjects in both tailored guide groups rated their guide highly (quite/completely).

There was a significant difference in the distribution of guide rating scale scores: higher proportions of controls had low or medium guide rating scores, while higher proportions of tailored guide alone and tailored guide and calls subjects had high scores ($P < 0.001$). For example, 28% of the controls gave their guide a high overall score, compared with 36% of tailored guide alone subjects, and 41% of tailored guide and calls subjects.

Study groups also differed significantly in the amount of the guide read ($P < 0.001$). The amount read may reflect the intensity of treatment. The controls had the greatest proportion of subjects who read none of the guide (14%), compared with 12% of the tailored guide alone group, and 5% of the tailored guide plus calls group. The tailored guide alone group, the medium intervention, had the highest proportion who read some of the guide. The tailored guide and calls group had the highest proportion who read the entire guide. There also was a significant difference among the study groups in whether a subject re-read the guide ($P < 0.001$).

Table IV. *Variables related to guide ratings*[a]

Beliefs
Desire to quit
How much quitting helps health
How much continuing to smoke hurts health
Sum of how much quitting helps health and how much continuing to smoke hurts health
How much support expected if quit
How much of a problem irritability would be if quit
Treatment group (*Clearing the Air*, *Clear Horizons* guide only, *Clear Horizons* guide plus calls)

[a]Chi-square or Kruskal–Wallis test is significant at the 0.01 level.

Table V. *Quitting methods reported on 3 month follow-up*

	Control (%)	*Clear Horizons* guide only (%)	*Clear Horizons* guide plus call (%)	*P*-value
Cut down	72	72	73	NS
Set quit date	31	41	58	<0.001
Habit breaking	56	65	66	0.002
Nicotine fading	43	59	65	<0.001
Nicotine gum	67	67	65	NS

Test: chi-square test.

Compared with the controls, larger proportions of subjects in both the tailored guide groups re-read the guide. Whether a subject re-read the guide was significantly associated with the guide rating scale ($P < 0.001$). A higher proportion of those who re-read their guides rated them highly.

To explore characteristics of respondents responding favorably to print guides generally (across all three study groups), we examined the relationships of guide rating scores to demographic and smoking-related baseline variables. Table IV summarizes variables that were related to the overall guide rating scale. Those that were related included desire to quit, beliefs about smoking harms and benefits, expected support, concern about irritability and treatment group.

Telephone counseling call ratings

Subjects in the telephone counseling calls and guide group were asked to rate how helpful, encouraging, and understanding the counselor was: 70% agreed "quite a bit/completely" that the suggestions were helpful; 25% agreed quite a bit/completely that "the ideas were new"; 77% agreed quite a bit/completely that the "counselor understood how I felt" and 88% agreed quite a bit/completely that the counselor was "encouraging". To explore the characteristics of respondents responding favorably to the calls, a summary call rating scale was created from the sum of three of these four items (Cronbach's alpha = 0.73). The item "the ideas were new" was omitted from this scale to improve the scale's internal consistency reliability. Significantly more subjects under age 65 rated the counselor call high (41%) compared with those over age 65 ($P < 0.05$). Subjects who rated the calls highly had significantly higher scores on the variable "how much do you want to quit?" ($P < 0.05$) and a composite of "how much will quitting help your health?" and "how much will continuing to smoke hurt your health?" ($P < 0.01$).

Short-term smoking outcomes

Compared with the controls, higher proportions of subjects in both tailored guide groups used certain quitting strategies that have been linked to success in quitting. They were more likely to set a quit date ($P < 0.001$), use nicotine fading ($P < 0.001$) and habit breaking ($P = 0.002$) (see Table V). They were not any more likely to have cut down their smoking rate or to have tried nicotine gum. Cutting down was not a recommended strategy in either of the guides.

As seen in Table VI, there was a significant progressive increase in the self-reported quit rate at 3 months from control (7%), to tailored guide alone (9%), to tailored guide plus calls (12%) (Mantel–Haentzel $P = 0.006$; quit rate is based on abstinence of 7 days or longer). These data are based on respondents only. If all non-respondents are counted as smokers, the quit rates would be 6, 7 and 10%, respectively.

There was a significant association between the number of strategies tried and quit status ($P = 0.009$): 14% of those who used no quitting strategies quit, 13% of those who used four or more strategies quit compared to less than 10% who used one, two or three strategies. The proportion who used four strategies increased from 11% of the control group to 22% in the *Clear Horizons* guide only group, to 29% in the guide and calls group ($P < 0.001$).

Table VI. *Variables significantly associated with 3 month quit status*

	Categories	Quit (%)	Not quit (%)	*P*-value
Gender	male	13	87	0.001
	female	8	92	
Number of cigarettes/day	less than 25	11	89	0.034
	25 or more	8	92	
Smoke within 30 min of awakening	no	15	85	0.023
	yes	9	91	
Doctor ever told subject he had cancer	no	9	91	0.033
	yes	14	86	
Number of past quit attempts	0	7	93	0.041[a]
	1–3	8	92	
	4–6	12	88	
	7 or more	11	89	
Serious quit attempt in year prior to baseline[b]	no	8	92	0.022
	yes	12	88	
Mean number of quitting treatments tried[b]	—	0.7	0.9	0.022
Desire to quit	not at all	0	100	0.012
	little	9	91	
	some	5	95	
	quite a bit	8	92	
	very much	12	88	
Confidence in ability to quit for good	not at all	6	94	<0.001
	little	5	95	
	some	9	91	
	quite a bit	14	86	
	very much	17	83	
How much quitting helps health	not/little	7	93	0.013
	some	4	96	
	quite a bit	8	92	
	very much	11	89	
Treatment	control	7	93	0.006[a]
	Clear Horizons guide	9	91	
	Clear Horizons guide plus calls	12	88	
Mean score on quitting barriers scale[b]	—	11.8	11.0	0.002

Pearson chi-square or Wilcoxon test, unless otherwise noted.
[a]Mantel–Haentzel chi-square.
[b]Serious quit attempts: off cigarettes for at least 24 h. Quitting treatments: smoking clinic, one-to-one counseling, Nicorette. Quitting barriers scale: sum of how problematical craving cigarettes, nervousness, irritability and losing a pleasure would be if subject quit smoking. Since each barrier is coded 0=not at all to 4=very much, the possible scale values are 0–16. Cronbach's alpha, an indicator of reliability, is 0.68 for this scale. A fifth barrier, how problematical weight gain would be, was not significantly associated with 3 month quit status.

Table VII. *Logistic regression model for effect of quit attempt and group on quit status*

Effect	Odds ratio	95% confidence limits
Serious quit attempt versus no serious quit attempt	1.7	(1.2, 2.4)
Clear Horizons guide only versus *Clearing the Air*	1.1	(0.7, 1.8)
Clear Horizons guide plus calls versus *Clearing the Air*	1.7	(1.1, 2.6)
Clear Horizons guide plus calls versus *Clear Horizons* guide only	1.5	(1.0, 2.2)

$N \approx 1546$. Seven subjects missing data on serious quit attempt are not included. Interaction of serious quit attempt and study group was not significant.

The results of the logistic regression show that *Clear Horizons* guide and calls subjects were 1.5 times as likely to quit as *Clear Horizons* guide only subjects and 1.7 times as likely to quit as *Clearing the Air* subjects (Table VII). *Clear Horizons* guide only subjects were not significantly more likely to have quit than *Clearing the Air* subjects. Subjects who made a serious quit attempt in the year prior to baseline were 1.7 times as likely to have quit as those who did not make a serious quit attempt. Those who made a serious quit attempt are similar to smokers in the 'preparation' stage of quitting according to the transtheoretical model. The findings confirm results for the other populations, showing that the smokers who fare best in minimal or less intensive intervention programs are those with a less extensive history of addiction or past treatment for it.

Preliminary results from a 12 month follow-up of 1391 subjects (with no treatment group differences in follow-up rate) have just become available. These data show a significant treatment group effect at 12 months ($P = 0.01$). *Clear Horizons* guide only subjects were significantly more likely to have quit at 12 months (20 versus 15%; odds ratio 1.6) and *Clear Horizons* guide plus calls subjects also were more likely to have quit than control subjects (19 versus 15%; odds ratio 2.0). While there was a significant telephone counseling effect at 3 months, over time and without additional counseling calls, the quit rates of tailored guide subjects caught up with that for subjects receiving tailored guide plus calls. Twenty-four month data are not yet available. The impact of the interventions over time will be the topic of a future paper.

Discussion

The results of the study presented here suggest that when the attention of older smokers is captured through an announcement tailored to their age group, many will respond and are interested in quitting. A tailored guide alone did not produce significantly higher quit rates at 3 months but did at 12 months. The study has some limitations which should be noted. Unfortunately, the marketing strategy did not result in the recruitment of large numbers of African American older smokers. Furthermore, the respondents were well-educated; more than 50% of them had at least a high-school education. This is probably a function of the reliance on *Modern Maturity*. Future efforts should use other channels to recruit minority smokers as well as those with less education. It is possible that *Clear Horizons* would have been less appropriate than a lower-literacy guide for the latter group.

It would have been ideal to have had a fourth group consisting of *Clearing the Air* and telephone counseling to assess the effect of counseling. Budgetary limitations precluded the additional costs associated with a fourth group. Finally, although the process analysis sought to determine how smokers responded to various aspects of the *Clear Horizons* guide, it was not possible to relate quit rates to a single aspect of the ratings.

Although it was not tested, we believe that a major benefit of the tailored guide may have been in attracting older smokers in the first place. That more than 10 000 smokers were motivated to write for help may be due to the fact that we were offering something specific to smokers over age 50. This

study was not designed to test whether tailoring makes a difference in terms of mass marketing and promotion. However, future studies of tailored materials could be designed to evaluate both reach and impact.

The hypothesis that a tailored guide for older adults would be rated more positively was supported. *Clear Horizons* was rated significantly higher than *Clearing the Air* on four out of five dimensions. It appears that the time and effort required to produce a tailored guide were rewarded by the participants' more positive response to the guide. Respondents found it more helpful, easy to use, written for people like them and had new ideas. This translated into a greater likelihood of reading and re-reading the guide, and the greater use of effective quitting strategies. The reinforcement counseling calls were rated very highly on three out of four dimensions. The participants in both tailored groups also used more quitting strategies and this is important in ensuring long-term quitting success.

Guide appeal may be important in motivating smokers to request and read a guide. But, does this increased satisfaction translate into higher quit rates? As the Mantel–Haentzel test and the logistic regression showed, the tailored guide alone was not more effective than *Clearing the Air* at 3 months. It required the combination of *Clear Horizons* and the counselor calls to produce significantly higher quit rates at 3 months. By 12 months, both *Clear Horizons* groups were the same, but this appeared to be because the impact of the tailored guide alone caught up to the impact of the guide plus calls as the effects of the calls faded. In fact, both the *Clear Horizons* and the counselor calls were tailored. The guide was tailored to older smokers in general. The call was tailored to the particular needs of the older smoker who was being called. The counselor mediated the guide by encouraging the smoker to try the recommended strategies and by providing personalized quitting advice. Thus, at 3 months, the counselor seemed to make the difference, but by 12 months both tailored groups had become equal. Additional counselor calls might have helped to strengthen or maintain the beneficial initial counselor effect.

The fact that smokers who had made a serious effort to quit in the past year were 1.7 times as likely to quit at 3 months as those who had not made a serious quit attempt confirms the important role of behavioral stage. These clearly were smokers with a greater readiness to quit and may be an important target group for cessation efforts. Moreover, beliefs were important at the bivariate level, particularly beliefs about the harms associated with continued smoking and the benefits associated with quitting. As in other studies (Orleans *et al.*, 1991), desire to quit also was significantly related to quitting status. It may be helpful as a health education strategy to increase perceived harms and benefits of quitting for those classified as precontemplators and contemplators.

Conclusion

The results of this study showed that older smokers responded more favorably to a tailored than a general guide. That is, they rated it more highly and were more likely to have quit smoking at 12 months (but not at 3 months). From an educational perspective, tailored guides may encourage more learning, because they facilitate more exposure. In this scenario, their advantage may increase with repeated use and reference over time. That seemed to be the case here. A multi-modal treatment involving two kinds of tailored interventions was better than one in the short-term although equivalent at 12 months. The short-term counseling benefit should not be surprising to health educators who, for some time, have advocated multi-strategy health education programs (Green *et al.*, 1980; Glynn *et al.*, 1990b; Green and Kreuter, 1990).

The results of this trial do not permit us to identify the therapeutic factors most responsible for the beneficial short-term telephone counseling effect. Telephone counseling was designed to personalize the information in the *Clear Horizons* guide by assisting quitters to identify their strong quitting motives, use stage-appropriate sections of the guide, and overcome their unique quitting barriers. However, counselors also aimed generally to boost quitters' motivation and self-efficacy and to provide

reinforcement and timely social support for self-quitting efforts. While phone counseling appeared to potentiate the benefits of tailoring (by, for instance, leading to increased use of the guide), it is quite possible that similar benefits would have occurred had the counseling been paired with the generic control guide in a fourth group in this trial. Further research is needed to clarify the therapeutic mechanisms underlying the benefits of brief telephone cessation counseling. More calls or differently spaced calls also might help to strengthen the short-term benefit of counseling. For example, calls at different intervals might have resulted in maintenance of the telephone counseling benefit.

In answer to the question, "Should we tailor?" the answer is an unequivocal "sometimes". When the intended audience is a group that has been previously ignored, such as older smokers or minorities, tailored strategies may be needed to get their attention so that the message can be heard. However, by the same token, if resources are scarce, it might be wise to consider putting time, effort and money into interpersonal strategies, such as lay or professional counselors, that can be used to enhance the salience of existing materials while increasing a person's readiness and skills. We estimated that each 12–15 min counseling call required 30 min of counselor time on average (e.g. to cover call attempts and call logging/record keeping)—for a total of 1 h per subject—at a reimbursement rate of approximately $18 (not including time to develop telephone counseling protocols or for initial telephone counseling training). Telephone counseling raised the 3 month quit rate by about 33% but did not result in a significant difference at 12 months when both the guide and guide and calls group outperformed the control group. Strictly from a cost point of view, telephone counseling was worth the short-term but not the longer-term investment. By 12 months, the tailored print guide did, in fact, make a difference. It is possible that volunteers could be trained to deliver the calls. This would lower the overall cost and might make it possible to increase the number of calls.

We produced and printed a limited supply of the *Clear Horizons* guide exclusively for the research study with a cost of $6.00 per guide. However, the cost to reprint the *Clear Horizons* guide for wider dissemination would be reduced greatly. For example, reprinting 10 000 copies would reduce the cost to about $2.00 per guide or $1.30 per guide for a 40 000 print run. Providing this tailored guide at even $2.00 would be comparable with other available smoking cessation self-help materials through voluntary organizations which range in cost from $1.00 to $10.00 (Glynn *et al.*, 1990b).

The ultimate challenge of health education always has been to increase personalization and enhance individual improvement with judicious use of resources. This study supports other studies in health education showing that the power of print can be enhanced in the short-term by the power of the person. In the longer-term, without more intensive counseling interventions, tailored print may be a wise investment.

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