Standardized, Individualized, Interactive, and Personalized Self-Help Programs for Smoking Cessation

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Smokers ($N = 756$) were randomly assigned by stage of change to (a) standardized self-help manuals (ALA+ condition), (b) individualized manuals matched to stage (TTT condition), (c) interactive expert-system computer reports plus individualized manuals (ITT condition), or (d) a personalized condition with 4 counselor calls, stage manuals, and computer reports (PITT condition). Over 18 months, the ITT group's results more than doubled those of the ALA+ group on abstinence measures. The ALA+ and TTT conditions were equivalent over 12 months, but at 18 months the TTT condition was more effective. The ITT condition was the best or comparable with the best treatment at all follow-ups for smokers at all stages of change. Results suggest that an effective expert system has been developed, and discussion focuses on delivering this system to entire populations of smokers.

Key words: smoking cessation, self-help, stages of change, expert system

Of the people alive in the world today, an estimated 500 million will die from the use of tobacco. Approximately 2.5 million will die in middle age with an average loss of 20 years of life (Peto & Lopez, 1990). This group will lose a total of 5 billion life years, which ironically is the approximate age of the earth. Even a moderate breakthrough in our ability to help people quit smoking could prolong and improve millions of lives.

More effective smoking cessation programs are likely to emerge from trying new approaches rather than from variations on themes that have been tested for decades. The approaches that we report are new in several ways. First, they are the first smoking cessation programs based directly on research on how people quit on their own (Prochaska & DiClemente, 1983, 1984, 1986; Prochaska, DiClemente, Velicer, Ginpil, & Norcross, 1985; Prochaska, Velicer, DiClemente, & Fava, 1988; Prochaska, Velicer, Guadagnoli, Rossi, & DiClemente, 1991). Smoking cessation programs are often based on how theories (or professionals) assume people are supposed to change rather than research on how they change on their own.

Second, the interventions are stage based. Research on how people quit smoking on their own has identified five stages of change: (a) precontemplation, (b) contemplation, (c) preparation, (d) action, and (e) maintenance (DiClemente et al., 1991; Prochaska & DiClemente, 1983). *Precontemplation* is the period in which smokers are not thinking about quitting smoking (at least not within the next 6 months). *Contemplation* is the period of time in which smokers are seriously thinking about quitting smoking in the next 6 months. *Preparation* has been defined as the period in which smokers who have tried to quit smoking in the past year and are seriously thinking about quitting smoking in the next month. *Action* is the period ranging from 0 to 6 months and occurs after smokers have made the overt change to stop smoking. *Maintenance* is defined as the period beginning 6 months after the action stage has started and continuing until smoking is terminated as a problem.

Third, materials were designed for smokers in the first three stages of change and not just for those who are prepared to quit. Studies have shown that the vast majority of smokers are not prepared to take action on their smoking (Biener, Abrams, & Follick, 1988; Gottlieb, Galavotti, McCuan, & McAlister, 1990; Pallonen, Fava, Salonen, & Prochaska, 1992), yet the majority of smoking cessation programs have been created for the small minority of smokers who are prepared for action. This research reports on some of the first programs specifically developed for the majority of smokers who are in the precontemplation and contemplation stages of change. The programs also include a novel recycling module for the many smokers who will relapse after taking action to quit smoking. This approach is designed to help relapsers learn from their quit experiences rather than become demoralized by their failures.

Fourth, recent technological advances are used. Computer technology is used to give participants individualized and interactive feedback about what they are doing and what they could do differently to progress toward becoming nonsmokers. The nature of this feedback is both normative, based on what self-changers have successfully done to quit smoking, and ipsative, based on progress particular individuals have made as they move through the stages of change.

Four self-help programs are compared in this study. The standardized treatment involved one of the best self-help

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programs currently available, namely the action and mainte-nance manuals developed and tested by the American Lung Association (Davis, Faust, & Ordentlich, 1982). These manu-als were supplemented by materials selected as the best available manuals that would be appropriate for smokers not prepared for action. The standardized manuals condition was used instead of a no-treatment condition. If new approaches cannot outperform one of the best programs available, then there would be no reason for the field to adopt new programs.

The individualized treatment involved self-help manuals individualized to the stage of change of each participant. Rather than assume that each participant was prepared to take action, stages of change were assessed, and participants started on the manual matched to their stage.

The interactive condition involved the use of computer-generated progress reports. These reports were interactive in nature: They were based on participants' responses to question-naires that were scored and interpreted by expert computer systems that generated a unique feedback report. Each report was based on the individual responses of each participant. The reports included feedback about the participant's stage of change; decisional balance considerations regarding the pros and cons of quitting smoking (Velicer, DiClemente, Pro-chaska, & Brandenburg, 1985); up to six processes of change that were being underused, overused, or used appropriately (Prochaska et al., 1988); temptations and confidence across the most important smoking situations (Velicer, DiClemente, Rossi, & Prochaska, 1990); and techniques for coping with specific situations. The reports also referred participants back to the most relevant sections of the stage-based manuals.

The personalized treatment involved proactive counselor calls, as the calls were initiated rather than reacted to by the counselors. In fact, a reactive hot line was offered to all participants, and practically no one used it. The calls were delivered at the start of treatment and at 1, 3, and 6 months. Except for the 3-month call, the counselors had the computer reports available to help them counsel clients about the progress or lack of progress clients were making on key process variables.

Method

Subjects

Subjects were 756 volunteers in Rhode Island who responded to newspaper advertisements seeking participants to test self-help mate-rials developed for smokers in various stages of change. Subjects had a mean age of 43 years ($SD = 12$ years), started smoking at 16 years of age, smoked for an average of 25 years, and were smoking an average of 27 cigarettes per day. Sixty-two percent of the subjects were female and 98% were White. The majority of the subjects (89%) had a high school or greater education level and were married (64%). Median annual household income was approximately $35,000. All subjects were cigarette smokers at the time of enrollment and were in one of three stages of change: precontemplation ($n = 93$), contemplation ($n = 435$), and preparation ($n = 228$).

Precontemplation. These 93 subjects were smoking and were not seriously considering quitting within the next 6 months. They repre-sented 12.3% of the total sample: 67% were female, averaged 42 years of age, smoked an average of 27 cigarettes per day, began smoking at 16 years of age, and smoked for an average of 25 years.

Contemplation. These 435 subjects were smoking but were also seriously considering quitting within the next 6 months. They repre-sented 57.5% of the total sample: 65% were female, averaged 42 years of age, smoked an average of 29 cigarettes per day, began smoking at 16 years of age, and smoked for an average of 24 years.

Preparation. These 228 subjects were planning to quit within the next 30 days and had made at least one 24-hour quit attempt in the past year. They represented 30.2% of the total sample: 54% were female, averaged 44 years of age, smoked an average of 24 cigarettes per day, began smoking at 16 years of age, and smoked for an average of 26 years.

Interventions

The four interventions were described briefly in the introduction. Details on how the interventions were delivered are as follows:

1. Standardized manuals (ALA+ condition). Three separate manu-als were used: (a) *Freedom from Smoking in 20 Days*, a 64-page manual oriented toward cessation from the American Lung Association; (b) *A Lifetime of Freedom from Smoking*, a 28-page manual oriented toward maintenance of smoking cessation from the American Lung Associa-tion; and (c) *50 Most Often Asked Questions . . .*, a 22-page informa-tional booklet from the American Cancer Society. The entire package of manuals was sent to all participants randomly assigned by stage to this condition. The package contained a letter describing each of the enclosed manuals and the stage of change for which it was most appropriate. Participants then could choose those manuals they believed were best matched for their needs.

2. Individualized manuals (TTT condition). Five manuals were developed and field tested on the basis of the transtheoretical model and available data from a longitudinal study of natural change. (This condition was labeled TTT on the basis of our transtheoretical theory of change.) The five manuals were as follows: (a) *Precontemplation*, (b) *Contemplation*, (c) *Action*, (d) *Maintenance*, and, (e) *Relapse*. The series of five manuals were based on research on how self-changers progress through each stage of change and how they recycle if they relapse. Each manual teaches users about their particular stage of change and the processes they can use to progress to the next stage. The 8-page precontemplation manual uses consciousness-raising and self-reevaluation techniques to teach smokers about how they defend their habits and how they can develop more balanced views about smoking, which would make them more similar to contemplators. The 20-page contemplation manual provides exercises and analyses about smoking and quitting histories, the consequences of continuing to smoke and the benefits of quitting, self-images as smokers and former smokers, and formal decisional balance methods for being better prepared to quit. The 20-page action and 16-page maintenance manuals are more similar to traditional self-help manuals, with added emphasis on assessing the user's most tempting situations and enhanc-ing self-efficacy in those situations by using change processes that are most predictive of longer term success. The 20-page relapse manual encourages relapsers to recycle back through the stages more effec-tively by systematically analyzing their use of six different change processes and how they could better use each process when they return to action.

On the basis of their pretest scores, participants were sent the manual matched to their individual stages of change and manuals for all the subsequent stages. That is, participants prepared for action were not sent the precontemplation and contemplation manuals but rather the action and maintenance manuals. Only precontemplators were sent the precontemplation manual plus the contemplation, action, and maintenance manuals, which they could use later when they were ready. Participants who took action and relapsed were sent the recycling manual following assessment at either the 1-month or 6-month follow-up, depending on when they relapsed.

3. Interactive computer reports (ITT condition). In addition to the TTT manuals, participants were sent a series of three computer reports at the start of treatment and at 1 and 6 months. The two- to three-page, single-spaced reports were divided into three sections: (a) a description of the person's stage of change, their pros and cons of quitting smoking, feedback, when necessary, about their underevaluating the pros of quitting and overevaluating the cons; (b) feedback on their use of up to six change processes, how they compared normatively with self-changers who were most successful in progressing to the next stage, and how they compared ipsatively with their previous assessment; and (c) a description of tempting situations, with feedback on how to enhance their self-efficacy in their most tempting situations.

The reports were generated and sent to participants immediately on receipt of their mailed questionnaires. Participants who did not return a mailed questionnaire at either 1 or 6 months did not receive a report for that period. They were assessed by phone surveys by using short forms of the questionnaire, but at the time of this study we did not have the means to generate reports that used the short phone surveys. More details about the expert system are described elsewhere (Velicer et al., 1993).

4. Personalized counselor calls (PITT condition). This intervention included both the transtheoretical-model-based manuals of the TTT condition and the interactive computer-generated progress reports of the ITT condition. In addition, subjects in this condition received a series of short calls from counselors to provide personalized feedback. The calls followed a protocol adapted from Janis (1983) for brief interventions. The telephone counseling protocols were stage matched and basically followed the outline of the expert system reports. The reports enabled the counselors to reinforce even small signs of progress, such as increases in the pros of quitting or in the use of appropriate processes of change. The goal of each call was to help participants progress to the next stage of change rather than to pressure participants to action if they were not adequately prepared. The counselors also had the flexibility to counsel on life stresses if they were assessed as barriers to progressing through the stages. The calls were delivered at the start of treatment and at 1, 3, and 6 months. Except for the 3-month call, the counselors had the computer reports available to help them counsel clients about the progress, or lack of progress, clients were making on key variables. The calls were approximately 15 min in duration. Counselors were advanced doctoral students in clinical psychology who were trained and supervised by PhD-level clinicians.

Measures

A battery of measures were given at preintervention and at 1, 6, 12, and 18 months. The 1-month assessment was basically for intervention purposes and was not included in the outcome measures. Most of the measures were process measures used to generate the interactive progress reports. These measures included the processes of change (Prochaska et al., 1988), decisional balance (Velicer et al., 1985), and self-efficacy and temptation (Velicer et al., 1990). All measures have been shown to possess adequate reliability and validity in previous smoking cessation studies (Prochaska et al., 1985, 1988; Velicer et al., 1985, 1990). Differences on these measures between the groups representing the stages of change are reported elsewhere (DiClemente et al., 1991). Smoking history and demographic measures were assessed at pretest and revealed no significant differences between the four treatment groups for sex, age, race, education, income, marital status, years smoking, age started smoking, and number of cigarettes smoked per day. Smoking status measures used for assessing progress are described later.

Point prevalence abstinence. This is a self-report measure of subjects who have not smoked for at least 24 hr at each follow-up. It is a

measure sensitive to change but tends to be unstable (Velicer, Prochaska, Rossi, & Snow, 1992).

Prolonged abstinence. This is a measure of subjects who reported not smoking at two consecutive follow-ups. This measure is an estimate of subjects who have progressed from the action stage to the maintenance stage. It is stable over time and allows for delayed quits and nonlinear patterns of change (Velicer et al., 1992).

Cotinine validation. Cotinine assessments have become the standard for validating self-report measures of smoking cessation. We have presented elsewhere (Velicer et al., 1992) a detailed case for why cotinine validation procedures are inappropriate for studies like ours. Problems with cotinine validation include very low rates of false reporting (typically less than 2% of subjects report having quit), an inability to validate prolonged abstinence, and an inability to demonstrate differential rates of false reporting between treatment groups unless 15,000–20,000 subjects are treated. The latest Surgeon General's Report (U.S. Department of Health and Human Services, 1990) concluded that such validation should no longer be considered necessary in most studies of smoking cessation.

Procedures

In response to ads, subjects called in to volunteer, were screened on the phone for initial stage data, and were randomly assigned, stratified by stage, to one of the four treatment conditions. They were offered $5 for completing mailed questionnaires as well as an opportunity for 1 of 10 bonus prizes totaling $2,000 at each round of data collection. Subjects were then mailed pretests and told they would be sent materials when they returned the questionnaires. The recruitment phase of the project took only 1 week. Subjects in the three stages of change were equally represented in each intervention group.

At each assessment subjects were asked to provide names of significant others who could validate their smoking patterns. In the initial stages of data collection this procedure acted as a bogus pipeline (Murray & Perry, 1987) because significant others were not contacted. Participants who did not return questionnaires within 2 weeks were mailed a postcard reminder. In the following week they were followed up by phone, given a short form of the questionnaires, and encouraged to still return the full questionnaires by mail. Participants in the PITT condition received the counselor calls even if they did not receive a progress report.

Results

Treatment Comparisons on Point Prevalence Outcomes

Figure 1 shows point prevalence outcome data for each of the four treatment groups at baseline and at 6-, 12-, and 18-month follow-ups for participants who were smoking at pretest. Recruitment procedures required that point prevalence rates were zero for all four groups. Chi-square tests were performed to compare the four groups at each assessment, and each test was significant ($p < .05$). The Levy (1975) version of the Tukey follow-up test was used for pairwise comparisons of the interventions. Figure 1 indicates that the two manuals conditions (ALA+ and TTT) were basically equivalent, both at the 6- and 12-month follow-ups. The TTT group, however, was performing significantly ($p < .05$) better than the ALA+ group at 18 months.

Furthermore, Figure 1 shows that the ITT group was outperforming both manuals conditions at each of the three follow-ups. At the 6-month follow-up, there was an immediate treatment difference between the ITT condition and the
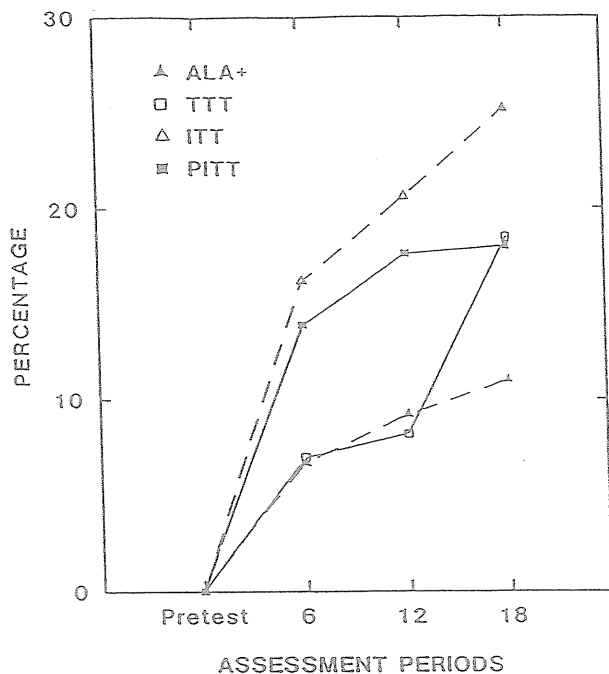
Figure 1. Point prevalence abstinence (%) for four treatment groups at pretest and at 6, 12, and 18 months. (ALA+ = standardized manuals condition; TTT = individualized manuals condition; ITT = interactive computer reports condition; PITT = personalized counselor calls condition.)

ALA+ condition, with the former more than doubling the results of the ALA+ group. This same doubling effect continued at 12 and 18 months, although the absolute size of the differences between the two treatments increased over time (all $ps < .01$).

The PITT group showed approximately double the quit rates of the two manuals conditions at both 6- and 12-month follow-ups. The PITT condition results were consistently lower than the ITT condition results, but this was not a significant difference. By 18 months, however, effects of the PITT condition appear to have plateaued, only outperforming the ALA+ condition, whereas the TTT condition seems to have caught up with the PITT condition. The ITT group performed significantly better than the PITT group at 18 months.

Treatment Comparisons on Prolonged Abstinence Outcomes

Figure 2 presents prolonged abstinence outcome data for participants smoking at pretest in each of the four treatment groups at 12 and 18 months. At the 18-month follow-up, the TTT condition was beginning to produce somewhat more prolonged abstinence than the ALA+ condition but not significantly so. (A point prevalence effect, if maintained, would be observed as a prolonged abstinence effect 6 months later.)

Figure 2 also indicates that the ITT group was outperforming both manuals conditions at both the 12- and 18-month follow-ups, achieving at least the doubling effect observed for point prevalence ($ps < .05$). Moreover, the ITT condition appeared to outperform the PITT condition at both 12 and 18 months, although the differences were significant only at 18 months. The PITT condition, however, was resulting in more than twice as much prolonged abstinence as was the ALA+ condition at both 12 and 18 months ($ps < .05$).

A comparison of Figures 1 and 2 indicates that prolonged abstinence rates were lower than point prevalence rates for all treatment conditions, as would be expected for a more restrictive measure. It also shows that the differences between the two manuals conditions and the ITT and PITT conditions for prolonged abstinence paralleled those for point prevalence quit rates. The effects of the PITT condition were not plateauing at 18 months for prolonged abstinence.

This comparison also indicates that on both measures the ITT condition results in the most cessation, and the ALA+ condition results in the least cessation. With the exception of the point prevalence rates for the PITT condition, there is an increase in cessation rates from 12 to 18 months for both point prevalence and prolonged abstinence data.

Treatment-by-Stage Comparisons on Point Prevalence

Table 1 presents point prevalence abstinence data at each follow-up for participants in the precontemplation, contemplation, and preparation stages for all four treatment conditions. Comparisons between groups for each stage of change are generally quite striking but were not always statistically significant because of the smaller sample sizes on which these
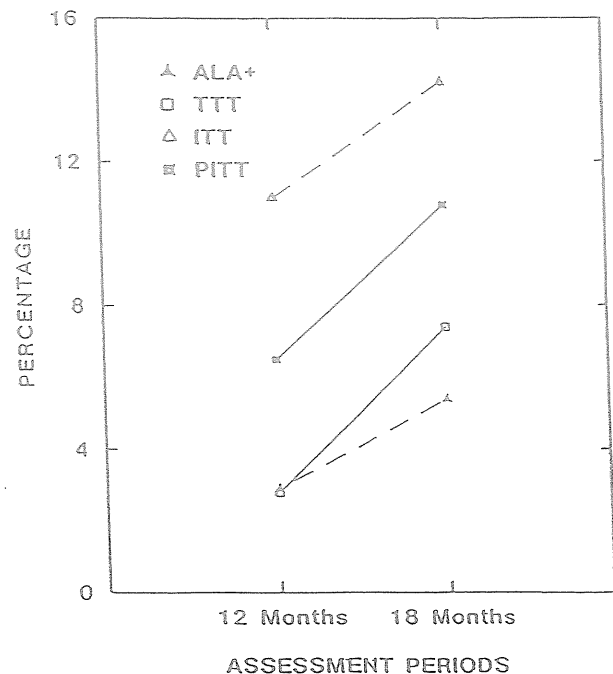

Figure 2. Prolonged abstinence (%) for four treatment groups at 12 and 18 months. (ALA+ = standardized manuals condition; TTT = individualized manuals condition; ITT = interactive computer reports condition; PITT = personalized counselor calls condition.)

comparisons are based. Table 1 indicates that the ITT condition was the best or comparable with the best treatment for all stages at all follow-ups. This table also shows the consistent advantages of the ITT condition compared with the ALA+ condition. In almost all cases the ITT condition approximately doubled the abstinence rates of the ALA+ condition.

The PITT condition was lagging behind the ITT condition at almost all follow-ups. For smokers in the preparation stage, the PITT group was performing as well as the ITT group on all three occasions.

The TTT group performed poorly compared with the precontemplators at each follow-up. At 18 months the TTT group clearly outperformed the ALA+ group for the participants in the preparation stage ($p < .05$), and there was some advantage over the contemplators as well.

Missing Data Analyses

Attrition for each of the four waves of assessment beyond baseline averaged 5.5% across treatment conditions. Rates varied somewhat by treatment group (ALA+ = 4.6%; TTT = 4.1%; ITT = 6.2%; PITT = 7.1%) but not significantly so, $\chi^2(3, N = 756) = 2.12, p > .05$. Participants who failed to return surveys were sent reminder postcards and were given telephone prompts or interviews to keep data loss to a minimum. Although these procedures were not always immediately successful in converting nonrespondents, almost all participants were assessed on at least two occasions, 92% on three, 85% on four, and 70% on all five waves of data collection.

Figure 3 shows the point prevalence abstinence rates for each treatment group for the 527 subjects who provided data at
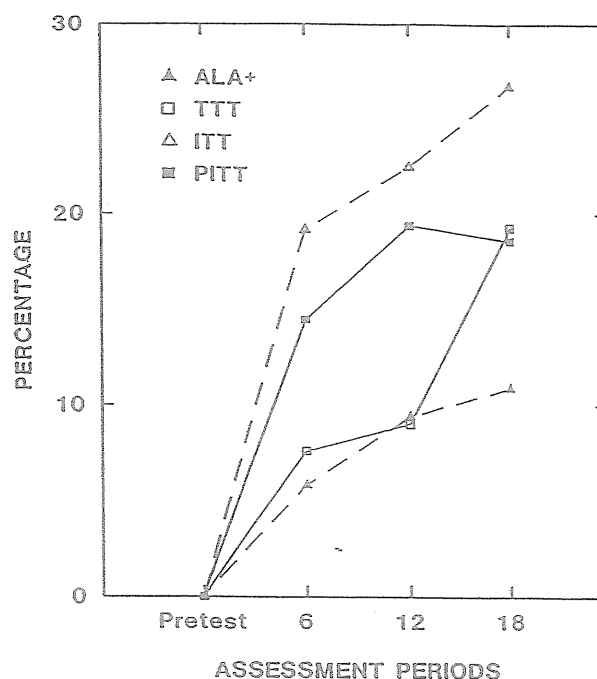
Table 1

Point Prevalence Abstinence at Pretest and at 6-, 12-, and 18-Month Follow-Ups for Four Treatment Groups for Precontemplation, Contemplation, and Preparation Stages of Change

Group	Assessment period (months)			
	Pretest	6	12	18
Precontemplation stage				
ALA+	0	0.0	5.0	11.1
TTT	0	0.0	0.0	5.0
ITT	0	10.0	20.0	17.6
PTT	0	9.5	4.4	5.3
n	93	83	85	74
Contemplation stage				
ALA+	0	6.4	9.2	10.8
TTT	0	9.3	8.4	15.4
ITT	0	15.7	18.0	25.0
PITT	0	11.1	15.8	15.6
n	435	370	364	341
Preparation stage				
ALA+	0	10.2	11.1	11.6
TTT	0	5.6	11.1	29.4
ITT	0	19.2	25.5	28.0
PITT	0	21.3	27.1	27.9
n	228	202	198	187

Note. ALA+ = standardized manuals condition; TTT = individualized manuals condition; ITT = interactive computer reports condition; PITT = personalized counselor calls condition.

Figure 3. Point prevalence abstinence (%) for four treatment groups at pretest and at 6, 12, and 18 months for 527 subjects with complete data at all follow-ups. (ALA+ = standardized manuals condition; TTT = individualized manuals condition; ITT = interactive computer reports condition; PITT = personalized counselor calls condition.)

all five assessment periods. If discouraged smokers are dropping out of the study at differentially higher rates than successful quitters, then abstinence rates in Figure 3 should be substantially higher than those in Figure 1, because quitters would be disproportionately represented in the remaining sample. A comparison of the two figures shows that abstinence rates are only slightly higher in Figure 3. At worst, unsuccessful program participants dropped out of the study at only slightly higher rates than successful program participants.

Additional analyses compared subjects who completed the 18-month follow-up assessment with those who failed to return the questionnaire on demographic and smoking history variables. Respondents were more likely to be married than nonrespondents (84% vs. 70%), older (43 vs. 41 years of age), more highly educated (14.3 vs. 13.8 years of schooling), and lighter smokers (26.5 vs. 29.9 cigarettes per day). There were no differences on sex, income, or any of approximately a dozen smoking history variables.

Discussion

This research presents some important and encouraging results. When point prevalence rates were used, the stage-based ITT condition more than doubled the quit rates of the ALA+ condition at each of the three follow-ups. When prolonged abstinence rates were used, the ITT condition came close to tripling the maintenance rates of the ALA+ condition. These results suggest that interactive computer feedback on

stage-related variables has the potential to outperform the best self-help program previously available.

Confidence in these results is enhanced by several findings. First, the two manuals conditions performed equivalently over the first 12 months of follow-up, which suggests that these were replicable, rather than chance, outcomes. Second, results for the two conditions that included the interactive reports (ITT and PITT) paralleled each other for the first 12 months, although the PITT condition consistently produced somewhat weaker results. Nevertheless, the outcomes were similar enough across these two interactive conditions to suggest that these were also replicable, rather than chance, outcomes. Finally, the stage-by-treatment comparisons indicate that the ITT group outperformed the ALA+ group in each of the stages of change.

These results suggest that, for the first time, the field may have self-help programs that are appropriate for the vast majority of smokers who are not prepared to take action on their smoking. Providing smokers interactive feedback about their stages of change, decisional balance, processes of change, self-efficacy, and temptation levels in critical smoking situations can produce greater success than just providing the best self-help manuals currently available.

That the ITT group's results were at least equal to and even somewhat better than the PITT group's results suggests that we have developed a computer system that can deliver expert help in a much more cost-effective manner than can trained counselors. This expert system could be used by physicians and other health professionals when intervening with patients who smoke. This system could also be used as a free-standing service delivered by voluntary health promotion agencies like the American Cancer Society and the American Lung Association.

Why the personalized counselor calls may have subtracted from, rather than added to, the ITT condition is open to speculation. Clinically, the counselors experienced themselves as pressuring participants to take action, especially smokers in the contemplation stage. Our initial criterion was to move the contemplators to quit for at least 24 hr. Even though the contemplators originally reported that they seriously intended to quit smoking in the next 6 months, less than half quit for at least 24 hr over the next 12 months. Results reported elsewhere suggest that we could ask much less of contemplators and still move them to the next stage (DiClemente et al., 1991). Just reducing cigarette use by five cigarettes a day or delaying the first cigarette of the day for an extra 30 min could move the contemplators as a group to be similar to participants in the preparation stage.

Although we tend to attribute the advantages of the interactive condition to the expert system we have developed from our data and model of how people quit smoking on their own, there are alternative explanations. Both the ITT and PITT conditions involve a series of interventions, whereas the standardized manuals were delivered in a single mailing. Even the TTT condition involved a series of two mailings for participants who relapsed within the first 6 months and were then mailed the recycling manual. In future research we intend to systematically partial out serial effects from interactive effects.

Results with the expert system need to be replicated with other populations. We had intended to run a replication with a sample of smokers in Texas, but a series of technical and methodological problems precluded such a replication (Prochaska & DiClemente, 1992). The sample had an underrepresentation of men, minorities, and smokers with less education and income levels. Currently we are testing this second generation of the ITT condition on two relatively unique populations. The first is a representative sample of 4,200 smokers who were recruited in Rhode Island by means of a random digit dialing. The second is an entire population of smokers, primarily in the southeastern Massachusetts offices of a large health maintenance organization, who are being recruited by personalized letters and telephone calls. If the interactive computer reports are effective under such proactive recruitment conditions, then the field will have an individualized and interactive intervention that can be applied to entire populations of smokers, most of whom might not react to public health announcements and recruitment to traditional smoking cessation programs.

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Correction to King et al.

In the article "Effects of Differing Intensities and Formats of 12 Months of Exercise Training on Psychological Outcomes in Older Adults," by Abby C. King, C. Barr Taylor, and William L. Haskell (*Health Psychology*, 1993, Vol. 12, No. 4, pp. 292–300), the significance levels for Table 1 (p. 295) were left out. The following is a corrected version of Table 1:

Table 1

Selected Health and Psychological Variables at Baseline and 12 Months for the Control and Exercise-Training Conditions, by Gender

Variable	Control				Higher intensity, group				Higher intensity, home				Lower intensity, home			
	Men		Women		Men		Women		Men		Women		Men		Women	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
n	41		34		40		34		42		35		45		29	
Max $\dot{V}O_2$*																
Baseline	30.2	4.4	23.6	3.9	28.7	4.4	24.3	4.1	30.1	5.4	23.1	5.1	30.8	6.0	22.4	3.4
0–12-month change	−0.3	2.6	−0.9	2.0	1.7	4.1	0.6	2.5	1.2	3.8	1.4	2.8	1.4	3.8	0.9	1.6
Treadmill duration***																
Baseline	12.3	2.9	9.5	2.4	12.0	2.8	9.0	2.4	12.3	2.8	9.2	3.4	13.7	3.9	8.5	2.0
0–12-month change	0.9	1.8	0.0	2.3	2.2	2.3	1.3	1.7	1.8	2.6	1.1	1.3	1.6	2.3	1.0	1.2
BMI																
Baseline	27.0	4.1	27.1	6.8	27.4	4.4	26.3	4.4	28.0	3.8	27.1	5.5	27.1	3.5	25.7	3.6
12-month change	0.1	2.1	0.0	3.7	−0.2	4.0	0.4	4.9	−0.2	2.7	0.1	3.7	−0.9	4.0	−0.6	3.4
Perceived stress**																
Baseline	18.3	5.7	20.0	8.1	18.8	7.4	18.6	8.8	18.8	8.3	19.6	6.8	16.4	6.2	20.0	6.2
12-month change	0.8	6.1	2.4	7.6	0.4	6.6	2.9	8.3	−0.7	6.0	−0.9	6.2	−0.7	5.5	−1.3	8.7
Anxiety																
Baseline	4.4	3.5	6.3	3.8	4.8	4.1	5.9	4.7	5.3	4.0	5.8	3.9	3.2	3.0	5.4	3.4
12-month change	−0.4	3.6	−0.9	4.1	−2.3	3.1	−1.2	4.2	−1.2	3.6	−1.3	4.0	−1.0	2.0	−1.1	4.4
Depressed mood																
Baseline	4.4	4.6	6.3	4.5	4.7	4.5	6.0	5.5	4.5	4.5	6.5	4.7	3.1	3.5	5.5	3.5
12-month change	−0.4	3.0	0.2	4.3	−0.9	2.8	0.7	5.1	0.6	2.9	−0.5	4.0	−0.5	3.3	0.4	2.7
No. cigarette smokers	9		11		9		9		9		10		10		9	

Note. $\dot{V}O_2$ = Maximal oxygen uptake. Max $\dot{V}O_2$ is in milliliters per kilogram per minute. Treadmill duration is in minutes. BMI = body mass index. BMI is in kilograms per square meter. Perceived stress was rated on a scale ranging from 0 to 56. Anxiety was rated on a scale ranging from 0 to 20. Depressed mood was rated on a scale ranging from 0 to 63. There was no 12-month change in number of cigarette smokers.
*Differences between controls and other three conditions were significant at $p < .03$.   **Differences between controls and two home-based conditions were significant at $p < .018$.   ***Differences between controls and other three conditions were significant at $p < .001$.