Do Expectancies Influence Outcomes for Tailored Smoking Cessation Messages?

A Placebo Tailoring Experiment

by

Monica S. Webb

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
Department of Psychology
College of Arts and Sciences
University of South Florida

Major Professor: Thomas H. Brandon, Ph.D.
David J. Drobes, Ph.D.
Paul B. Jacobsen, Ph.D.
Kristen Salomon, Ph.D.
Joseph A. Vandello, Ph.D.

Date of Approval:
March 14, 2005

Keywords: smoking, tailoring, written interventions, personalization, expectations

© Copyright 2005, Monica S. Webb
Acknowledgements

This is an exciting time in a new career; and I would like to acknowledge several important individuals who have contributed to my education and overall development.

First, I would like to thank my mentor, Thomas H. Brandon, Ph.D. for being a great person and advisor. This project is just one example of the tremendous support you have provided over the last six years. I am very grateful for the many opportunities and professional guidance you have offered. I would also like to thank my dissertation committee members, Paul B. Jacobsen, Ph.D., David Drobes, Ph.D., Joseph A. Vandello, Ph.D., and Kristen Salomon, Ph.D. for their thoughtful comments and suggestions. Dr. Margaret Booth-Jones, thank you very much for everything you have done for me over the past three years; it has been very influential. My sincere appreciation goes to my mother, Corrine, sister, Melanie, brother, Shadwick, and especially my father, Charles. I am extremely fortunate to have a family who has consistently demonstrated support and love, which has helped me in countless ways.
Table of Contents

List of Tables iii

List of Figures iv

Abstract v

Introduction 1

Computer-Generated Tailored Interventions 2

Appraisal of Tailored Interventions for Smoking Cessation 3

Personalization and Expectancies as Underlying Mechanisms 9

The Current Study 13

Hypotheses 16

Method 18

Experimental Design Overview 18

Participants 19

Measures 20

Telephone Screening Form 20

Demographic Questionnaire 20

Smoking Status Questionnaire 20

Contemplation Ladder 21

Stages of Change Questionnaire (SOC) 21

Smoking Self-Efficacy Questionnaire (SEQ-12) 21

Tailored Intervention Expectancy Questionnaire (TIE-Q) 22

Intervention Rating Questionnaire (IRQ) 22

Smoking-Related Knowledge Questionnaire 23

General Smoking Questionnaire (GSQ) 23

Development of the Interventions 23

Standard conditions 24

Placebo Tailoring conditions 25

Pre-intervention Priming 26

Procedure 27

Screening and enrollment 27

Contacts 27

Follow-Up 28

Attrition 28

Ethical Considerations 29

Results 31

Client Satisfaction 34

Tailored Intervention Manipulation Check 34
List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Development of Placebo-Tailored Interventions</td>
<td>26</td>
</tr>
<tr>
<td>Table 2</td>
<td>Summary of Procedure</td>
<td>29</td>
</tr>
<tr>
<td>Table 3</td>
<td>Demographics and Smoking History of Final Sample</td>
<td>33</td>
</tr>
<tr>
<td>Table 4</td>
<td>Comparison of Booklet Utilization across Conditions (N = 205)</td>
<td>36</td>
</tr>
<tr>
<td>Table 5</td>
<td>Analysis of Content Evaluation Items: Personalization Effects</td>
<td>41</td>
</tr>
<tr>
<td>Table 6</td>
<td>Analysis of Content Evaluation Items: Priming Effects</td>
<td>42</td>
</tr>
<tr>
<td>Table 7</td>
<td>Percentages of Stage Movement by Factor</td>
<td>45</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>Summary of Experimental Design</td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>Post-Priming Expectancy Scores</td>
<td>38</td>
</tr>
<tr>
<td>3</td>
<td>Effects of Personalization and Priming on Content Evaluation (Means and Standard Errors)</td>
<td>40</td>
</tr>
<tr>
<td>4</td>
<td>Effect of Personalization on Contemplation Ladder Scores (1st Baseline) at Follow-Up</td>
<td>44</td>
</tr>
<tr>
<td>5</td>
<td>Effects of Personalization and Priming on Smoking-Related Knowledge</td>
<td>46</td>
</tr>
<tr>
<td>6</td>
<td>Effect of Personalization on Progress Towards Smoking Cessation</td>
<td>48</td>
</tr>
<tr>
<td>7</td>
<td>Post-Priming Expectancies Moderate Relationship between Condition and Content Evaluation</td>
<td>50</td>
</tr>
<tr>
<td>8</td>
<td>Post-Priming Expectancies Moderate Relationship between Condition and Smoking-Related Knowledge</td>
<td>52</td>
</tr>
</tbody>
</table>
Do Expectancies Influence Outcomes for Tailored Smoking Messages?

A Placebo Tailoring Experiment

Monica S. Webb

ABSTRACT

This study was an effort to replicate and extend findings from our previous research, which suggested that the efficacy of tailored messages is influenced by high levels of content personalization within the message and by individuals’ trait expectancies about tailored interventions. We tested whether tailoring-related expectancies regarding smoking-cessation booklets could be altered via a brief expectancy-priming intervention, and whether this would enhance the impact of the cessation materials. A 2x2 factorial design crossed personalization level and expectancy priming on evaluation of the intervention content, readiness to quit smoking, cessation self-efficacy, cognitive processing, and progress towards quitting. Smokers (N = 205) were randomized to one of four cells in which they received a highly personalized (“placebo tailored”) or standard intervention. Participants in the priming conditions received a pre-intervention letter to enhance their expectations for either standard or tailored interventions. Post-priming expectancies were assessed 7-10 days later, and intervention booklets were subsequently mailed. Results demonstrated main effects of personalization on content evaluation, readiness to quit, cognitive processing, and behavioral progress towards quitting. That is, the personalized booklets were more efficacious than the standard booklets. A priming by personalization interaction on tailoring-related expectancies indicated that the
expectancy manipulation was effective, and priming main effects were found for content evaluation, readiness to quit, and cognitive processing. Thus, enhancing smokers’ expectancies about their materials improved participants’ perceptions of the intervention and strengthened outcomes. Theoretical and applied implications are discussed.
Introduction

Tobacco smoking is the most prevalent, costly, and severe public health problem in the United States. Tobacco use is the most important factor leading to premature morbidity and mortality for over 400,000 Americans yearly (Centers for Disease Control and Prevention, 2002). Prevalence estimates indicate that 23% of the population engages in regular tobacco smoking, and about 70% desire to quit (MMWR, 2002). The surgeon general’s 2000 report described five broad categories of tobacco control efforts, which include economic, clinical, regulatory, educational, and comprehensive (U.S Department of Health and Human Services [USDHHS], 2000).

Educational approaches largely involve school-based programs, media outlets, and community initiatives (USDHHS, 2000). The majority of smokers do not attend formal treatment programs (Fiore et al., 1990), which produce the most successful cessation rates, thus research has focused on methods to provide effective self-help interventions. Low intensity interventions can potentially have large effects on public health due to greater ease of dissemination, and long-term success rates that approximate intensive treatments (Curry, 1993). The organization of self-help interventions encourages cessation without formal interaction with a professional (Lancaster & Stead, 2000). Further, self-help materials may facilitate the connection between clinic-based and public health approaches.

Strecher (1999) described the three health education interventions, standard, targeted, and tailored. Standard self-help materials provide general consumer-oriented
advice on how to quit smoking (e.g. USDHHS, 2000). This type of information has been found to be modestly more effective than no information (Lancaster & Stead, 2000; Lennox et al., 2001). Curry’s (1993) review of the efficacy of standard self-help materials for smokers concluded that standard interventions do not sufficiently address the needs of diverse smokers, as suggested by few differences among interventions. Targeted smoking cessation materials are designed for a subgroup of smokers, such as ex-smokers (Brandon et al., 2000) or older smokers (Rimer et al., 1994), and include information assumed relevant to most individuals belonging to the target group. Rimer et al., (1994) concluded that targeted materials appear to be more effective than standard interventions. Some have suggested, however, that neither standard nor targeted contents are necessarily relevant to the circumstances or psychological state of the individual (Brug, Steenhuis, Van Assema, & De Vries, 1996; Dijkstra & De Vries, 1999).

Consequently, the process of matching the intervention to individual characteristics (Bental, Cawsey, & Jones, 1999), called tailoring, was introduced in the 1980’s and has since received much attention.

Computer-Generated Tailored Interventions

Proponents of tailored interventions believe that the messages increase the personal relevance of the content. The content of tailored materials corresponds to one or more social-psychological theories of behavior change, called behavioral construct tailoring (Kreuter, Oswald, Bull & Clark, 2000). Prochaska and DiClemente (1983) theorized that smokers could benefit from cessation advice derived from their motivation to quit. Accordingly, tailored smoking cessation materials most commonly implement the transtheoretical model (TTM) of Prochaska and Velicer (1997). One of the earliest
studies of tailored interventions based on this model (Velicer et al., 1993) concluded that the “expert system” for generating tailored letters was more effective than standardized manuals. By collecting information before treatment, tailoring seeks to change the cognitive determinants of behavior proposed by the model, such as readiness to change, decisional balance, and self-efficacy. In theory, these modifications are responsible for positive behavior change.

Prior to the development of computer-generated tailored interventions, face-to-face contact with professionals was the traditional method of offering individualized treatment (Velicer, Prochaska, Bellis, DiClemente, Rossi, Fava, & Steiger, 1993). However, tailoring allows patient-specific interventions at lower costs (Bental et al., 1999). The notion of providing individualized self-help materials has much intuitive appeal. As a result, this method of health education has been used for a number of health-related behaviors, such as mammography screening (Skinner et al., 1994), nutrition (Campbell, DeVellis, Strecher, Ammerman, DeVellis, & Sandler, 1994), physical activity (Brug et al., 1996), and smoking cessation (Dijkstra, De Vries, Roijackers, & Van Breukelen, 1998a/b).

**Appraisal of Tailored Interventions for Smoking Cessation**

Several randomized trials have evaluated the efficacy of tailored interventions for smoking cessation. Chambless and Hollon (1998) define efficacious treatments as those demonstrating positive effects compared to no treatment in a minimum of two independent randomized clinical trials. In this regard, the existing literature indicates that tailored materials are efficacious. Etter and Thomas (2001) tested the efficacy of a computer-generated tailored program for smokers and concluded that cessation was
significantly greater in the tailored group compared to no-treatment. Prochaska et al. (2001) found that the expert system was more effective at achieving smoking cessation than an assessment only condition or incrementally enhanced conditions offering counselor calls or a stimulus control computer. In another study by the same research team, Prochaska, Velicer, Fava, Rossi, and Tsoh (2001) conducted a two-group investigation contrasting expert system tailored letters mailed at 0, 3, and 6 months with an assessment only comparison group. At the two-year follow-up, the expert system group yielded significantly greater abstinence rates than the comparison group. Dijsktra, De Vries, and Roijackers (1999) found that even a single tailored letter effectively increased readiness to quit compared to no information among smokers with low motivation to quit. Finally, Dijkstra, De Vries, Roijackers, and van Breukelen (1998b) concluded that stage-based tailoring led to significantly more forward stage transitions than a no-treatment control condition. Each of these studies provided some evidence of the efficacy of tailored materials.

The most compelling results, however, indicate that a treatment is beneficial when compared to a placebo or alternative treatment, indicating that the intervention is efficacious and specific (Chambless & Hollon, 1998). Velicer, Prochaska, Fava, Laforge, and Rossi (1999) concluded that the expert system intervention plus stage-based manuals was more efficacious than the stage matched manuals alone. Shiffman, Paty, Rohay, Di Marino, and Gitchell (2000) used a constructive strategy to investigate the usefulness adjunct tailored correspondence to nicotine replacement therapy. Purchasers of nicotine gum received six tailored mailings over three months, six mailings plus a counselor telephone call, or usual care (nicotine gum plus leaflet). The results showed that the
tailored letters improved cessation rates over and above usual care. The addition of the telephone call did not add to the therapeutic effectiveness of the intervention. A second study used a similar design, excluding the telephone component, testing whether tailored letters would show similar cessation rates with consumers of nicotine patch therapy (Shiffman, Paty, Rohay, Di Marino, & Gitchell, 2001). The tailored letters did not increase cessation rates over standard nicotine patch literature, except when analyses were limited to respondents who reported use of the materials.

Lipkus, Lyna, and Rimer (1999) used an incremental design to test the efficacy of computer tailored interventions in a sample of African-American smokers. Smokers received usual care from a health care professional, a tailored letter plus usual care, or usual care, a tailored letter, and tailored telephone counseling. They found that the addition of tailored letters was successful at producing cessation compared to usual care. As found in other studies (Shiffman et al., 2000; Curry, McBride, Grothaus, Louie, and Wagner, 1995), telephone counseling had no effect over and above written tailored communication plus usual care.

Although tailored interventions have demonstrated promise, available studies have delivered heterogeneous outcomes. When directly compared to non-tailored information, tailored materials have not consistently outperformed standard approaches. For instance, Aveyard, Griffin, Lawrence, and Cheng (2003) compared standard smoking cessation information to three experimental conditions that included a stage-based tailored intervention (expert system), a tailored intervention plus telephone counseling, or tailoring plus nurse visits. The primary outcomes were point prevalence cessation and six-month sustained cessation. The findings indicated that there were no differences
across the conditions for either of the two outcomes. Further, the tailored intervention rendered worse results than standard information. Curry, McBride, Grothaus, Louie, and Wagner (1995) revealed that computer-tailored feedback plus a standard booklet failed to outperform standard information alone.

Other studies have directly tested the effects of tailored interventions compared to general information. A recent randomized trial concluded that a series of tailored letters was more effective than standardized material for producing sustained smoking cessation, a result undetected by point prevalence cessation (Borland, Balmford, & Hunt, 2004). Dijkstra, De Vries, Roijackers, and Van Breukelen (1998) provided smokers with low motivation to quit with several variations of tailored or non-tailored interventions. Comparing the two conditions that provided only a single tailored letter or a non-tailored intervention, there were no differential benefits of the tailored intervention in terms of stage transition, or quit attempts. Lennox et al. (2001) created tailored and non-tailored interventions for non-treatment seeking smokers and randomized them to an assessment only, a non-tailored, or a tailored condition. Biochemical verification revealed greater cessation rates in the non-tailored condition, followed by the tailored and control conditions, respectively.

Studies have also reported on the efficacy of tailored interventions for several health behaviors, including smoking cessation. Campbell et al. (2002) tested the effects of tailoring to promote healthy behaviors (physical activity, healthy eating, breast and cervical cancer screening, and smoking cessation) in a sample of working class women. Two tailored magazines were successful at increasing healthy eating behavior and physical activity compared to a comparison group, which received a single-delayed
tailored magazine. The groups did not differ in rates of smoking cessation, suggesting that this outcome may not be amenable to current methods of tailoring written interventions. A meta-analysis of the overall effects of tailored compared to standard materials found that participants preferred tailored interventions; yet they were only more effective in 50% of the trials (Ryan & Lauver, 2002). Further, outcome effects of tailored interventions varied by type of behavior. For instance, tailored materials were more effective than standard materials for nutritional behaviors. In only one of the six studies of smoking cessation were tailored interventions more beneficial.

Thus, existing studies of tailored interventions for smoking cessation have produced equivocal findings. Whereas some researchers appear to believe that the efficacy of tailoring in this context has been clearly established (Kreuter & Holt, 2001; Prochaska et al, 2001; Shiffman et al., 2000; Velicer et al., 1999), a close examination of the evidence precludes a firm conclusion. The mixed results are possibly due to the general methodological limitations of many tailoring studies. For instance, several tailoring studies did not include a non-tailored control group (e.g. Dijkstra et al, 1998a; Dijkstra et al., 1998b; Etter & Perneger, 2001; Orleans, Boyd, Noll, Crosette, Glassman, 2000; Prochaska et al., 2001). In these cases, positive results only suggest that tailoring is more effective than no information or another variation of a tailored intervention. As noted earlier, to conclude that tailored messages should be the intervention of choice, we must test tailored interventions against established standard interventions. From a cost-effectiveness perspective, this is important because tailoring is associated with additional costs. Many studies that provide non-tailored information have found it to be at least as
effective as tailored interventions (e.g. Lennox et al., 2001; Aveyard et al., 2003; Curry et al., 1995; Dijkstra et al., 1998).

Another limitation of existing tailoring studies is the inclusion of supplementary information or multiple contacts, in addition to tailored materials. Several studies compare general information or a no-treatment control group to a more copious tailored intervention package. For example, many of the expert system-based studies have concluded that tailoring is effective following the provision of multiple tailored reports (Borland, et al., 2004; Prochaska et al., 2001), or tailored reports plus stage-based manuals (Etter & Perneger, 2001; Velicer et al., 1993). Recent work has also compared tailored reports plus pharmacological treatment (Shiffman et al., 2000, 2001) to pharmacological treatment only. Rather than speaking to the efficacy of tailoring, these designs may simply indicate that more information is more effective than limited or no information.

Further, the tailored intervention literature may benefit from investigations of the prepotent components of a tailored communication. The inconclusive results of tailoring studies suggest that the variable(s) responsible for at least some of the effects have yet to be determined. Quite possibly, features of tailored materials that are not components of the selected behavioral construct may influence outcomes. For instance, the inherent high level of personalization within tailored messages is an aspect of tailoring that may influence message receptivity and induce desirable cognitive or behavior changes. To date, the tailored intervention literature has minimized the effects of personalization, instead focusing on the potency of the theory-based content. Without systematic
investigations of the influence of personalization on tailored materials, we cannot rule out its effects as a possible determinant of the sometimes-effectiveness of tailoring.

Individual difference variables may also affect smokers’ receptivity to tailored interventions. The effectiveness of tailoring is purported to work as a function of accounting for individual differences, yet the degree to which a person is receptive to tailored messages may also be a meaningful individual difference. One such agent that may affect message receptivity is the expectation one holds for the capacity of tailored information to be beneficial.

**Personalization and Expectancies as Underlying Mechanisms**

As described earlier, computer-generated tailored interventions for smokers have primarily been stage-based. Despite the mixed results of randomized trials offering tailored materials, many investigations continue to use the stages of change algorithm to frame tailored messages. A recent review of stage-based interventions for smoking cessation concluded that there was limited evidence for their effectiveness (Riemsma, et al., 2003). Available studies have not considered other factors on which to tailor, such as cognitive processing style, smoking history, dependence level, etc. Some have described alternative explanations for the success or lack thereof of tailored interventions, which include attention enhancement, increased reader involvement, and personalization (Brug et al., 1999; Dijkstra & De Vries, 1999; Skinner et al., 1994), however these possibilities have not been systematically investigated.

Classic psychological research has demonstrated the importance of personal applicability in attention and processing, as shown in robust studies of the cocktail party effect (Cherry, 1953), in which people identify others’ stating their names when involved
in another conversation, and the self-referential effect (Rogers, Kuiper, & Kirker, 1977), in which information processing is improved by relating it to oneself. More recently, some researchers have acknowledged of personalization as a potential influence on tailored materials (e.g. Bull et al., 1999; Kreuter & Strecher, 1996; Weinstein, Lyon, Sandman, & Cuite, 1998). Bull et al. (1999) examined the effect of personalized material on physical activity (i.e. participants’ names at the start of a general letter) and found that minimal personalization did not improve outcomes over tailored or non-tailored materials. This finding was consistent with the findings of Webb, Nath, & Brandon (2005), that the minimal personalization of general smoking cessation booklets performed similarly to general materials.

Research has attempted to identify cognitive factors that contribute to the receptivity of tailored messages, most notably readiness or motivation to quit as measured by the stages of change model. However, Dijkstra et al. (1998b) found that across the motivation to quit categories, stage matched information did not increase stage transition, short-term cessation rates, or differences in intention to quit. In some cases, mismatched tailoring was more successful, although the differences did not reach statistical significance. Thus, tailoring according to stages of change classification may not be the critical factor on which to tailor.

The expectation one holds for an intervention is another cognitive factor likely to influence responsiveness. Several researchers have contributed to the development of the expectancy construct (Bandura, 1997b; Phares, 1976; Rotter, 1966). Established as a component of social learning theory, this construct refers to general or specific expectations (Phares, 1976) about the reinforcing properties of behaviors or areas of life
functioning (Connolly, 1980). Therapy process and outcome studies have considered therapeutic expectancies as potentially important predictors and suggested that incongruence between client expectations and treatment may result in attrition (Garfield, 1994). Drug research has also studied therapeutic expectancies to separate drug treatment effects from psychological effects using an inert drug, referred to as placebo effects.

As with psychotherapy and drug treatment, we can also apply expectancy theory to written tailored interventions. Initial expectancies regarding individualized self-help information may be important because they represent the smoker’s preparedness for early engagement and potential benefit from, the material. That is, tailoring-related expectancies may be an individual difference variable that affects individual difference-based interventions. We adopted this rationale for a previous investigation of baseline expectancies as a moderator of personalization and selected dependent measures (Webb et al., 2005). The study tested the notion that due to personalization and expectancy-related effects, the effects of tailoring were in part due to a "placebo effect" rather than the theory-based individualized content. Smokers received 1) general information on smoking cessation, 2) minimally personalized general information or 3) a highly personalized general intervention. All three interventions contained identical content. We predicted that personalization and a measure of tailoring-related expectancies would be associated with ratings of the intervention content, self-efficacy for cessation, and readiness to change. Participants preferred the highly personalized content compared to minimally personalized or standard information. Moreover, expectancies for tailoring moderated the relationship between degree of personalization and readiness to change,
such that smokers who received a highly personalized, yet standard intervention and reported strong baseline expectancies for tailoring had the highest increases in readiness to quit smoking. Thus, the study provided initial evidence of a placebo effect elicited by a personalization manipulation and tailoring-related expectancies.

This study was also among the first to assess the clinical relevance of the causal mechanisms underlying the effects of tailored interventions. Understanding why tailoring works (if it does) is essential to developing effective interventions for smokers. This study provided evidence for a possibility that Kreuter and Holt (2001) described, that recipients of tailored interventions might respond favorably to the thought that they received materials written for the individual, notwithstanding the content. One suggestion was that we might improve tailored intervention outcomes if offered to those who hold positive beliefs about their efficacy. Further, it may be possible to enhance or modify pre-existing expectancies for general or tailored messages to increase treatment effects. This type of pretreatment counseling may assist with preparation for treatment, leading to reasonable expectations and better outcomes. This may be particularly critical for smokers who are less motivated to quit.

Other areas of psychological treatment have studied the theoretical relationship between patients’ expectancies for therapeutic gain and outcome. Martin, Moore, Sterne, and Lindsey (1977) found both a causal and predictive expectancy-outcome association in patients with schizophrenia. Safren, Heimberg, and Juster (1997) found a relationship between clients’ expectancies for treatment and improvement among completers of cognitive-behavioral treatment for social phobia. Thus, exploring the contribution of expectancies for tailored interventions and the impact of expectancy enhancement on
cognitive and behavioral outcomes provides an opportunity to examine the mechanisms underlying the effects of tailoring.

The Current Study

The conclusions from the initial study of personalization and expectancy effects (Webb et al., 2005) have provided the rationale for a second investigation of these constructs and their relation to tailored materials. Because we found that baseline expectations for tailored interventions influenced readiness to quit, it may be useful to elicit positive expectancies prior to delivery of an intervention. We might accomplish this by modifying existing negative or neutral beliefs about tailoring, or enhancing positive expectations. Theoretically, manipulating expectancies would be a more robust test of the casual role of expectancies in tailoring outcomes, compared to the moderating effect found in the initial study. From an applied perspective, if the hypothesized effects of expectancy enhancement were found, it would suggest a method by which to improve the effects of interventions (general and tailored).

No studies have examined the utility of an expectancy-priming approach for tailored interventions for smoking cessation. The specific aims of the current study were: 1) Use a placebo tailoring design to test whether pre-treatment priming could enhance expectancies and outcomes for general or tailored interventions; 2) Replicate the positive effects of extensively personalized (e.g. placebo-tailored) interventions found in (Webb et al., 2005). A 2 X 2 factorial experiment evaluated the independent effects of two smoking cessation interventions and an expectancy-enhancing manipulation. Factor 1 was whether the intervention was personalized. Participants received a highly personalized intervention that they were told had been tailored (i.e. placebo tailored) or a
general smoking cessation intervention. Factor 2 was pre-intervention expectancy priming. We compared the influence of an expectancy-enhancing manipulation emphasizing the benefits of either tailored or standard interventions for smoking cessation to no pretreatment priming.

Thus, the study included four cells offering established information on smoking cessation. The standard handbook included advice on quitting, coping skills, the benefits of quitting, etc. The content of the placebo-tailored intervention was identical to the general information, yet it included features to create the perception of true tailoring, without the basis of a particular theory (e.g. the TTM). Further, we informed participants that we used the baseline information to tailor their materials. Participants in the expectancy priming conditions received a pre-intervention expectancy-priming letter, emphasizing the benefits of either general or tailored smoking cessation materials. The priming letters corresponded to the apparent type of materials (standard vs. placebo tailored). Participants in the no-priming conditions received an informational letter describing the general content areas of the booklets, rather than an expectancy-priming letter. Thus, the four cells were: 1) Standard booklet/Standard priming; 2) Standard booklet/No priming; 3) Placebo tailored booklet/Tailored priming; and 4) Placebo tailored booklet/No priming.

We measured the effects of the interventions and the expectancy priming manipulation on the following dependent variables: participants’ evaluations of the content of the booklets; readiness to quit; self-efficacy expectations; and cognitive processing. We also explored the possibility of participants making smoking-related behavior changes that would be indicative of progress towards quitting. Content
evaluations included ratings of the comprehensiveness, usefulness, degree of encouragement, ability of the material to capture attention, and interest in specific topic areas. The tailoring literature has frequently studied readiness to quit as cognitive determinant of behavior change. We measured motivation using the stages of change paradigm, along with a continuous measure of readiness described below. Self-efficacy, another cognitive determinant of behavior, assessed perceived ability to execute abstinence-promoting coping skills. Readiness to quit and self-efficacy have both been found to be predictors of smoking cessation success (Abrams, Herzog, Emmons, and Linnan, 2000; Shiffman et al., 2000). Dijkstra et al. (1999) suggested that tailored messages result in more exhaustive processing of the material; thus, we assessed recall and content knowledge as a proxy for cognitive processing. Finally, we examined progress towards cessation via behavior changes, including smoking reduction, setting a quit date, limiting smoking, quit attempts, and cessation. This minimal self-help intervention was designed to increase quitting motivation rather than produce immediate behavior change, thus we considered the behavioral outcomes as more exploratory. In summary, the five outcome measures were content evaluation, readiness to quit, self-efficacy, cognitive processing, and progress towards quitting.

Hypotheses:

1. Priming was expected to influence tailoring-related expectancies.

   Specifically, we expected a priming X personalization interaction effect, such that among participants who received the standard intervention, the lowest tailoring-related expectancies would be found in the standard priming condition. Likewise, among those who received the placebo tailored
intervention, the highest tailoring-related expectancies would be found in the tailored priming condition. This hypothesis constituted the manipulation check.

2. A main effect of personalization was expected for all dependent variables. That is, participants receiving the placebo tailored intervention would demonstrate more positive outcomes than those who received the standard intervention (Webb et al., 2005). This pattern was expected for the following dependent variables:
   a. Content evaluation
   b. Readiness to quit
   c. Self-efficacy
   d. Cognitive processing
   e. Progress Towards Cessation—Behavior Changes (exploratory)

3. A main effect of pretreatment priming was expected for all outcomes. We anticipated that expectancy-priming materials (both standard and tailored) would produce more positive outcomes than no priming. This pattern was expected for each of the outcome variables.

4. Post-priming expectancies about tailoring would moderate the differential effects of personalization on the outcome variables. That is, the placebo-tailored intervention would have the greatest impact among those participants who held strong tailoring-related expectancies after priming. The standard intervention would have the greatest impact among those who held low tailoring-related expectancies after priming. We also examined whether post-
priming expectancies predicted outcomes for the entire sample, or only among those who were primed.
Method

Experimental Design Overview

A randomized, 2 x 2 factorial design with pre and post-intervention assessments tested the efficacy of placebo tailoring and expectancy priming (see Figure 1). Factor 1 was whether the intervention was personalized (no/standard or yes/placebo tailoring). Factor 2 was whether they received a pretreatment priming letter that corresponded to the apparent intervention. Thus, the four cells were: 1) Placebo Tailoring/Tailored Prime condition, in which participants received the placebo tailored intervention after being primed for tailored materials, 2) Placebo Tailoring/No Prime condition, in which participants received the placebo tailored booklets with no priming, 3) Standard/Standard Prime condition, in which the standard intervention was provided after being primed for standard materials, or 4) Standard/No prime condition, in which standard materials were provided without priming for general materials. The primary dependent variables were evaluations of intervention content, readiness to quit smoking, cessation self-efficacy, cognitive processing of the content, and progress towards cessation. All tests were two-tailed with \( p < .05 \) as the significance level.
Figure 1

Summary of Experimental Design

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>Placebo Tailoring/No Prime</td>
<td>Placebo Tailoring/Tailored Prime</td>
</tr>
</tbody>
</table>

Participants

Participants were respondents to local newspaper advertisements throughout Florida offering smoking cessation information. We attempted to target smokers with low to moderate motivation to quit, thus the ads were written for smokers not quite ready to quit. Inclusion criteria were: at least 18 years of age, smoked an average of at least 10 cigarettes per day, had a current mailing address, were able to read English, and were not currently receiving formal treatment. Participants were disqualified if they did not meet any of the above criteria or if a current participant referred them. Disqualified persons were sent a smoking cessation booklet from the American Cancer Society.

A sample size analysis was conducted to determine the target sample size. An estimated sample size was initially determined for the testing of hypotheses 1, 2, and 3 via analyses of variance (ANOVA). The effect size index, $f$, is the standard deviation of the standardized means of the population (Cohen, 1988). Assuming a small to medium
effect size, $f$, of .20, alpha of .05, and two-tailed testing, a sample size of 204 (51 per condition) yields a power of .80. To allow for some attrition, we attempted to accrue an additional 20% of the desired sample size, or 244 participants for the study.

Four hundred thirty-six callers were screened for study eligibility. Of those, 85% ($N = 370$) met the inclusion criteria. Ninety-nine percent of eligible callers agreed to participate in the study and were mailed the baseline questionnaires, which could be returned in a pre-stamped envelope. Two hundred eighty-nine (78%) participants returned the baseline questionnaires and were randomly assigned to the Standard/No Prime ($n = 77$), the Standard/Standard Prime ($n = 70$), Placebo Tailoring/ No Prime ($n = 73$), or the Placebo Tailoring/Tailored Prime ($n = 69$) conditions. There were no statistically significant differences across conditions on demographic or smoking history variables, indicating that randomization was successful, all $p > .05$. One month after the intervention booklets were mailed, participants were sent the posttest questionnaires, of which 205 (71%) were returned. Follow-up response rates were equivalent across conditions (ranging from 68% to 77%).

**Measures**

*Telephone Screening Form.* This was completed during the initial telephone contact and was used to screen for study eligibility.

*Demographic Questionnaire.* We gathered basic demographic information such as age, marital status, education, personal/household income, and ethnicity.

*Smoking Status Questionnaire.* This instrument assessed smoking history, including years smoking and average number of cigarettes smoked daily. This measure also included items from the Fagerström Test for Nicotine Dependence (FTND;
Heatherton, Kozlowski, Frecker, & Fagerström, 1991), which assesses nicotine dependence.

*Contemplation Ladder* (Biener & Abrams, 1991). This 10-point continuous measure assessed readiness to quit smoking. The ten steps on the ladder ranged from, "No thoughts of quitting," to "Taking action to quit," and participants indicated where they were in their thinking about quitting smoking. This instrument has been established as a valid predictor of smoking cessation (Biener & Abrams, 1991; Herzog, Abrams, Emmons, & Linnan, 2000).

*Stages of Change Questionnaire (SOC)*— (Prochaska & Di Clemente, 1983). Stages of change and stage transition was determined by asking participants about their smoking cessation plans or actions within six-month and 30-day periods, and prior quit attempts. Previous research suggested that the stages of change are significant predictors of quitting behavior (Prochaska, Di Clemente, Velicer, Ginpil, & Norcross, 1985).

*Smoking Self-Efficacy Questionnaire (SEQ-12)*—(Etter, Bergman, Humair, & Perneger, 2000). This measure assessed the perceived ability of smokers to abstain in various social, emotional, and habitual situations. Twelve items within two subscales estimated smokers' perceived capacity to avoid smoking while in high-risk circumstances using a 5-point Likert scale. Reported coefficient alpha reliabilities for the two subscales were .95 (internal stimuli) and .94 (external stimuli). Test-retest reliabilities for the two dimensions were also comparably high. Self-efficacy scores on this measure were strongly associated with other measures, such as the stages of change, cigarettes smoked per day, and smoking status, which suggests the SEQ-12 is construct valid.
self-efficacy scores for the current study were composite scores from the two subscales. At baseline, the internal consistency of the measure was .90 and .93 at follow-up.

**Tailored Intervention Expectancy Questionnaire (TIE-Q).** This questionnaire contained 15 items to assess participants' expectations regarding the usefulness of tailored interventions. Participants compared and rated tailored interventions in contrast to standard interventions using a 5-point Likert scale. High scores indicated strong expectancies for tailored interventions, and low scores indicated low expectancies for tailoring or that standard interventions are at least as effective. The internal consistency of the measure in a previous sample was .84 (Webb et al., in press). In the current sample, the distribution was relatively normal, with scores ranging from 19 to 73, $M = 50.23$, $SD = 8.64$, and exhibited a slightly negative skew (skewness = -.457). The internal consistency was .86 at baseline and .91 post-priming.

**Intervention Rating Questionnaire (IRQ).** This scale was developed for specific use during a previous study. An established measure of the usefulness of tailored content was unavailable. This instrument assessed perceived credibility of the intervention, discussion of the content with others, amount of information read, and percent of contents recalled. A four-item manipulation check, asking participants whether they recognized the materials as tailored, was included in the measure ($\alpha = .94$). Seven items evaluating general satisfaction with the *Lights Out* service were obtained from the Client Satisfaction Questionnaire (Attkisson & Greenfield, 1994). Thirteen items evaluating the quality of the booklets and their content were adapted from previous tailoring research (Brug, et al, 1996; Kreuter, 2000), respectively. These items were scored based on total scores of 10-point Likert-scale items (range 0 to 100). The coefficient alpha obtained in a
previous sample using a 5-point scale was .92, indicating that the measure was reliable. In the current sample, the internal consistency was .95. We measured progress towards cessation over the previous four to six weeks via smoking-related behavior changes. A four-item scale ($\alpha = .66$) assessed quit attempts, reduction in consumption, limiting smoking to certain places/situations, and quit dates. One binary (yes/no) item inquired about smoking cessation.

*Smoking-Related Knowledge Questionnaire.* This 25-item measure was developed for the current study. A true-false format assessed knowledge/recall of topics addressed in the intervention booklets. The total score was calculated as the number of correct responses. Three items were deleted due to low item to total correlations. The internal consistency of the measure was .63.

*General Smoking Questionnaire (GSQ).* To support the tailoring deception in the Placebo Tailoring conditions, this 10-item measure included questions pertaining to general smoking habits that participants were likely to endorse. Specific content related to each item was included in the intervention materials.

*Development of the Interventions*

The intervention consisted of two handbooks on tobacco smoking and cessation. The original booklets contained information based on contemporary cognitive-behavioral models of drug relapse (e.g., models of Marlatt and Gordon, 1985) and empirically supported clinic-based relapse-prevention strategies (Brandon et al., 2002). The current intervention was an enhancement of the booklet used in a previous study (Webb et al., 2005). The materials in that study consisted of 10 pages of content and the highly personalized booklet included 50 personalized features. The present interventions
included two—12 page booklets of smoking cessation-related content, containing identical appearance, design, and content, with the exception of the condition-specific characteristics. Booklet 1 discussed topics related to smoking and health, risky situations for smokers, types of urges, and coping skills. Booklet 2 addressed the benefits of quitting, smoking and weight, and relapse-prevention. Materials in the Placebo Tailoring conditions were produced using mail merge techniques within Microsoft® Word to incorporate extensively personalized features, including participant names, demographics, readiness to quit, and smoking pattern and history. We provided information on the source of the booklets on the last page. All letters were printed in black ink on yellow 8 ½ X 11 paper, contained 11 to 14 point font size, a clear typeface, and 5th to 7th grade reading levels.

*Standard conditions.* This set of booklets represented standard or usual care. The intervention encompassed general behavioral and psycho-educational information on smoking cessation, health consequences of smoking, benefits of quitting, the social environment, and potential monetary savings. In addition to outcome information, the content also provided self-efficacy enhancing information such as coping strategies, success stories, etc. Participant exercises were also incorporated into the content to facilitate processing.

*Placebo Tailoring conditions.* Participants received a set of standard booklets designed to appear as tailored. Placebo-tailored aspects of the booklets were enhanced from the previous study (Webb et al., in press). Contents of the intervention booklets were the same as in the *Standard* conditions. However, 80 personally identifiable features were integrated into the content of the booklet to enhance the perception of
tailoring, including: 1) participant name; 2) gender; 3) age range; 4) rate of cigarette consumption; 5) length of time smoking; 6) cigarette brand smoked; 7) readiness to quit (based on the stages of change); and 8) smoking pattern. Sentence structure was modified in some instances, changing words from third to second-person, or adding second-person phrases (e.g. “…with your smoking pattern).” The smoking related content, however, was unaffected by the personalized aspects of the booklets. The intent of the extensive personalization of booklets in this group was to create the appearance of a tailored intervention without actual behavioral construct tailoring. Table 1 contrasts statements included in the placebo-tailored and standard interventions.
Table 1

Development of Placebo-Tailored Interventions

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Placebo Tailored</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Once you quit smoking, you can begin to make up for the years that you smoked…”</td>
<td>“Once you quit smoking, you can begin to make up for the 15 years that you smoked…”</td>
<td></td>
</tr>
<tr>
<td>“People with your smoking pattern are also at increased risk for other cancers, breathing diseases, and ulcers.”</td>
<td>“Women with your smoking pattern are also at increased risk for other cancers, breathing diseases, and ulcers.”</td>
<td></td>
</tr>
<tr>
<td>“When you smoke one of your daily cigarettes…”</td>
<td>“Whenever you smoke one of your 20 daily cigarettes…”</td>
<td></td>
</tr>
<tr>
<td>“Smoking a cigarette can serve as a quick pick-me-up.”</td>
<td>“Smoking a Marlboro cigarette can serve as a quick pick-me-up.”</td>
<td></td>
</tr>
<tr>
<td>“Smokers become ill much more often than non-smokers…”</td>
<td>“Smokers in their 40s become ill much more often than non-smokers…”</td>
<td></td>
</tr>
<tr>
<td>“You should be proud for thinking about quitting smoking…”</td>
<td>“Samantha, you should be proud for thinking about quitting smoking.”</td>
<td></td>
</tr>
<tr>
<td>“These are places or times that you usually smoke.”</td>
<td>“These are places or times that you usually smoke, such as within five minutes after waking.”</td>
<td></td>
</tr>
</tbody>
</table>

Note: Each statement is an example of the personalized features of the booklets (years smoking, gender, daily consumption, cigarette brand, age range, name, and smoking pattern.

---

**Pre-intervention Priming.**

Participants in the Standard/Standard Prime and Placebo Tailoring/Tailored Prime conditions received an expectancy-priming letter before they were provided with the smoking cessation booklets. These one-page letters described the benefits of either general or tailored smoking cessation materials. We intended to influence their expectancies for one of the two types of interventions. For example, the standard
priming letter included statements such as “You get to choose what is important. With standardized booklets, we include a lot of information, and you get to decide which information is useful and which is not.” An example of a statement in the tailored priming letter was, “With tailored booklets, you will only receive information that is relevant to you.” Participants in the no-priming conditions received a brief informational letter describing the booklets they would receive, yet excluded suggestive information.

Procedure

Screening and enrollment. Potential participants were informed about a study evaluating smoking cessation materials. Trained operators completed the telephone screening form. Baseline questionnaire packets were mailed on the day of screening or on the next business day.

Contacts. The baseline questionnaire packet included the Adult Informed Consent/cover letter, Demographic Questionnaire, Smoking Status Questionnaire, Contemplation Ladder, Stages of Change Questionnaire, Smoking Self-Efficacy Questionnaire, and the Tailored Intervention Expectancy Questionnaire. Participants were randomly assigned to study conditions upon return of the baseline questionnaires. At that time the priming letter (or informational letter) was mailed.

In each condition, five to seven days after mailing the priming or informational letter, participants completed the TIE-Q over the telephone. Participants were proactively called to complete the questionnaires, including the GSQ, and a second administration of the Contemplation Ladder (2nd baseline). The additional measures were included to mask the actual intent of the contact, which was to assess changes in baseline expectancies. We suspected that the second Contemplation Ladder would show modified
motivation levels, compared to the motivation reported on the initial baseline (1st baseline). Interviewers did not answer specific questions about the study, booklets, or provide cessation advice. We made three attempts to contact participants to complete the expectancy follow-up call. In cases where we were unable to reach participants, we mailed the intervention one week following the third attempt.

Following completion of the expectancy measure, the intervention booklets were mailed. The mailing also included a condition-specific introductory letter. In the priming conditions, the cover letter reinforced the expectancy-enhancing manipulation by underscoring the points emphasized in the priming letters. The introductory letters for the Standard conditions described the study and introduced the general smoking cessation booklet. Introductory letters in the Placebo Tailored conditions contained a description of the study, and introduced the booklets as tailored. The front cover of the placebo-tailored booklets contained the following statement: “The information contained in this booklet has been tailored for (participant’s name) and is based on the information you provided.”

Follow-Up. The one-month follow-up packet included the Contemplation Ladder, Stages of Change Questionnaire, Smoking Self-efficacy Questionnaire, the Smoking-Related Knowledge Questionnaire, and the Intervention Rating Questionnaire.

Attrition. Participants who failed to return the baseline questionnaires after two weeks were mailed a reminder letter encouraging them to participate. Those who failed to return the questionnaires were disqualified from the study. Participants failing to return the follow-up packet were mailed two reminder letters encouraging them to complete the evaluation to receive the $10 incentive. For those failing to return the
questionnaires two weeks following the second reminder, three attempts were made to complete the follow-up by telephone. Table 2 summarizes the procedure of the study.

Table 2

Summary of Procedure

<table>
<thead>
<tr>
<th>Event</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial contact</td>
<td>Telephone screening</td>
</tr>
<tr>
<td>Baseline packet mailed</td>
<td>Next business day</td>
</tr>
<tr>
<td>Baseline packet returned</td>
<td>2-4 weeks</td>
</tr>
<tr>
<td>Expectancy priming or informational letter mailed</td>
<td>Next business day</td>
</tr>
<tr>
<td>TIE-Q, GSQ, CL completed over telephone</td>
<td>5-7 days</td>
</tr>
<tr>
<td>Booklets 1 and 2 mailed</td>
<td>Next business day</td>
</tr>
<tr>
<td>Post-intervention follow-up mailed</td>
<td>4 weeks following</td>
</tr>
<tr>
<td>Follow-up packet returned</td>
<td>2-4 weeks</td>
</tr>
<tr>
<td>Monetary incentive mailed</td>
<td>4-6 weeks</td>
</tr>
</tbody>
</table>

Note: The minimum required time to complete the study was approximately 13 weeks. The maximum amount of time for completion was 17 weeks.

Ethical Considerations

Research involving deception typically requires that participants are promptly debriefed. The Placebo Tailoring conditions included a deceptive manipulation, namely information that their personalized intervention was tailored. One hypothesis of the current study, however, was that the perception of tailoring would have positive cognitive and/or behavioral effects on tobacco use. A previous study (Webb et al., 2005) supported this hypothesis because participants rated the highly personalized information more favorably and reported the greatest increases in readiness to quit and cessation self-
efficacy. Further, all participants received validated and established information on smoking cessation. Debriefing participants about the tailoring deception may have counteracted any benefits derived from the perception of an individualized intervention. Thus, to maximize the clinical benefits, we believed that it was in the best interest of participants to exclude debriefing following the study.
Results

The final sample included 205 participants who completed the intervention’s follow-up measures. Fifty-two participants in the Standard/No prime condition returned the follow-up questionnaires, in addition to 48 in the Standard/Standard Prime condition, 52 in the Placebo Tailoring/No Prime condition, and 53 in the Placebo Tailoring/Tailored Prime condition. There were no differences in the follow-up response rate across conditions, $\chi^2 (3, N = 205) = 3.00, p > .05$. Eight participants (4%) were unable to be reached by telephone to complete the expectancy manipulation check. Thus, we based the analyses containing post-priming TIE-Q score as a dependent variable or a moderator on 197 participants. Table 3 compares the final sample on demographic and smoking history variables. Overall, the sample was mostly female, Caucasian, married, completed at least “some college,” and reported higher than average household income. Chi-square analyses revealed that these characteristics did not differ among the groups (all $p$s $> .19$). ANOVAs indicated that there were no significant differences on smoking history or dependence level, (all $p$s $> .50$). These results suggest statistical equivalence on these measures after attrition.

To evaluate selection bias, we compared the demographic characteristics of study completers vs. non-completers, and those who completed the intervention follow-up by mail vs. telephone. T-tests and Chi-square analyses revealed no differences between participants who completed the follow-up questionnaires and non-completers. Twenty-two percent ($n = 46$) of the final sample completed the follow-up questionnaires by
telephone after two unsuccessful attempts to retrieve the follow-up by mail. Generally, telephone and mail completers were similar on demographic and smoking history. However, participants who completed the follow-up by telephone reported significantly higher household yearly income than those who returned the follow-up by mail, [$M = \$60,000-\$70,000, SD = \$27,000$ vs. $M = \$40,000-\$50,000, SD = \$28,000$, $\chi^2 (1, N = 276) = 8.32, p < .01$]. Thus, the $\$10$ incentive was likely not as attractive for participants with higher household income.
### Table 3
Demographics and Smoking History of Final Sample

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Full Sample (N = 205)</th>
<th>Standard No Prime (n = 52)</th>
<th>Standard Prime (n = 48)</th>
<th>PT No Prime (n = 52)</th>
<th>PT Tailored Prime (n = 53)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>% female</td>
<td>62</td>
<td>65</td>
<td>67</td>
<td>54</td>
<td>64</td>
<td>.52</td>
</tr>
<tr>
<td>Age</td>
<td>49</td>
<td>50</td>
<td>48</td>
<td>48</td>
<td>49</td>
<td>.78</td>
</tr>
<tr>
<td>SD</td>
<td>10</td>
<td>8.7</td>
<td>10.4</td>
<td>10</td>
<td>10.5</td>
<td></td>
</tr>
<tr>
<td>% Some College</td>
<td>63</td>
<td>60</td>
<td>67</td>
<td>75</td>
<td>53</td>
<td>.29</td>
</tr>
<tr>
<td>% household income &gt; $40,000</td>
<td>54</td>
<td>58</td>
<td>50</td>
<td>59</td>
<td>48</td>
<td>.77</td>
</tr>
<tr>
<td>% married</td>
<td>45</td>
<td>44</td>
<td>44</td>
<td>48</td>
<td>45</td>
<td>.19</td>
</tr>
<tr>
<td>% Caucasian</td>
<td>92</td>
<td>92</td>
<td>90</td>
<td>92</td>
<td>92</td>
<td>.33</td>
</tr>
<tr>
<td>% African-American</td>
<td>5</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>% Asian</td>
<td>.5</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>% Native American</td>
<td>.5</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>% Other</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>% Hispanic</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Smoking history</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. cigarettes /day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>23</td>
<td>24</td>
<td>22</td>
<td>24</td>
<td>23</td>
<td>.79</td>
</tr>
<tr>
<td>SD</td>
<td>9.6</td>
<td>11.2</td>
<td>8.3</td>
<td>9.7</td>
<td>8.6</td>
<td></td>
</tr>
<tr>
<td>Years smoking daily</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>29</td>
<td>30</td>
<td>29</td>
<td>30</td>
<td>30</td>
<td>.93</td>
</tr>
<tr>
<td>SD</td>
<td>11.4</td>
<td>9.2</td>
<td>11.9</td>
<td>12.7</td>
<td>12.2</td>
<td></td>
</tr>
</tbody>
</table>
Table 3 (Continued)

<table>
<thead>
<tr>
<th>Fagerström Score</th>
<th>M</th>
<th>5.3</th>
<th>5.4</th>
<th>5.4</th>
<th>5.0</th>
<th>5.4</th>
<th>.80</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>2.5</td>
<td>2.7</td>
<td>2.5</td>
<td>2.6</td>
<td>2.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: PT = Placebo Tailoring, \( p \) = probability value. The four conditions were equivalent on these measures at baseline.

Client Satisfaction

The Client Satisfaction Questionnaire (CSQ) was administered at follow-up to examine respondents’ overall satisfaction with the Lights Out study. A 2 X 2 ANOVA tested differential satisfaction, which suggested that there was a significant main effect of personalization \( F(1, 200) = 4.2, p < .05 \). Using \( \eta^2 \) as the measure of association, the main effect of personalization accounted for 2% of the variance in client satisfaction. Participants who received the placebo tailored intervention reported greater satisfaction with the quality of the service (\( M = 498.17, SD = 143.68 \)) compared to those who received the standardized intervention (\( M = 450.90, SD = 178.98 \)). Neither the main effect of priming nor the interaction was significant (\( ps > .05 \)).

Tailored Intervention Manipulation Check

The Placebo Tailoring conditions were designed to appear as true tailored interventions, analogous to those used in traditional behavioral construct tailoring studies. Participants in these conditions were told that the content had been developed based on their responses to the baseline questionnaires. To ensure the integrity of analyses comparing the influence of personalization via placebo tailoring, the IRQ contained four
manipulation check items, whose composite score was the indicator of the effectiveness of perceived tailoring. A 2 X 2 ANOVA revealed a significant main effect of personalization, indicating that the manipulation was effective $F(1, 201) = 69.56, p < .001$. Using $\eta^2$ as the measure of effect size, the main effect of personalization accounted for 25% of the total variability on perceptions of actual tailoring. Participants in the Placebo Tailoring groups ($M = 321.33, SD = 74.74$) were significantly more convinced that the information was tailored to their needs than the Standard groups ($M = 206.70, SD = 117.52$). Neither the main effect of priming nor the personalization by priming interaction effect was significant.

**Intervention Utilization**

We tested potential differences in booklet utilization as a function of personalization or expectancy priming. Specifically, participants indicated the extent to which they read the booklets, remembered the content, and discussed the information with others. They also reported the likelihood of reading the booklets again in the future, and whether or not they saved the materials or gave/lent them to others. Table 4 contains percentages of utilization factors by condition. 2 X 2 ANOVAs revealed that neither personalization nor priming influenced the degree to which the booklets were read or remembered ($ps > .33$). Logistic regression analyses indicated that there were no differences in whether the booklets were saved or lent to others ($ps > .23$). However, the analyses suggested that there was a significant personalization by priming interaction for the extent to which the booklets were discussed with others, $F(1, 201) = 6.94, p < .01$. Participants in the Standard/No Prime condition ($M = 62.70, SD = 32.43$) reported more discussion of the booklets with others compared to the Standard/Standard Prime ($M =$
45.62, $SD = 36.37$) and Placebo Tailoring/No Prime conditions ($M = 47.88, SD = 34.49$).

Regarding the likelihood that participants would re-read the materials in the future, there was a significant main effect of personalization $F(1, 201) = 8.55, p < .01$. Specifically, participants who received placebo tailored booklets ($M = 88.00, SD = 22.42$) reported a greater likelihood that they would read the materials again, compared to those who received standardized booklets ($M = 77.10, SD = 29.79$).

Overall, 88% of participants reported reading most or all of the booklets and the majority of participants (65%) endorsed remembering most or all of the content. Ninety-eight percent of participants reported saving the materials, and 76% reported high likelihood that they would re-read the information.

Table 4
Comparison of Booklet Utilization across Conditions ($N = 205$)

<table>
<thead>
<tr>
<th></th>
<th>Standard No Prime</th>
<th>Standard Standard Prime</th>
<th>PT No Prime</th>
<th>PT Tailored Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read all or most</td>
<td>92%</td>
<td>92%</td>
<td>81%</td>
<td>89%</td>
</tr>
<tr>
<td>Remembered all or most of content</td>
<td>69%</td>
<td>60%</td>
<td>66%</td>
<td>66%</td>
</tr>
<tr>
<td>Saved booklet</td>
<td>96%</td>
<td>98%</td>
<td>98%</td>
<td>98%</td>
</tr>
<tr>
<td>Discussed all or Most of booklet</td>
<td>50%</td>
<td>27%</td>
<td>29%</td>
<td>38%*</td>
</tr>
<tr>
<td>Gave or lent booklet to other(s)</td>
<td>22%</td>
<td>19%</td>
<td>16%</td>
<td>25%</td>
</tr>
</tbody>
</table>
Hypothesis 1: Effect of Priming on Tailoring-Related Expectancies

The priming intervention was hypothesized to influence tailoring-related expectancies. At baseline, TIE-Q scores were equivalent across conditions (i.e. there were no main effects or interactions). We hypothesized a priming X personalization interaction effect, such that among participants who received the standard intervention, the Standard/Standard Prime condition would have the lowest tailoring-related expectancies after priming. Among those who received the placebo tailored intervention, the Placebo Tailoring/Tailored Prime condition would have the highest tailoring-related expectancies. We conducted a 2 X 2 ANCOVA with baseline TIE-Q scores entered as a covariate. As expected, the interaction was significant, $F (1, 272) = 57.45, p < .001, \eta^2 = .10$. Compared to each of the other conditions, participants in the Placebo Tailoring/Tailored prime group ($M = 57.07, SD = 9.60$) held the highest post-priming expectancies for the efficacy of tailored interventions. The Standard/Standard Prime condition ($M = 42.89, SD = 9.99$) held the lowest expectations for tailored interventions. Figure 2 illustrates this interaction effect. Additional analyses independently testing the post-priming expectancies of the priming and no-priming conditions indicated that the interaction was indeed driven by expectancy priming; i.e. the main effect of personalization for the no-priming conditions was not significant, whereas the main effect for the priming conditions was significant $F (1, 129) = 78.46, p < .001$. 

| Would likely or very likely read information again in future | 67% | 65% | 81% | 89%* |

Note: *$p < .01$
**Hypotheses 2 and 3: Main effects of Personalization and Priming Across All Dependent Variables**

A main effect of personalization was expected for all dependent variables. Specifically, we expected participants who received the placebo tailored intervention, irrespective of priming, to report more positive outcomes at follow-up than those who received the standard intervention. We also hypothesized that the expectancy-priming conditions would produce more positive outcomes compared to the no-priming conditions.

*Content Evaluation.* The content evaluation items on the IRQ included questions about the extent to which the intervention was encouraging, interesting, covered a variety of important subjects, increased their confidence, and was able to capture their attention.
Results from a 2 X 2 ANOVA are represented in Figure 3. As hypothesized, there was a statistically significant main effect of personalization, $F(1, 201) = 18.88, p < .001, \eta^2 = .08$. In contrast to participants who received the standard intervention ($M = 884.40, SD = 311.81$), participants who received the placebo tailored booklets ($M = 1044.29, SD = 202.32$) more favorably evaluated the content of the intervention. Analysis of individual scale items indicated that recipients of the placebo tailored intervention were more satisfied with multiple aspects of the booklets. As can be seen in Table 5, the placebo tailored booklets produced more general interest and interest in specific topics, greater satisfaction with intervention appearance, and greater understandability. Placebo tailoring recipients also found the booklets more credible, encouraging, more attention capturing, and reported greater confidence about future cessation. Finally, they reported greater changes in their personal opinions about smoking, and higher intentions to quit.

As seen in Figure 3, there was also a significant main effect of priming, $F(1, 201) = 4.99, p < .05, \eta^2 = .02$. As shown in Table 6, participants who received the expectancy-priming letter ($M = 1009.11, SD = 226.55$) reported higher ratings of the content in several areas compared to those who were not primed ($M = 924.71, SD = 306.79$). The priming letter produced more interest in specific content areas, greater understandability, higher credibility ratings, and greater confidence about cessation. The interaction between personalization and priming was not significant.
Figure 3

Effects of Personalization and Priming on Content Evaluation (Means and Standard Errors)
Table 5
Analysis of Content Evaluation Items: Personalization Effects

<table>
<thead>
<tr>
<th>Personalization Condition</th>
<th>Standard</th>
<th>Placebo Tailoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M  SD</td>
<td>M  SD</td>
</tr>
<tr>
<td>Booklet Interesting Overall</td>
<td>65.90 29.51</td>
<td>79.24 20.13**</td>
</tr>
<tr>
<td>Smoking and Health Interest</td>
<td>76.50 26.68</td>
<td>87.71 16.25**</td>
</tr>
<tr>
<td>Weight and Smoking Interest</td>
<td>70.70 26.98</td>
<td>82.67 18.67**</td>
</tr>
<tr>
<td>Coping Skills Interest</td>
<td>74.20 26.94</td>
<td>85.43 18.13*</td>
</tr>
<tr>
<td>Appearance Satisfaction</td>
<td>69.50 30.20</td>
<td>80.38 22.10*</td>
</tr>
<tr>
<td>Understandability</td>
<td>86.20 22.34</td>
<td>92.95 12.93*</td>
</tr>
<tr>
<td>Credible/Trustworthy</td>
<td>78.50 25.99</td>
<td>86.95 14.62**</td>
</tr>
<tr>
<td>Attention Capturing</td>
<td>66.30 31.23</td>
<td>79.14 22.06*</td>
</tr>
<tr>
<td>Encouragement Provided</td>
<td>66.30 31.35</td>
<td>80.76 19.10**</td>
</tr>
<tr>
<td>Confidence about Future Cessation</td>
<td>53.50 29.66</td>
<td>69.52 27.47**</td>
</tr>
<tr>
<td>Applied to My Life</td>
<td>66.60 27.86</td>
<td>80.67 19.58**</td>
</tr>
<tr>
<td>Changed Smoking Opinion</td>
<td>50.50 35.17</td>
<td>64.95 31.44*</td>
</tr>
<tr>
<td>Intentions to Quit Due to Content</td>
<td>59.70 33.53</td>
<td>73.90 29.82*</td>
</tr>
</tbody>
</table>

Note: *p <.01, **p <.001
Table 6

Analysis of Content Evaluation Items: Priming Effects

<table>
<thead>
<tr>
<th>Priming Condition</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Booklet Interesting Overall</td>
<td>69.33</td>
<td>29.27</td>
</tr>
<tr>
<td>Smoking and Health Interest</td>
<td>79.23</td>
<td>26.28</td>
</tr>
<tr>
<td>Weight and Smoking Interest</td>
<td>73.46</td>
<td>26.61</td>
</tr>
<tr>
<td>Coping Skills Interest</td>
<td>76.92</td>
<td>26.52</td>
</tr>
<tr>
<td>Appearance Satisfaction</td>
<td>72.79</td>
<td>29.58</td>
</tr>
<tr>
<td>Understandability</td>
<td>86.54</td>
<td>22.11</td>
</tr>
<tr>
<td>Credible/Trustworthy</td>
<td>79.71</td>
<td>24.31</td>
</tr>
<tr>
<td>Attention Capturing</td>
<td>70.87</td>
<td>29.00</td>
</tr>
<tr>
<td>Encouragement Provided</td>
<td>71.44</td>
<td>29.01</td>
</tr>
<tr>
<td>Confidence about Future Cessation</td>
<td>56.92</td>
<td>31.59</td>
</tr>
<tr>
<td>Applied to My Life</td>
<td>70.96</td>
<td>28.54</td>
</tr>
<tr>
<td>Changed Smoking Opinion</td>
<td>53.85</td>
<td>33.54</td>
</tr>
<tr>
<td>Intentions to Quit Due to Content</td>
<td>62.96</td>
<td>33.22</td>
</tr>
</tbody>
</table>

Note: *p = .05, **p < .05

Readiness to quit. The mean 1st baseline Contemplation Ladder score ($M = 8.02$, $SD = 1.77$) for the overall sample was significantly higher than the mean score for the 2nd
baseline \([M = 6.60, SD = 2.07]\), \((F (1, 279) = 167.61, p < .001)\). We believed that the second assessment reflected a return to lower motivation levels after the temporary peak in motivation associated with initial enrollment. Therefore, we tested readiness to quit smoking via two separate 2X2 ANCOVAs, with 1st and 2nd baseline scores entered as covariates, respectively. As hypothesized, when the 1st baseline scores were entered as a covariate the main effect of personalization was significant \(F (1, 200) = 10.26, p < .05, \eta^2 = .04\). As shown in Figure 4, readiness to quit was higher in the Placebo Tailoring conditions \((M = 8.29, SD = 2.00)\), compared to the Standard conditions \((M = 7.39, SD = 2.39)\). There was also a significant main effect of priming, \(F (1, 200) = 4.37, p < .05, \eta^2 = .02\), such that readiness to quit was higher in the Priming conditions \((M = 8.14, SD = 2.15)\) compared to the No Priming conditions \((M = 7.55, SD = 2.31)\). When 2nd baseline scores were entered as the covariate, the main effect of personalization on readiness to quit smoking at follow-up was also significant, \(F (1, 198) = 13.54, p < .001, \eta^2 = .05\). Readiness to quit was higher in the Placebo Tailoring conditions \((M = 8.36, SD = 2.01)\), compared to the Standard conditions \((M = 7.31, SD = 2.39)\). Although the main effect of priming was in the hypothesized direction, it was not significant \((p = .12)\). The interaction between personalization and priming was not significant under either set of analyses.
**Stage change.** The SOC categorizes smokers into stages of readiness to quit.

After determining the baseline and follow-up stages, we classified participants as having “advanced” (progressed at least one stage), “stayed the same,” or “regressed” (regressed at least one stage). Table 7 contains the percentages of stage movement within the conditions. A chi-square test determined that the main effect of personalization on forward stage movement was not statistically significant, $\chi^2 (2, N = 205) = 3.28, p > .05$. Similarly, the main effect of priming on stage movement was not significant, $\chi^2 (2, N = 205) = 1.25, p > .05$. 

![Figure 4](image-url)
Table 7
Percentages of Stage Movement by Factor

<table>
<thead>
<tr>
<th></th>
<th>Personalization</th>
<th></th>
<th>Priming</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Advanced</td>
<td>28.6</td>
<td>29.0</td>
<td>25.7</td>
<td>31.7</td>
</tr>
<tr>
<td>Stayed the Same</td>
<td>49.5</td>
<td>39.0</td>
<td>44.6</td>
<td>44.2</td>
</tr>
<tr>
<td>Regressed</td>
<td>21.9</td>
<td>32.0</td>
<td>29.7</td>
<td>21.0</td>
</tr>
</tbody>
</table>

_Self-efficacy._ Contrary to the hypothesis, results of a 2X2 ANCOVA, entering baseline self-efficacy scores as a covariate, revealed that the main effect of personalization on cessation self-efficacy was not significant, $F(1, 195) = 2.80, p > .05$. Further, the main effect of priming was not significant, $F(1, 195) = 1.00, p > .05$. Lastly, the interaction between personalization and priming was not statistically significant, $F(1, 195) = .44, p > .05$.

_Cognitive Processing._ The SRKQ was administered at follow-up to determine whether participants in the Placebo Tailoring conditions more actively processed the content of the intervention. The 2X2 ANOVA results indicated that there was a significant main effect of personalization on the knowledge questionnaire, $F(1, 193) = 9.83, p < .01, \eta^2 = .05$. Participants in the Placebo Tailoring conditions ($M = 16.41, SD = 2.40$) scored higher on the smoking-related knowledge measure compared to those in the Standard conditions ($M = 15.17, SD = 3.10$). The main effect of priming on smoking-related knowledge was also significant, $F(1, 193) = 7.39, p < .01, \eta^2 = .03$. Participants
who received the priming intervention ($M = 16.35$, $SD = 2.17$) scored higher on the cognitive processing measure than those who were not primed ($M = 15.28$, $SD = 3.27$). The interaction between personalization and priming on follow-up knowledge scores was not significant. Figure 5 illustrates these effects.

Figure 5
Effects of Personalization and Priming on Smoking-Related Knowledge

*Progress Towards Cessation—Behavior Changes.* Participants indicated whether they had engaged in several changes in their smoking behavior over the previous four to six weeks. Specifically, they reported whether they had made a serious attempt to quit smoking, reduced the number of cigarettes smoked daily, limited their smoking to certain situations, set a quit date, or completely quit. A 2 X 2 ANOVA tested the composite score for the four-item progress scale (the former four items). Results indicated that there was a significant main effect of personalization, $F (1, 201) = 6.59$, $p < .05$, $\eta^2 = .03$. As illustrated in Figure 6, participants who received the placebo tailored booklets ($M = 2.65$, 6.59, $p < .05$, $\eta^2 = .03$).
$SD = 1.24$) made significantly more progress towards cessation compared to those who received standardized booklets ($M = 2.18, SD = 1.34$). The effect of priming was also in the hypothesized direction, yet it was not statistically significant, $p = .13$. The interaction between personalization and priming was not significant.

Logistic regression analyses were conducted to examine smoking cessation differences between factors. Responses were coded as 1 for yes and 0 for no. Overall, 25 participants (12%) reported abstinence. Within each arm, higher rates of smoking cessation were reported in the Priming compared to the No-Priming conditions (13% vs. 12%) and in the Personalized compared to the Standard conditions (15% vs. 9%), yet the differences were not significant ($p > .05$). The interactions between personalization and priming were also not significant.
Hypothesis 4: Post-priming Expectancies as a Moderator of Outcomes

The TIE-Q administered during the post-priming telephone call was used to test whether tailoring-related expectancies moderated outcomes as a function of the expectancy manipulation. As described earlier, post-priming expectancies were differentially affected by the expectancy-enhancing manipulation (see p. 37. To test the hypothesis that differential effects of personalization would result as a function of post-priming expectancies for tailoring, multiple regression analyses were conducted using methods described by Aiken and West (1991). TIE-Q scores, the continuous predictor variable, were transformed into deviation scores, so that the mean was equal to zero (i.e. centered). At the first step for each of the following regression analyses, dummy coding was used to construct one vector for the categorical grouping factor, personalization, and
another vector for the priming factor. Vector D1 compared the Standard and the Placebo Tailoring groups. D2 represented the priming factor, comparing the No Prime group and the Priming group. The centered TIE-Q scores were also entered in Step 1. In step 2, we entered three, 2-way interaction terms, testing the interactions between D1 and TIE-Q scores, D2 and TIE-Q scores, and the interaction between D1 and D2. At step 3, we entered a 3-way interaction term, testing the interaction between each factor and TIE-Q scores. For each of the analyses, we primarily were interested in the change in $R^2$ reflecting the interaction between personalization condition and tailoring-related expectancies.

*Content Evaluation.* We tested whether post-priming expectancies moderated the differential effects of personalization on ratings of the content. The interaction between expectancies and personalization condition on ratings of the intervention content was statistically significant, $R^2$ change = .043, $F(3, 196) = .3.38, p < .05$, indicating a moderating effect. This suggested that personalization influenced evaluation of the content as a function of post-priming tailoring-related expectancies. As illustrated in Figure 7, in the Placebo Tailoring conditions, the strength of post-priming expectancies positively predicted content ratings, whereas the opposite association was found in the Standard conditions. The 3-way interaction between each factor and post-priming expectancies was not significant, indicating that the moderating effect did not differ by priming condition.
Readiness to Quit. We were interested in whether post-priming expectancies for
tailoring moderated readiness to quit smoking as a function of personalization. A
multiple regression for readiness to change/contemplation at follow-up on expectancies
and personalization revealed that the interaction was not statistically significant, $R^2$
change = .012, $F (3, 196) = .85, p > .05$. The interactions for changes in readiness to quit
from the 1st baseline to follow-up and the 2nd baseline to follow-up were also not
significant, \( ps > .05 \). The 3-way interaction between personalization, priming, and post-priming expectancies was not significant, indicating that the moderating effect did not differ by priming condition.

**Self-Efficacy.** We tested whether self-efficacy at follow-up varied as a function of tailoring-related expectancies and personalization condition. The interaction between condition and expectancies for tailoring was not significant, \( R^2 \) change = .009, \( F(3, 195) = .60, p > .05 \), indicating that self-efficacy scores at follow-up were not moderated by expectancies for tailored interventions. The 3-way interaction was also not significant.

**Cognitive Processing.** The SRKQ administered at follow-up was used to assess whether processing of the content, as suggested by knowledge, would be moderated by expectancies for tailoring and personalization condition. The interaction between personalization and expectancies was not statistically not significant, \( R^2 \) change = .038, \( F(3, 188) = 2.74, p = .05 \). Contrary to the hypothesis, personalization negatively influenced cognitive processing of the booklets as a function of post-priming expectancies for tailored interventions (see Figure 8). Participants in the Placebo Tailored conditions who held the most positive tailoring-related expectancies after priming demonstrated less knowledge on the SRKQ compared to the Standard conditions.
Progress towards Cessation—Behavioral Changes. We also tested whether changes in smoking behavior occurred as a function of post-priming expectancies and personalization. The interaction between condition and expectancies for tailoring was not significant, $R^2$ change = .006, $F (3, 196) = .43, p > .05$, indicating that progress towards quitting at follow-up was not moderated by expectancies for tailored interventions. The 3-way interaction was also not significant. Using logistic regression for the binary...
outcome variable (smoking cessation), the interaction between expectancies and condition were not significant, $p > .05$. 
Discussion

Although tailored smoking interventions are designed to function via content that is based on a theory of behavior change, there is little research to demonstrate that content-tailoring itself is effective. Moreover, little work has begun to dismantle the fundamental aspects of tailoring. The aims of this study were to adopt a placebo tailoring design to test expectancies and personalization as causal mechanisms for efficacious tailoring. Results supported the hypothesis that pre-treatment expectancy priming would modify expectations for tailored and standard smoking cessation messages compared to no priming. Further, we found anticipated independent effects of expectancy priming on evaluations of the intervention content, readiness to quit, and smoking-related knowledge. Results also corroborated the hypothesis that high levels of personalization (i.e. placebo tailoring) would produce superior outcomes compared to a standardized intervention, on evaluations of the content, readiness to quit smoking, smoking-related knowledge, and behavioral progress towards quitting. Lastly, we found, as predicted, that primed expectancies differentially influenced the content evaluation of the intervention. Overall, expectancy priming and personalized messages were contributory factors to positive outcomes.

The provision of a brief expectancy-enhancing letter was successful at positively modifying expectancies for tailored and standard messages. When baseline expectancies were held constant, priming for tailored interventions was effective at producing the most positive expectations for the efficacy of tailoring. In contrast, tailoring-related
expectancies were lowest in the condition that was primed to expect greater benefits from standardized interventions. Expectancy priming also increased receptivity to both intervention formats, readiness to quit, and enhanced smoking-related knowledge. In particular, pretreatment priming led to enhanced topic interest, and greater credibility and confidence about cessation. Thus, it appears that contextual preparation for both tailored and general intervention formats may increase positive expectations and receptivity.

Because the content of the booklets was homogeneous, we can also conclude that smokers apparently prefer highly personalized messages. Participants’ appraisal of the placebo tailored materials was more favorable than the standard information in several aspects, including general appeal, topics, understandability, and credibility. In addition to higher content ratings, placebo tailoring also led to superior smoking-related knowledge and increases in predictors of cessation, such as readiness to quit and smoking-related behavior changes. Moreover, the effect of personalization was moderated by expectancies, such that receipt of placebo tailored messages and high tailoring-related expectancies was associated with superior content ratings compared to smokers with lower expectations for tailoring. For those who received standard messages, we observed the opposite relationship, as increasingly positive tailoring expectations led to inferior content evaluations. Standard messages combined with neutral or low tailoring-related expectancies led to greater satisfaction with the content. Expectancies also moderated the relationship between personalization and smoking-related knowledge, although not in the predicted direction. A post hoc explanation is that readers of placebo tailored booklets who preferred standardized materials attempted to derive benefits of the content by
careful processing. That is, the discrepancy between expectations and the intervention may have facilitated processing of the content, leading to greater recall.

The current results replicated and extended findings from a previous study of placebo-related expectancy effects (Webb et al., 2005), providing additional support for the role of expectancies in influencing reactions to tailored material. In that study, we found an additive effect of personalization, such that the extensive personalization of apparently tailored messages resulted in superior content ratings, and trends towards greater readiness to quit and self-efficacy. Further, the greatest change in readiness was associated with having high baseline expectancies and extensively personalized information. In both studies, the personalization manipulation was consistently ineffective at producing significant differences in cessation self-efficacy. Conceivably, the self-efficacy measure was not sensitive enough to discriminate across conditions, despite its high internal consistency. The current interaction between expectancies and condition on content ratings also somewhat replicated the previous study, suggesting that level of expectancies affects content evaluation. However, in the initial study, the baseline expectancy by condition interaction was instead found for readiness to quit smoking. Although the interaction effect is impressive in both studies, we can think of no sound explanation for the shift in dependent measures for which it was found. Also in contrast to the previous study, this study found a significant difference in client satisfaction, such that the placebo tailoring conditions were more satisfied with the quality of the service. We did not have an a priori hypothesis regarding client satisfaction; however, with the overall positive effects of placebo tailoring, participants in these conditions may have also felt more satisfied with the service. Expectancy priming
may also in part explain this finding, as knowledge of future receipt of tailored materials increased intervention expectations, which may have also resulted in greater satisfaction.

The present study sought to improve the preliminary study in three ways. First, we increased the intensity of the personalized intervention. As in the first study, we replicated the positive effect of personalization on content ratings, and additionally found effects on readiness to quit and behavior changes. Secondly, to reduce the potential for ceiling effects likely observed in the previous study, we attempted to recruit a sample that was less motivated at baseline. Finally, we extended the findings by the actual manipulation of expectancies, allowing for causal inferences about the relationship between expectancies and message receptivity.

The methodology of this study was analogous to designs characteristically conducted in studies of drug treatment effects, in which an inactive medication is tested against an experimental drug (i.e. placebo studies). In this case, a standardized intervention was compared to a placebo tailored intervention in a sample of regular cigarette smokers. We described our experimental intervention as a placebo because in the context of behavioral construct tailoring, simple personalization should theoretically be inert. Taken together, the results suggest that a portion of the outcome of tailored interventions is independently attributable to both expectancies and personalization, and we would argue that the latter could activate the former. However, the results cannot determine the proportion of the outcome variance of a tailored intervention that is due to either of these constructs. A balanced-placebo trial that tests a true tailoring condition against a placebo intervention would be required to determine the contribution of behavioral construct tailoring over and above placebo effects.
Collectively, studies of tailored smoking interventions have had equivocal findings, likely in part due to methodology limitations. Several studies did not include a non-tailored control group (e.g. Etter & Perneger, 2001; Dijkstra et al., 1998; Dijkstra et al., 1998b; Prochaska et al., 2001; Prochaska et al., 2001), or confounded intervention intensity with tailoring (Borland, et al., 2004; Prochaska et al., 2001). Conclusions regarding the actual efficacy of content-based tailoring are also limited by the lack of focus on contributory mechanisms, namely expectancies and personalization. The use of placebo tailoring and expectancy priming are idiosyncratic elements of the design of the present study and Webb et al. (2005), and they allowed examination of the causative roles of these variables.

Personalization and Tailoring Messages

Tailoring theorists suggest that individualized content increases the personal relevance of the intervention, which is the proposed mechanism for change. Existing studies generally apply Prochaska and Velicer’s (1997) transtheoretical model of behavior change, which focuses on transitioning smokers forward through a series of stages resulting in maintenance of cessation. Our study suggests that a variety of ways exist to the increase personal relevance of communication, irrespective of theory-based content, such as enhancing the degree of personalization.

Previous work has acknowledged that personalization may be an important consideration in developing or testing tailored materials (Bull et al., 1999; Kreuter & Strecher, 1996; Weinstein, et al., 1998), most often noted as an alternative explanation for results. It is important to distinguish the concepts of personalization vs. tailoring, as they have, at times, been used interchangeably (Becona & Vázquez, 2001; Curry et al., 1995).
Personalization may be as simple as adding participants’ names to materials (e.g. Brug et al, 1999), to incorporating more extensive, and easily identifiable, personal information (e.g. age, gender, smoking rate). In contrast, tailoring algorithms may include thousands of content iterations based upon the behavioral constructs of the selected theory and baseline recipient information. As shown here, the inbuilt personalization aspects (names, demographics) of typical tailoring algorithms warrant closer investigation. Perhaps actual tailored messages that include high levels of personalization are more effective than those that contain less personalization. This might explain some of the mixed results from tailoring studies, wherein algorithms, target variables, formats, and hence levels of personalization, may differ.

*Expectancies and Tailored Messages*

Results of the study suggest that intervention expectancies represent an important individual difference variable. The distribution of baseline expectancy scores was relatively normal, which indicated that most smokers held moderately positive beliefs about the efficacy of tailoring compared to general interventions. Thus, it appears that intervention expectations may be an important consideration before treatment, and that it may be possible to enhance expectancies to facilitate improvement. The interaction between expectancy priming and personalization indicated that pre-existing expectations for both tailored and standardized messages may be amenable to change. We obtained mixed results vis-à-vis the causal relationship between expectancies and treatment outcomes. The expectancy priming manipulation led to more satisfaction with the content of the intervention, increased readiness to quit, and greater content recall.
However, priming did not affect cessation self-efficacy, or behavioral changes at follow-up.

The relationship between expectancies and treatment variables in the current study is consistent with research in other areas of psychology. This is likely because clients have preconceived notions regarding the probability of therapy-associated improvement (Bleyen, Vertommen, Vander Steene, & Van Audenhove, 2001). From a goal setting perspective, efforts to achieve desired outcomes are associated with expectations for success; thus the intensity of positive or negative expectancies may predict industriousness or disengagement, respectively (Carver & Scheier, 1998). The psychotherapy literature has also provided evidence that client expectancies and preferences influence process and outcome measures (Norcross, 2002). Meyer, Pilkonis, Krupnick, Egan, Simmens, and Sotsky (2002) found that high expectancies for psychotherapy effectiveness were associated with more in-session engagement and subsequent symptom reduction. Joyce and Piper (1998) reported that expectancies accounted for a significant amount of variance in the quality of the therapeutic alliance and in therapy outcome. The psychotherapy literature also includes a validated and reliable tool for measurement of therapeutic expectancies (Psychotherapy Expectancy Inventory-Revised; Bleyen, Vertommen, Vander Steene, & Van Audenhove, 2001). Finally, the Depression Collaborative Research Program sponsored by the National Institute of Mental Health demonstrated that expectations for therapy were a significant predictor of improvement (Sotsky, Glass, Shea, Pilkonis, Collins, Elkin, et al., 1991).

Drug studies have also produced powerful expectancy effects (Hull & Bond, 1986) using balanced-placebo designs. Within the smoking literature, Juliano and
Brandon (2002) used this methodology and found that instructional set (told nicotine cigarette vs. told de-nicotinized cigarette) and baseline expectancies were associated with reductions in self-reported urge to smoke and anxiety reduction. Kirsch and colleagues have conducted several studies demonstrating compelling placebo effects in antidepressant medications (Kirsch, Moore, Scoboria, & Nicholls, 2002; Kirsch, & Sapirstein, 1998). Kirsch (1990) also noted that modifying expectancies is likely a basic aspect of improving psychotherapy outcomes. Thus, evidence of expectancy-related effects exists in goal setting, psychotherapy, smoking, and psychopharmacology research. Expectancies appear to be very potent and enhance placebo effects across clinical domains (Kirsch, 1997). As in these areas, the same may apply to computer-generated written interventions for smokers.

*Expectancy Priming for Interventions*

A single expectancy-priming letter sent 1-2 weeks before the cessation intervention had beneficial effects on message receptivity and smoking-related knowledge. Expectancy shaping via priming is analogous to pre-therapy counseling efforts that are intended to provoke optimistic and realistic intervention expectations, and is somewhat supported by the current study. From an applied perspective, results suggest that the effects of both tailored and generic materials might be enhanced by preceding them with a priming letter, or some other type of expectancy prime. Previous research has found that therapy preparation interventions may increase the accuracy of therapeutic expectations (Lambert & Lambert, 1984; Shuman & Shapiro, 2002) and improve treatment response (Lambert & Lambert, 1984). This study suggests that there are simple ways to increase readiness and receptivity for tailored and standard materials. However,
the precise timing of the priming letters to maximize their cogency is unknown. Earlier or more frequent expectancy priming, or more intensive arguments might have increased effectiveness. More research is needed to elucidate the use of priming to influence expectancies for tailored (or standard) messages.

Behavioral Construct Tailoring

Studies of tailored smoking messages commonly implement the TTM, which focuses on stage progression to cessation and maintenance via changes in cognitive determinants of behavior. In the current study, positive effects were found following the simple personalization of established smoking cessation materials that were not written according to a particular theory of behavior change. Yet, this does not suggest that behavioral construct tailoring is not important. As stated earlier, the proportion of outcome variance from a tailored intervention that is accounted for by personalization remains unknown. Nevertheless, tailoring research may benefit from consideration of other behavioral constructs on which to individualize content. Borland et al. (2004) questioned the use of the TTM in tailored interventions, due to concerns about stage definitions, timetable of advice, and failure to consider individual characteristics. Other work has found that stage-matched tailored interventions did not lead to forward stage movement (Dijkstra et al., 1998b).

One possibility includes selection of a behavior change model that capitalizes on the effects of both personalization and content. The incorporation of Petty and Cacioppo’s (1986) Elaboration Likelihood Model (ELM) may improve the effects of placebo or true tailoring. The ELM presumes that people process information through central and/or peripheral pathways. Central processing often depends on message
quality, whereas peripheral processing can occur via lateral characteristics that either sway or help focus readers on important messages. Given that the current personalized interventions were based on established information and included peripheral cues to prompt attention, perhaps we observed an interaction of these channels. This idea is somewhat supported by the greater smoking-related knowledge of the personalized and primed conditions at follow-up. Tailored materials may achieve greater efficacy by increasing content quality, perhaps via a combination of behavioral constructs, while attending to peripheral cues.

Limitations

Before concluding, we must acknowledge several methodological limitations of this study. First, participants were self-selected responders from newspaper stories and advertisements, who also met the inclusion criteria. Thus, the ecological validity of personalization or expectancy priming in samples not seeking cessation advice is unknown. Further, in this study, the follow-up response rate was slightly lower than anticipated. We believe that the decline in participation from baseline to follow-up reflects natural attrition, in addition to the lower motivation of the sample compared to a previous sample (Webb, et al., 2005). Although we cannot completely exclude the possibility of potential differences between study completers or non-completers, the failure to find baseline differences between groups attenuates this concern.

Secondly, the expectancy manipulations may not have been strong enough, particularly the standard prime. To our knowledge, this is the first study to develop a pre-intervention letter intended to manipulate expectancies for smoking cessation messages. The one-page expectancy priming letters contained only three reasons that the materials
should be preferred. Perhaps, greater effects would be observed from a more extensive rationale. Additionally, developing a case for preference of standardized materials over individualized materials was challenging. We cannot rule out the possibility that a more compelling standard priming letter would have elicited greater cognitive and behavioral changes.

An additional shortcoming of the study was the minimal rate of cessation. We did not anticipate substantial smoking cessation from a one-time written intervention. Self-help materials have been reported to be generally ineffective (Fiore et al., 2000). Thus, we elected to focus on behavioral changes indicative of progress towards cessation. It is more likely that multiple contacts with interpretive feedback would be required to induce cessation.

One may also consider that demand characteristics, particularly within the personalized conditions may have promoted positive feedback. We would argue that this likely occurred to the same extent as in true tailoring studies. In addition, many participants in the standard prime conditions provided encouraging responses, suggesting that any demand effects may have balanced the outcomes. Finally, the use of self-report measures is linked to well-established limitations.

**Future Research and Conclusions**

Future research should continue to examine the causal factors underlying tailoring. Ideally, studies should compare placebo tailoring and true tailoring to delineate the strength of the observed expectancy effects. The effects of placebo tailoring may be improved following the provision of multiple booklets, or telephone counseling; thus, future studies may consider these possibilities. The current priming was able to enhance
expectancies for both general and tailored messages with a brief letter. The influence of
pre-treatment priming needs replication and extension, conceivably with a more
persuasive letter or telephone contact. Finally, examinations of alternative models for
developing both tailored and general interventions should be conducted.

In conclusion, this study represented the next step in dismantling the factors that
contribute to the efficacy of tailoring. Expectancy priming for both personalized and
standard messages changed short-term expectations and demonstrated promise for
influencing outcomes. Highly personalized smoking cessation materials were more
efficacious than standardized materials in terms of receptivity, readiness to quit, cognitive
processing, and behavioral progress towards quitting. Lastly, the effects of
personalization on message receptivity varied according to intervention expectations.
Studies of this type may inform the development of health communications, and provide
methods for improving patient responses to written self-help materials. Findings
highlight the need to understand how and why tailoring may work, which is essential to
the development of clinically effective and cost-effective self-help interventions for
smokers.
References


Appendix A

Demographic Questionnaire

The following questions are about you, and your life situation. They are to help us better understand the people we serve. You are under no obligation to answer any question that you find objectionable, however, we would appreciate your answering as many as possible. All answers will be kept confidential.

Participant No.:________________

Date:__________________

1. What is your age?___________

2. What level of education did you complete?
   ___ Elementary School         ___ Business or Technical Training
   ___ Junior High School        ___ Some College (no degree)
   ___ Partial High School       ___ University Degree, Bachelor level or equivalent
   ___ High School               ___ Post-graduate Degree

1. What is your marital status?
   ___ Single                    ___ Separated   ___ Widowed
   ___ Married                   ___ Divorced

2. With which ethnic/racial group do you most identify yourself? (please check one)
   ___ Oriental/Asian American/Pacific Islander
   ___ Black/African American
   ___ Native American
   ___ White/Caucasian
   ___ Other

   Are you Hispanic?   Yes No   (Circle one)

3. What is your present Occupation?______________________________

   If you own a business, please specify the type?__________________

   If married, what is your spouse’s occupation?___________________

4. What is your approximate personal yearly income?
   ___ Under $10,000             ___ $50,001 - $60,000
   ___ $10,001 - $20,000         ___ $60,001 - $70,000
   ___ $20,001 - $30,000         ___ $70,001 - $80,000
   ___ $30,001 - $40,000         ___ $80,001 - $90,000
   ___ $40,001 - $50,000         ___ Over $90,000
Appendix A (Continued)

5. Total Household Income?

<table>
<thead>
<tr>
<th></th>
<th>$0,000 - $5,000</th>
<th>$5,001 - $10,000</th>
<th>$10,001 - $15,000</th>
<th>$15,001 - $20,000</th>
<th>$20,001 - $25,000</th>
<th>$25,001 - $30,000</th>
<th>$30,001 - $35,000</th>
<th>$35,001 - $40,000</th>
<th>$40,001 - $45,000</th>
<th>$45,001 - $50,000</th>
<th>$50,001 - $55,000</th>
<th>$55,001 - $60,000</th>
<th>$60,001 - $65,000</th>
<th>$65,001 - $70,000</th>
<th>$70,001 - $75,000</th>
<th>$75,001 - $80,000</th>
<th>$80,001 - $85,000</th>
<th>$85,001 - $90,000</th>
<th>$90,001 - $95,000</th>
<th>$95,001 - $100,000</th>
<th>$100,001 - $150,000</th>
<th>$150,001 - $200,000</th>
<th>$200,001 - $250,000</th>
<th>$250,001 - $300,000</th>
<th>$300,001 - $500,000</th>
<th>$500,001 - $1,000,000</th>
<th>Over $1,000,000</th>
</tr>
</thead>
</table>
Appendix B

Smoking Status Questionnaire

1. Age: __________

2. Sex: (check one) □ Male □ Female

3. Do you smoke cigarettes everyday? □ Yes □ No
   If No, stop here; If Yes, please continue

4. How many years have you been smoking daily? _________

5. How many cigarettes do you smoke per day on average? _________

6. Do you smoke more during the first two hours of the day than during the rest of the day?
   □ Yes □ No

7. How soon after you wake up do you smoke your first cigarette?
   □ Within 5 minutes
   □ 6-30 minutes
   □ 31-60 minutes
   □ After 60 minutes

8. Which of all the cigarettes you smoke would you most hate to give up?
   □ The first one in the morning
   □ The one with breakfast
   □ The one with lunch
   □ The one with dinner
   □ The last cigarette before going to bed
   □ Other: __________________________

9. Do you find it difficult to refrain from smoking in places where it is forbidden (e.g. in church, at the library)?
   □ Yes □ No

10. Do you smoke if you are so ill that you are in bed most of the day?
    □ Yes □ No

11. What brand of cigarettes do you usually smoke? _______________________
    (Please write specific brand)
Appendix C

General Smoking Questionnaire

Directions: Please mark the box that corresponds to your smoking habits and knowledge of topics related to smoking.

1. Do you often have a craving for a cigarette early in the morning?  
   Yes  No

2. Do you often use smoking cigarettes to control your mood?  
   Yes  No

3. Do you often smoke when you are in a negative or bad mood?  
   Yes  No

4. Do you often smoke while drinking alcohol?  
   Yes  No

5. Do you often smoke when you are feeling happy?  
   Yes  No

6. Do you often smoke when you are relaxed?  
   Yes  No

7. Do you often experience strong urges to smoke?  
   Yes  No

8. Do you tend to smoke when you are stressed or anxious?  
   Yes  No

9. Are you worried about gaining weight after quitting?  
   Yes  No

10. Are you aware of the symptoms of nicotine withdrawal?  
    Yes  No

11. What brand of cigarettes do you smoke? (Please write brand below)

    ___________________________________
Appendix D

Contemplation Ladder

Participant #: ___________  Date: ___________

Each rung on this ladder represents where various smokers are in their thinking about quitting. Circle the number that indicates where you are now. (PLEASE CIRCLE ONLY ONE NUMBER)

- 10 → Taking action to quit (e.g., cutting down, enrolling in a program).
- 9 → Starting to think about how to change my smoking patterns.
- 8 → Think I should quit but not quite ready.
- 7 → Think I need to consider quitting someday.
- 6 → No thought of quitting.
Appendix E

Date: ______________________      ID#__________

Tailored Intervention Expectancy Questionnaire

Most written materials designed to help people lose weight, quit smoking, eat healthy, and so on are written so that each person receives the same written information. It has been suggested that with the use of computer software, it may become possible to gather information about each person’s particular situation. This information would be used to write materials. We are interested in your thoughts about this possibility. Would it make a difference whether or not a “quit smoking” program is designed around each individual? The following questions ask for your opinion on this issue.

1  2  3  4  5
Strongly      Disagree Neither agree nor     Agree Strongly Agree
Disagree   Disagree

1. In order for a program to be effective it should be developed based on my own characteristics and needs.  

2. If someone went through the trouble to create a program specifically for me, then it must be better than the standard program that everyone receives.  

3. I think I would benefit from knowing about ways that other people have quit smoking.  

4. My smoking habits are like most people’s; I do not require specific and personalized information to help me quit smoking.  

5. I would prefer to participate in a quit smoking program that is meant just for me, rather than one that has been tested with others and shown to work for them.  

6. I think it would be easier to quit smoking if I participate in a program that is tailored to me.  

7. Just because a program contains personalized features does not mean it will be any more successful than one that is commonly used.  

8. I think most smokers would benefit from receiving standard information on ways to quit.  

80
Appendix E (Continued)

9. I do not think that the majority of smokers need individualized information on ways to quit. 1 2 3 4 5

10. I think I would benefit from having general information on the benefits of quitting smoking. 1 2 3 4 5

11. I believe that people who smoke are in need of a program designed around their own situation to help them quit. 1 2 3 4 5

12. General smoking cessation programs are effective in helping people quit smoking successfully. 1 2 3 4 5

13. The only way to help a person stay off cigarettes for good is to offer him/her a program that was made with him/her in mind. 1 2 3 4 5

14. Most smokers have similar experiences with smoking and would therefore be helped by a program intended for the average smoker. 1 2 3 4 5

15. I believe that feedback on what helps most people is more helpful than personal feedback. 1 2 3 4 5
Appendix F

Smoking Self-Efficacy Questionnaire-12

Date: ___________________     Participant # ______________

The following are some situations in which certain people might be tempted to smoke. *If you were to quit smoking*…please indicate how sure you are that you could *refrain* from smoking in each situation.

<table>
<thead>
<tr>
<th>Not at all sure that I would not smoke</th>
<th>Not very sure</th>
<th>More or less sure</th>
<th>Fairly sure</th>
<th>Absolutely sure that I would not smoke</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. When I feel nervous 1 2 3 4 5
2. When I feel depressed 1 2 3 4 5
3. When I am angry 1 2 3 4 5
4. When I feel very anxious 1 2 3 4 5
5. When I want to think about a difficult problem 1 2 3 4 5
6. When I feel the urge to smoke 1 2 3 4 5
7. When I am having a drink with friends 1 2 3 4 5
8. When celebrating something 1 2 3 4 5
9. When drinking beer, wine or other spirits 1 2 3 4 5
10. When I am with smokers 1 2 3 4 5
11. After a meal 1 2 3 4 5
12. When having coffee or tea 1 2 3 4 5
Appendix G

Stages of Change Questionnaire

Date__________     Participant #_____________

1. Are you seriously considering quitting smoking within the next six months?
   A. No
   B. Yes
   C. I do not smoke

2. Are you planning to quit smoking within the next 30 days?
   A. No
   B. Yes
   C. I do not smoke

3. In the last year how many times have you quit smoking for at least 24 hours?
   (If more than 9 times, put 9)
   A. 0
   B. 1
   C. 2
   D. 3
   E. 4
   F. 5
   G. 6
   H. 7
   I. 8
   J. 9
Appendix H

Intervention Rating Questionnaire

Thank you for participating in the Lights Out program. Your feedback is very important to us. To help us improve the program, we would like you to answer the questions below that ask what you thought about the smoking cessation information, and how much it may have helped you. We would be grateful if you answered as many questions as possible. Remember that all information will be kept confidential. When you have completed these forms, please mail them back in the enclosed stamped envelope. Thank you for your cooperation.

Program ID number: ___________________

You signed up for Lights Out on ______/_____/_______.

Please write the date that you completed this form: ______/_____/_______.

1. How would you rate the overall quality of the service offered by the Lights Out program?

0   10  20  30  40  50  60  70  80  90  100
Poor                   Fair                   Excellent

2. Did you get the kind of help you wanted?

0   10  20  30  40  50  60  70  80  90  100
No, definitely not       Neutral                Yes, definitely

3. Overall, how satisfied are you with the Lights Out program information?

0   10  20  30  40  50  60  70  80  90  100
Quite dissatisfied       Indifferent              Very Satisfied

4. To what extent has the Lights Out program met your needs?

0   10  20  30  40  50  60  70  80  90  100
None of my needs have been met
A few of my needs have been met
All of my needs have been met

5. How would you rate the quality of the Lights Out materials?

0   10  20  30  40  50  60  70  80  90  100
Poor                      Fair                     Excellent
Appendix H (Continued)

6. If a friend were thinking of quitting or trying to quit smoking, would you recommend the *Lights Out* program to him/her?

   0 10 20 30 40 50 60 70 80 90 100
   No, definitely not                     Yes, I think so                     Yes, definitely

7. How useful was the *Lights Out* program in helping you to deal more effectively with trying to quit smoking and remain nonsmoking?

   0 10 20 30 40 50 60 70 80 90 100
   Not at all                                Somewhat                        Completely

8. I have read the smoking cessation information.

   0 10 20 30 40 50 60 70 80 90 100
   Not at all                              Somewhat                        Completely

9. I remember the contents of the information I read.

   0 10 20 30 40 50 60 70 80 90 100
   Not at all                              Somewhat                        Completely

10. I have saved the *Lights Out* smoking information.

    No                                      Yes

11. I have discussed the smoking information letter with others.

   0 10 20 30 40 50 60 70 80 90 100
   Not at all                              Somewhat                        Completely

12. Compared to before receiving the information, how confident are you that you can stay off cigarettes for good?

    0 10 20 30 40 50 60 70 80 90 100
    Much less confident                   About the same                  Much more confident

13. The smoking information booklet contained new information.

    0 10 20 30 40 50 60 70 80 90 100
    Not at all                             Somewhat                        Completely

85
14. The smoking information booklet was interesting.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree nor disagree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Did you ever give or lend the materials to another smoker or exsmoker?
   Yes   No

16. The appearance of the information booklet was good?

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree nor disagree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. The smoking information booklet applied to my life.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree nor disagree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18. The smoking cessation information was credible/trustworthy.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree nor disagree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19. Did you find the *Lights Out* materials easy to understand?

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>Somewhat</td>
<td>Completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

20. The information about "weight and smoking" was interesting.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree nor disagree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

21. The information about "smoking and your health" was interesting.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree nor disagree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
22. The information about "coping skills" was interesting.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. The smoking cessation information booklet was written especially for me.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>Somewhat</td>
<td>Completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

24. The smoking cessation booklet was encouraging.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25. The information in the smoking cessation booklet caught my attention.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. The booklet was tailored to my needs.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

27. As a result of the smoking information booklet, I changed my opinion about my smoking.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>Somewhat</td>
<td>Completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28. As a result of the smoking information booklet, I intend to quit smoking.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Neither agree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
29. I will read the materials again in the future.

0 10 20 30 40 50 60 70 80 90 100
Very unlikely Neutral Very likely

30. My personal smoking habits were addressed in the booklet information.

0 10 20 30 40 50 60 70 80 90 100
Strongly disagree Neither agree nor disagree Strongly agree

31. I received information created for me as an individual.

0 10 20 30 40 50 60 70 80 90 100
Strongly disagree Neither agree nor disagree Strongly agree

** At the time you signed up for the program, you were a current smoker, is that correct?
Yes No

32. How many cigarettes per day do you currently smoke on average?

__________________________ (If unsure: Give your best estimate)

33. How many cigarettes have you smoked in the past week? ____________

In the past month, have you…

34. Made a serious attempt to quit smoking?
Yes No

35. Cut down on the number of cigarettes you smoke?
Yes No

36. Begun to limit your smoking to certain places or situations?
Yes No

37. Set a quit date?
Yes No
Appendix H (Continued)

38. Quit smoking completely?
   Yes   No

   38a. If you quit smoking completely and are not currently a smoker: What was the approximate date that had your last cigarette: _____/_____/_____  
        mm       dd       yy

39. During the past month, what is the longest period of time that you went without smoking?
   Less than one day  1-2 weeks  
   1-2 days           3-4 weeks  
   3-7 days

40. Please indicate which of the following statements best describes you:
   I am currently not a cigarette smoker
   I intend to quit smoking cigarettes within the next month.
   I intend to quit smoking cigarettes within the next 3 months.
   I intend to quit smoking cigarettes within the next 6 months.
   I intend to quit smoking cigarettes within the next year.
   I currently smoke cigarettes, and do not intend to quit within the next year.

41. During the past month (4-6 weeks), did you take part in any formal treatment or support group for quitting smoking?
   No
   Yes. (If yes, please indicate which one below.)

   American Cancer Society Program (FreshStart ®)
   American Lung Association Program (Freedom From Smoking ®)
   Seventh-Day Adventist Program
   Nicotine Anonymous ®
   Program offered by local hospital or health center.
   Program offered by commercial company (SmokEnders ®, for example).
   Program offered by hypnotist.
   Other __________________________

89
Appendix H (Continued)

42. Please indicate of any items that you are currently using:

<table>
<thead>
<tr>
<th>Nicotine Gum</th>
<th>Over-the-counter Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine Patch</td>
<td>If so, which ones? ________</td>
</tr>
<tr>
<td>Nicotine Nasal Spray</td>
<td>CigArrest</td>
</tr>
<tr>
<td>Nicotine Inhaler</td>
<td>Bantron</td>
</tr>
<tr>
<td>Nicotine Lozenge</td>
<td>Tabmint</td>
</tr>
<tr>
<td>Zyban or Wellbutrin</td>
<td>Nikoban</td>
</tr>
<tr>
<td>Self-help Book</td>
<td>Other ________________</td>
</tr>
<tr>
<td>Aqua Filters</td>
<td></td>
</tr>
<tr>
<td>Other aid________________________</td>
<td></td>
</tr>
</tbody>
</table>

43. Think about how much time you spent over the past month in your effort to quit smoking. Consider the time you spent actively trying to quit, such as reading about quitting or attending counseling sessions. Also consider time you may have lost if quitting distracted you from your regular activities—for example by making it harder to concentrate on assignments at work. Overall, during the past month or so, how much time did you spend in your effort to quit smoking or to stay quit?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very little time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very much time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We are interested in any other comments or suggestions you have about the Lights Out program.

________________________________________________________________________

Thank you very much for taking the time to answer these questions. We at Lights Out greatly appreciate your participation and wish you the best of luck! Have a nice day/ evening.
Opening

Thank you for calling the Lights Out Program. Are you calling in response to the offer for no-cost information to help you quit smoking?

If "Yes": Great, I'd be happy to tell you more about the Lights Out Program. First, I would like to tell you a little about the study and ask a few quick questions…(Go to Program Explanation)

If "No": That's fine Sir/Ma'am. Have a nice day/evening.

Program Explanation

Sir/Ma'am, I would like to congratulate you for taking a step towards quitting! Here at the Tobacco Research and Intervention Program at the University of South Florida, we are very interested in finding new ways to help people quit smoking.

This is a new research program that provides you with information about smoking and ways to quit. The information we’ll send you has been useful to other people in the past. You will receive up to date information about several topics related to the process of quitting smoking.

Does this sound like something you would be interested in? (Respond appropriately)

If "Yes": Great, …(Go to Inclusion Confirmation)

If "No": (Go to Abbreviated Close)

Study Explanation

Great, we would like to invite you to volunteer for our new research program. And, since this is a new program, we would first like to learn about the people who participate and then we’ll want to know whether the program helped them. So, prior to providing you with the smoking information, we will first send you some brief questionnaires to fill out and mail back to us. These questionnaires will be sent out on (the next business day) and we will mail you the smoking cessation information shortly after we receive the questionnaires back from you. You will also receive a letter telling you more about the booklets you will receive.
Appendix I (Continued)

We will also want to know what you thought about the information that we sent you and if the materials helped you. So, we will send you a second set of short forms asking similar questions about 4 weeks after you receive the information in the mail. This helps us make improvements in the future. Also, we will call you if we have any additional questions about your information.

(Pause) As a "thank you" for completing the second set of questionnaires and taking part in the *Lights Out* Program, we will send you a check for $10. Are you interested in receiving the quit smoking information?

**HIPAA Verbal Authorization**

Once caller affirms: Great, and by the way, we will not try to sell you anything, and we will not pass your name along to anyone else. Your participation in this program and Federal law requires that all of your responses be kept confidential. There is no cost to you for participating in the study and there are no known risks to people who participate. We will be asking questions about your smoking behavior, your thoughts about smoking, and your interest in quitting. The information will be used for research purposes only and any identifying information will be discarded as soon as your participation is complete. Participation may last 2-3 months. Since participation is voluntary, you may withdraw at anytime with no penalty. The information you provide may only be seen by members of our research staff and the oversight boards that regulate our research. Are there any questions I can answer for you at this time?

(Go to Data Capture)

**Abbreviated Close** (Use this if caller meets any of the disqualification criteria.)

I would be happy to send you some general information about smoking and smoking cessation, okay?

Great, then may I have your name please?

(Go to Data Capture)

**Disqualification Criteria**

1. Caller is under 18 years of age.
2. Caller is not considering quitting within 1 year.
3. Caller is not a regular smoker (< 10 cigarettes per day).
4. Caller does not read English.
5. Caller does not have a mailing address.
6. Caller declined participation but wants standard booklet.
7. Caller is a member of *Forever Quit*.
8. A current enrollee referred caller.
9. Caller does not give verbal authorization to ask Inclusion Confirmation questions.
Appendix J

Initial Telephone Contact

Screening ID# _______________   Operator: ____________________
Subject ID# _______________   Date of Call: ____/____/_______

Check here if returning message

Inclusion Confirmation

1. How did you hear about Lights Out? ___________________________________ (Note name of source)

2. May I have your current age please? _______________ (If younger than 18, go to Abbreviated Close)
   Gender: Male   Female

3. How many cigarettes do you smoke per day on average? _______________ (If "< 10" go to Abbreviated Close)
   If "I don't know": That's fine, just give me your best estimate.
   (If < 10 go to Abbreviated Close; If ≥10 continue)

4. How long have you been smoking cigarettes? __________ YEARS/MONTHS (Circle One)

5. Are you seriously considering quitting in the next year? YES NO (If "No" go to Abbreviated Close)

6. Are you currently receiving any type of treatment to quit smoking? YES NO
   If "Yes" note treatment program and go to Abbreviated Close:
   ____________________________________________________________
   (e.g. support group, Nicotine Anonymous, Hypnosis, local hospital program etc.)
   (Pharmacological treatments are acceptable)

7. And finally, do you read English? YES NO (If "No" go to Abbreviated Close)

If all criteria met, go to Program Explanation.

Data Capture

Qualified

Disqualified

Reason: ____________________________

Name: _________________________________________ (Note #)
(Must Note Title: Mr., Ms., Mrs., Miss, Dr., Gen., Sgt.)
Street Address: __________________________________________
City: _____________ State: ________ Zip: ___________
Phone Number: ____________________________ (Start with area code)
Appendix J (Continued)

Great, we will send out the questionnaires on the next business day and we will send you the smoking information booklet just as soon as you return them. Thanks again for your interest in *Lights Out* and good luck at becoming smoke free!
Dear Sir/Madam:

Welcome to the *Lights Out* research study conducted by Moffitt's Tobacco Research and Intervention Program (TRIP) at the University of South Florida. The purpose of the study is to develop written materials to help smokers prepare to quit smoking and stay off cigarettes. Within the last ten years, much research has been done to find out what type of information is most useful to people thinking about quitting. You are being asked to participate because you called a toll-free number in response to an advertisement offering a smoking cessation guide to people thinking about quitting. By participating, you will receive smoking cessation information that has been useful to other people in the past.

As explained over the phone, we would like to learn more about the people we are serving so that we may improve the program in the future. We greatly appreciate you taking the time to complete the questionnaires contained in this package. There are several short forms that we ask you to complete and mail back to us in the enclosed pre-stamped envelope. Please complete the following forms in the order in which they are stapled:

- Demographic Questionnaire
- Smoking Status Questionnaire
- Contemplation Ladder
- SEQ-12 (smoking questionnaire)
- TIE-Q (another smoking questionnaire)
- Stages of Change Questionnaire

Please do not write your name on any of the questionnaires; an assigned number will identify them. Also remember, participation is voluntary; you may withdraw with no penalty from the study at anytime by not returning the questionnaires or informing us by telephone.

As soon as we process your completed questionnaires, we will mail you the smoking cessation information you requested. There are no known risks to those who take part in this study.

Also, your feedback is very important to us. Once you have had the chance to read your smoking information booklets, we would also like to send you a few more short forms to complete to find out how much the information helped you, and for your suggestions about the *Lights Out* Program. In appreciation for your prompt
Appendix K (Continued)

feedback, you will receive $10.00 as a thank-you gift. Thus, your contact with Lights Out will be 2-3 months.

Your privacy and research records will be kept confidential to the extent of the law. Participant identification numbers will be used instead of names on questionnaires. Authorized research investigators, agents of the Department of Health and Human Services and the USF Institutional Review Board may inspect your records from this research project. The results of the study may be published in grouped form. In other words, the published results will not include your name or any other information that will personally identify you.

Lastly, if we have any questions about your information, we will place a courtesy call to you as soon as possible.

If you have any questions about the Lights Out Program, please call our toll-free telephone number at 1-877-954-2548. If you have questions about your rights as a person who is taking part in a research study, you may contact the Division of Research Compliance of the University of South Florida at 813-974-5638. Thank you again for participating and we wish you the best of luck with quitting smoking.

Sincerely,

Thomas H. Brandon, Ph.D.            Monica S. Webb, M.A.
Director, Tobacco Research & Intervention Program    Director, Lights Out Program
Appendix L

Standard Priming Letter

Lights Out

H. Lee Moffitt Cancer Center & Research Institute at the University of South Florida

4115 East Fowler Avenue Tampa, FL 33617

Dear Sir/Madam:

Thank you for participating in the Lights Out Program! We have received your questionnaires and they are being processed. The information you requested about smoking and quitting will be delivered shortly.

We want to take this opportunity to tell you a little about the information that you will be receiving. As you may be aware, there are two different kinds of information that is available for smokers: “Tailored” and “Standardized.” We will be sending you standardized information.

What is the difference between the two types? Standardized information is based on knowledge gained from studying and talking to thousands of smokers. The most important and helpful information is included in the booklets that we will send you.

Tailored information, in comparison, is written by a computer based on its best guess about what you are like. Therefore, each person would receive a different set of information about quitting. Here are some reasons that we like to use Standardized booklets:

1. They have worked for thousands of smokers. Standardized information has been around for a long time, and they have been proven to help smokers to quit. In contrast, tailored information is newer and not yet proven.

2. Computers aren’t mind-readers. With Tailored information, the computer has to guess which information will be most useful to you. But today’s computer programs are not sophisticated enough to do that.

3. You get to choose what is important. With Standardized booklets, we include a lot of information, and you get to decide which information is useful and which is not. Each person may find a different section of the booklets most useful, but at least you are given the chance to see all of it. With Tailored information, the computer may choose to leave out a part that would have been very helpful to you.

You should be receiving your standardized Lights Out booklets shortly. We are reviewing the information you provided and you may receive a brief phone call if we have any questions.

Again, thanks for participating. Good Luck!

Sincerely,

Thomas H. Brandon, Ph.D.  Monica S. Webb, M. A.
Director, Tobacco Research & Intervention Program  Director, Lights Out Program
Appendix M

Tailored Priming Letter

H. Lee Moffitt Cancer Center & Research Institute at the University of South Florida
4115 East Fowler Avenue
Tampa, FL, 33617

Dear Sir/Madam:

Thank you for participating in the Lights Out Program! We have received your questionnaires and they are being processed. The information you requested about smoking and quitting will be delivered shortly.

We want to take this opportunity to tell you a little about the information that you will be receiving. As you may be aware, there are two different kinds of information that is available for smokers: “Standard” and “Tailored.” We will be sending you tailored information.

What is the difference between the two types?

- **Standard** information is the same for every person. Each smoker would receive the same set of generic information.
- **Tailored** information, in comparison, is written by a computer based on the answers to questions that you answered in advance. Therefore, each person receives a different, unique booklet that is designed to meet the unique needs of that person.

Here are some reasons that we like to use Tailored booklets:

1. **No two people are exactly alike.** And no two smokers are exactly alike. Each person smokes for different reasons, smokes in a different way, and has different life circumstances that affect his or her smoking. That means that each person may need different information to help them quit smoking. Tailoring does this.
2. **Tailored information focuses your attention on the most important topics for you.** Your time is not wasted reading information that does not apply to you. Not only would this waste your time, but it might harm your efforts to quit smoking. With tailored booklets, you will only receive information that is relevant to you.
3. **It works.** Several studies have concluded that tailored information helps people quit smoking, and it seems to work better than standard, generic information.

You should be receiving your personally-tailored Lights Out booklets shortly. We are reviewing the information you provided and you may receive a brief phone call if we have any questions.

Again, thanks for participating. Good Luck!

Sincerely,

Thomas H. Brandon, Ph.D.  
Director, Tobacco Research & Intervention Program

Monica S. Webb, M. A.  
Director, Lights Out Program
Appendix N

Intervention Booklet 1—Text

LIGHTS OUT

Your Guide to Quitting Smoking
Appendix N (Continued)

Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Let’s Start with Seven Facts about Smoking and Quitting</td>
<td>101</td>
</tr>
<tr>
<td>What Makes Smoking So Harmful?</td>
<td>103</td>
</tr>
<tr>
<td>What Happens When You Quit Smoking?</td>
<td>104</td>
</tr>
<tr>
<td>What are Urges to Smoke?</td>
<td>105</td>
</tr>
<tr>
<td>&quot;Risky&quot; Situations for Smokers</td>
<td>108</td>
</tr>
<tr>
<td>How to Deal with Urges to Smoke</td>
<td>109</td>
</tr>
<tr>
<td>When Will the Urges End?</td>
<td>110</td>
</tr>
<tr>
<td>Exercises</td>
<td>112</td>
</tr>
</tbody>
</table>
Congratulations on taking a step towards quitting smoking! You have taken one of the most important health steps that a person can take. The fact that you asked for smoking cessation information means that you want to become tobacco-free. That commitment, along with the following information, should increase your chance of success!

Let’s Start with Seven Facts about Smoking and Quitting

Fact 1: Nicotine is addicting.
We now know that most smokers are physically addicted to nicotine. This means that your body has become used to the effects of nicotine. When you stop smoking, your body will have to get used to not having nicotine in it. This is called nicotine withdrawal. Common withdrawal feelings that you may have when you quit are:
- Lightheadedness
- Headache
- Sleep problems
- Nausea
- Decreased heart rate
- Depression
- Craving for cigarette
- Irritability
- Increased appetite
- Anxiety
- Difficulty thinking
As your body gets used to no nicotine, these feelings do go away, so that after a week or so of not smoking most of the feelings have stopped. Having cigarettes, even one, during this time only makes withdrawal longer and harder.

Fact 2: Smoking is a habit.
Physical addiction is not the only reason that people keep smoking. Another important reason can be called habit. When you first quit smoking you may find that you reach into your pocket or your purse to get a cigarette; that is habit. You may have strong cigarette cravings when you drink a cup of coffee or talk on the phone—times when you often smoked in the past; this is habit. You may find times and places which lead to urges to smoke after you quit. These times become triggers for urges or cravings. As time passes, these triggers lessen and urges will go away. That is, if you don't smoke.

Fact 3: Smokers use nicotine to control their moods.
Smokers learn that cigarettes can help control their moods, and they become very good at getting just the right amount of nicotine to get the right effect. With time, smokers use cigarettes more and more to control their moods. When they are tense, sad, or angry they often have a cigarette. In times of stress, they want a cigarette.
Many smokers may not know how to deal with stress without smoking.

**Fact 4: Quitting smoking can be hard.**

Most alcohol and drug abuse patients say that smoking is the one addiction that they feel is the hardest to stop. For example, Sigmund Freud gave up his cocaine addiction but could never stop smoking, despite 33 operations for mouth cancer. In the past, penalties for smoking included flogging, castration, death, and excommunication from the church. Yet none of these punishments stopped tobacco use. No country that has been introduced to tobacco has ever given it up. *Over 90% of attempts to quit smoking fail.*

**Fact 5: People do quit smoking.**

Despite the fact that nicotine is very addictive, millions of people **have** quit smoking. It can be done! People can succeed, even if it takes many tries. Nearly half of the people in the United States who ever smoked have now quit, and so can you.

**Fact 6: Quitting smoking is a long-term process.**

A mistake that smokers often make is to think that the job is done after a week or two, when most withdrawal feelings end. In fact, most smokers who make it to that point still end up smoking later on. But, there are steps you can take to help you stay smoke free over the long-term.

**Fact 7: Quitting smoking improves your health and quality of life.**

There is nothing that causes more death and disease in the USA than tobacco smoking. Over 430,000 Americans die each year from diseases caused by smoking. That’s more deaths than are caused by alcohol, cocaine, heroin, car accidents, murder, suicides, fires, and AIDS **combined!** Smokers are nearly 3 times more likely to die before age 65 compared to nonsmokers. They have 3 times the risk of heart disease and 10 times the risk of lung cancer. Smokers are also at increased risk for other cancers, breathing diseases, and ulcers.

The good news for you is that by quitting smoking, you will greatly reduce your chance of being one of those numbers. Also, if you go ten years without smoking, your risk for the diseases listed above returns to nearly the level of someone who never smoked! Think about that.

Once you quit smoking, you can begin to make up for all the years that you smoked. Even if you have already become ill due to smoking, quitting slows down your illness and it can also make you feel better.
To repeat what we said before: By Quitting smoking, you have taken an important step that smokers can take to improve their health!

What Makes Smoking So Harmful?

A cigarette contains over 4,000 chemicals. You might be surprised at some of them. These chemicals include:

- cyanide (a deadly poison)
- arsenic (another poison)
- formaldehyde (a chemical used to preserve dead tissue)
- acetylene (the fuel used in torches)
- ammonia (what you might use

At least 43 of the chemicals in cigarette smoke are known to cause cancer. Another 401 are toxic or harmful. These chemicals are found in tobacco. Some are added by the cigarette companies as preservatives or to enhance flavor.

The most dangerous part of cigarette smoke is carbon monoxide (CO). When you smoke, CO prevents vital organs, such as your heart and your brain, from getting all the oxygen that they need.

Another chemical in cigarette smoke is nicotine. This is the drug that makes cigarettes addicting. It increases your pulse rate and blood pressure. As a result, your heart has to work harder and needs more oxygen. The effects of nicotine combined with CO have even greater impact since nicotine causes your heart to need more oxygen, yet at the same time, CO is keeping your organs from getting all the oxygen they need. Over time, this stress on the heart may lead to heart disease.

Smokers have at least twice the chance of having a heart attack as nonsmokers. In fact, new research shows that smokers in their 30s and 40s are 5 times more likely to have heart attacks.
Appendix N (Continued)

This next section discusses how smoking affects your health and how your health will get better once you have stopped smoking. Many people quit smoking because they are worried about the health effects of smoking. For people who quit for other reasons (such as the cost), the health effects of quitting are a bonus.

Before you start reading this section, take time to list some of the negative health effects of smoking. Then list some of the good health effects that you can expect once you quit.

<table>
<thead>
<tr>
<th>Negative Health Effects of Smoking</th>
<th>Benefits of Quitting Smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What Happens When You Quit Smoking?

Enough of the bad news. Now for the good news. By quitting smoking, you will probably add years to your life. You can breathe easier, walk further, exercise more, taste food better, and smell better. You will feel and be healthier as a nonsmoker than you will be if you keep smoking.

Let’s take a look at a few things that happen when you smoke your last cigarette

<table>
<thead>
<tr>
<th>Time After Quitting</th>
<th>Health Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 minutes after</td>
<td>Most of the nicotine has left your brain. Your blood pressure and pulse rate goes back to normal.</td>
</tr>
<tr>
<td>your last puff</td>
<td></td>
</tr>
<tr>
<td>24 hours after your</td>
<td>Your risk of having a heart attack begins to go down.</td>
</tr>
<tr>
<td>last cigarette</td>
<td></td>
</tr>
<tr>
<td>1 month after quitting</td>
<td>You cough less and have less shortness of breath. You breathe better and are not as tired.</td>
</tr>
<tr>
<td>1 year after quitting</td>
<td>Your risk of heart disease has been cut in half.</td>
</tr>
<tr>
<td>5 years after quitting</td>
<td>Your risk of dying of lung cancer has been cut in half. Your risk of oral cancers has also been cut in half.</td>
</tr>
<tr>
<td>5-15 years after</td>
<td>Your risk of having a stroke is about the same as someone who never smoked.</td>
</tr>
<tr>
<td>quitting</td>
<td></td>
</tr>
<tr>
<td>10 years after</td>
<td>Your risk of lung cancer is nearly the same as someone who never smoked. Your risk of pancreatic cancer has also been reduced.</td>
</tr>
<tr>
<td>quitting</td>
<td></td>
</tr>
<tr>
<td>15 years after</td>
<td>Your risk of heart disease is as low as if you never smoked.</td>
</tr>
<tr>
<td>quitting</td>
<td></td>
</tr>
</tbody>
</table>

You can see that your health quickly starts to improve once you quit. You can also see that the earlier you quit, the greater the chance that you will overcome the risks caused by smoking. But quitting smoking improves your health at any age.
Appendix N (Continued)

What are Urges to Smoke?

Urges. Cravings. Desires. These are all words that smokers and ex-smokers use to describe how they feel when they want a cigarette. To some people, each word means something a little bit different. For example, some smokers say that a "craving" is much stronger than an "urge" or “desire.” However, to most people, the words mean pretty much the same thing. In this booklet, we will use all three words to mean the same thing.

Different Types of Urges

There are at least three kinds of cigarette urges that smokers have:

1) Nicotine withdrawal urges
2) Habit urges
3) Memories of smoking (in ex-smokers)

Nicotine Withdrawal Urges

Over your years of smoking, your body adjusted to the nicotine. Many of your organs made changes to get used to the effects of nicotine. These changes let you smoke without feeling all the effects of nicotine that you felt when you first started smoking. For example, after years of smoking you probably didn’t feel light-headed after a cigarette.

But, when you quit smoking your body adjusts again. This time it has to adjust to not getting nicotine. Your brain, heart, and other organs will have to get used to you not smoking! This change can be unpleasant and is called nicotine withdrawal.

The symptoms of nicotine withdrawal were listed on page 2, and include cravings, increased appetite, and anxiety.

Most people don’t have all of these symptoms, but they do have some. Nicotine withdrawal begins about 20 minutes after your last cigarette. If you don't smoke, it lasts between one and two weeks. There are three ways to stop these unpleasant symptoms:

1. Wait for it to end on its own after one or two weeks.

2. Use nicotine replacement products such as a nicotine patch.

2. Smoke a cigarette (or get nicotine in some other way).

The first two ways are, of course, how someone quits smoking. But it is very tempting to get relief the third way—by smoking a cigarette. This temptation is the “nicotine withdrawal urge.” Smokers get this urge when the nicotine from their last cigarette clears their brain—about 20 minutes after smoking.
Appendix N (Continued)

Why do most smokers say that their strongest craving for a cigarette is first thing in the morning?

It is because their body has been without nicotine for eight hours while they were sleeping.

How long do ex-smokers have nicotine withdrawal urges?
They have urges as long as nicotine withdrawal lasts. This is about one to two weeks after quitting smoking. Often a smoker tries to quit but doesn't completely quit smoking. He/she may have one or two cigarettes per day to deal with urges. The "quick fix" of having a cigarette every now and then actually causes more problems. This "cheating" just makes nicotine withdrawal longer.

After withdrawal ends, urges occur less and less often.

2. Habit Urges

Habit urges occur when a smoker is in a situation that had been tied to smoking for that person. Here are some examples of habit urges:

Mary always smoked while talking on the telephone. Whenever the phone rang, she would reach for her pack and light a cigarette. Now she has quit smoking for three weeks. But whenever she hears that ring of the telephone she still wants a smoke.

Jestene and her sister started smoking together as teens. Although they now live 500 miles apart, whenever they get back together they tend to smoke cigarettes while catching up with one another. Jestene has grown to value the special times that she has with her sister once or twice a year. There is a strong sister bond between them at these times. Since their last visit, Jestene has quit smoking. She has not smoked for five months now, and she has had very little desire to smoke. However, when she and her sister sat down at the kitchen table and began to talk about their kids, Jestene’s sister pulled out her pack and offered Jestene a cigarette. Jestene had a strong urge to smoke. Smoking seemed like the thing to do.

Peter had been smoke-free for nearly a year, and he was proud of it. Last week, while driving his daughter to soccer practice, he was rear-ended by a drunk driver. He was not hurt, but his daughter was injured. One person at the scene of the accident was smoking, and Peter felt that he too needed a cigarette to deal with the stress.
Appendix N (Continued)

Smokers at our clinic told us these three stories. In each case, something from the past set off the urge to smoke. For Mary, it was the telephone. For Jestene it was her sister. And for Peter it was stress. The things that set off these urges are called “triggers.” The triggers can be people, places, things, and even moods. Here is a list of some common triggers for habit urges:

- talking on the phone
- driving a car
- seeing cigarettes or someone smoking
- being with an old smoking buddy
- having a fight with family
- feeling bored
- celebrating
- when you have a job done
- eating
- drinking coffee

As you can see, a lot of different things can cause habit urges. If you have a strong urge months after quitting, it is maybe because you are in a situation that you had not been in since quitting. After you get through that situation without smoking, the urges will get easier, until they go away. This process is clear from the following story told by one of our clients:

*Bill had his last cigarette over two months ago. He and his family were planning on eating out at Bill’s favorite diner. The diner used to be a hang-out for Bill and his buddies. The diner just went “no smoking,” and it was Bill’s first time there since he had quit smoking. During the hour-long dinner, Bill had a strong craving for cigarettes. He told himself that he did not want to start smoking again, and he made it through the meal without having a cigarette. It seemed like the longest hour of his life. However, on his next visit to the diner, Bill was very surprised to find that he wasn’t bothered by smoking urges at all!*

In Bill's case, being at his favorite diner was a trigger for him. He had strong urges the first time he visited the diner after quitting. But because he didn't give in to the urges, the next time he ate there he didn't have any problem with urges. In most cases urges don't completely go away after only one time with a trigger situation. But after many times, the urges will go away.

The other type of trigger that can cause strong urges long after quitting is STRESS. Most smokers deal with stress by having a cigarette. So, after you quit smoking, it is common to want a cigarette when you’re feeling stressed. But, there are ways to handle stress in your life that will be discussed in the next booklet.
Appendix N (Continued)

2. Memories of Smoking

You have probably lived much of your life as a smoker. If you smoked a pack per day, you took 70,000 puffs on cigarettes each year. There are few things that you've done as many times, besides breathing. Therefore, you will have memories of smoking. You may see someone smoking and recall that you used to do that. Other things may trigger memories of when you were a smoker—an old song, a certain food, old friends, etc. Sometimes there is an urge when a smoking memory occurs. People who quit smoking many years ago often say that they still have urges to smoke. They are mostly talking about memories they have from when they were smokers.

"Risky" Situations for Smokers

There are some situations that are likely to cause urges to smoke when you quit as well as after you quit. We know this because we have asked hundreds of ex-smokers who went back to smoking, "What happened when you started smoking again?" Smokers need to be aware of these risky situations. Think about these situations ahead of time. Be aware that you may have urges to smoke. What are some of these risky situations.

1. Habit Situations (Triggers): These are places and times that usually smoke. They are very much related to smoking, so they tend to cause urges to smoke. Within a few weeks after quitting you will have had many of these situations enough times without smoking to get rid of most of these urges. For example, drinking coffee, after a meal, talking on the phone, driving your car, and seeing other people smoke should get easier. However, every once in a while, these places or times may still cause an urge.

More risky, are those situations that you do not have very often, but that are closely tied to smoking. For example, you may have a smoking friend or relative with whom you used to smoke, but whom you have not seen since quitting. The first time you see this person—even if it is many months after quitting—you may have a strong urge to smoke. If you always smoked at baseball games, but you quit during football season, you may have urges when Spring comes around and you find yourself at a game.

As you have these situations without smoking the urges will get less and go away.

2. Stress and Negative Moods: Negative moods can cause urges to smoke. Most ex-smokers who went back to smoking did so because of stress and negative mood. Among the common moods are depression (feeling sad), anxiety (feeling tense or nervous), anger, and boredom.
You may have learned to deal with stress by smoking. So, when you have stress after you quit, you may want a cigarette.

What kind of stress causes urges? During the first few weeks of quitting, even small stresses can lead to urges. As time goes on, it tends to take larger and larger stressful things to cause relapse problems. Some examples of stresses that have led to relapse are:

- getting a traffic ticket
- fight with spouse
- bad day at work
- problem with the children
- getting fired
- breakup of marriage
- a serious injury
- death of a loved one

Of course, some of these situations are quite serious. When they happen, you will have other things to think about besides not having cigarettes.

You will want to smoke because you will remember how cigarettes helped you deal with stress in the past. And besides, starting smoking again will seem like a small problem compared to the present situation. **The urge to smoke may be very strong!**

But, within a few days of the problem, things will look different. If you smoked, you will begin to see that starting smoking did not really help you. In fact, it only gave you one more problem and one more reason to feel bad.

One ex-smoker told us about the time after the death of his wife:

"I thought that if I smoked, not only would I be a widower, but I would be a widower who smoked. My wife's death would be a double tragedy then. Besides, my relapse would not be a fitting memorial to my wife. She would not have wanted her last act on earth to be making me start smoking again."

3. **Positive Moods and Celebration:** Besides negative moods, very positive moods can also lead to problems. In the past how did you react toward good news? Did you smoke? Good times can cause urges to smoke once you quit. One quarter (25%) of relapsing smokers told us that they started smoking again when they were feeling happy or relaxed. Events like parties can be very risky because there may be other smokers around. Also if a person drinks alcohol, he/she may feel so good that he/she does not want to fight urges to smoke.
Appendix N (Continued)

3. **Alcohol**: Nearly half of the smokers who relapsed told us that they had been drinking alcohol during or right before relapsing. Why is alcohol so risky? There are a number of reasons: (1) habit—they are used to smoking while drinking alcohol; (2) after a few drinks it is harder to resist urges to smoke; (3) cigarettes are often found at the places where people drink (bars, parties).

**You probably should avoid these risky situations during your first week or two of quitting.** After that point the only way that the urges will go away is if you do have the situations. Our advice is that you prepare for risks as well as you can. Think about how you would deal with these situations. Know that you may have strong urges in certain situations (such as going to a bar). Plan ahead for risky situations.

More details about dealing with urges are coming up in the next section.

**How to Deal with Urges to Smoke**

*There are three keys to deal with smoking urges without smoking. They are: (1) Think ahead, (2) Prepare, and 3) Cope.*

**Think Ahead and Plan for the Urge**

Most smokers know the types of situations that are hard for them. If you can plan ahead for these, you will be able to prepare for them. For example, before going to a wedding, you can tell yourself that the reception may cause urges to smoke. Or, if you have a stressful event coming up—a day in court, perhaps—you can tell yourself that you may crave a cigarette. If you used to smoke at weekend events, and the first weekend since you quit smoking is next week, you can think ahead that you might want to smoke.

**Prepare For the Urge**

Thinking ahead is only part of the solution. You also need to prepare for it. Think about what you will do if you do indeed have urges when the situation arrives. Will you be able to leave the situation? Can you have some candy to suck on, or a carrot stick to chew until the urge passes? What can you tell yourself in the situation that will help you get through it? If you think of these things ahead, you will be more likely to use them when the time comes.
Appendix N (Continued)

Cope With the Urge

This is the real key. Coping skills are the things that you do or tell yourself in order to get your mind off cigarettes. Research shows that people who use coping skills are much more likely to stay quit than people who don't. People who rely on "willpower" tend to start smoking again.

There are two types of coping skills that you can use: behavioral and mental.

**Behavioral coping skills** are things that you can do--actions that you take. Here is a list:
- Leave the situation.
- Call or talk to a friend who will help.
- Exercise.
- Take deep breaths.
- Have a drink of water.
- Eat or chew on something (gum, candy, vegetables)
- Do a relaxation exercise.
- Keep your hands busy--play cards, sew, write.
- Take a shower.
- Do something with a nonsmoker.
- Do something else, like read, write, listen to music, or watch TV.

**Mental coping skills** are things that you can tell yourself. Here is a list:
- Remind yourself of the reasons you wanted to quit.
- Think of how long you've been cigarette free. You don't want to start over again.
- Think of how you got through this situation in the past without smoking.
- Try to figure out what is making you want a cigarette right now.
- Tell yourself that smoking will not solve any problems. It will only create new ones.
- Think of how your health is improving because you quit smoking.
- Tell yourself that smoking is not an option.

That last mental coping skill is the all-time favorite of our smoking clients. They say that telling themselves, **"Smoking is not an option,"** is simple and works well for them. Anything else may be an option, but not smoking!

You may like some of these coping skills better than others. That's OK. It really doesn't matter which skills you use, as long as you do something when you have an urge to smoke. Some research shows that it is best to use both behavioral and mental coping skills when you have an urge.

**Decide on two or three and use them as soon as you have an urge to smoke.**
When Will the Urges End?

Nicotine withdrawal urges last only one or two weeks if you don't smoke. Habit urges slowly go away as you have different situations without smoking. However, new situations or a lot of stress can still trigger urges. Most people who have quit for a year or more rarely have habit urges. You may always have memories of smoking. Some of these will be pleasant memories, but most ex-smokers do not feel strong urges to smoke while having these memories.

Exercises

1. Try to think ahead about the triggers that might cause you to have urges to smoke. How many can you list? Write down what might cause you to have an urge to smoke.

   |   |
|---|---|
| 1. |   |
| 2. |   |
| 3. |   |
| 4. |   |

2. List 5 behavioral coping skills. These are things that you can do when you have an urge to smoke.

   |   |
|---|---|
| 1. |   |
| 2. |   |
| 3. |   |
| 4. |   |
| 5. |   |
Appendix N (Continued)

3. Now list 5 **mental coping skills.** These are things that you can tell yourself when you have an urge to smoke.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
</tr>
</tbody>
</table>

It is a good idea to read these lists often. Add items or make changes. It will help keep you ready to fight urges to smoke.

If you are thinking about quitting smoking…here are some tips that may help:

Go back and read about how to cope with urges to smoke (P. 9).
Pick a quit date in the near future. Stick to it. Get rid of all cigarettes the night before and enlist the support of others.

Increase your chances of success; talk to your doctor. Think about using one of the 5 FDA approved products, which are (1) the nicotine patch (2) nicotine gum (3) Zyban® (4) nicotine inhaler and (5) nicotine nasal spray.

Make quitting smoking your number one goal.

Remember, if you've quit before, you can quit again. Do not feel bad about it.

You now know more than you did last time. Use that knowledge to quit again. Stay quit.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits of Quitting</td>
<td>116</td>
</tr>
<tr>
<td>Quitting Smoking Helps Others, Too</td>
<td>117</td>
</tr>
<tr>
<td>How is Stress Related to Smoking?</td>
<td>118</td>
</tr>
<tr>
<td>So, Why Not Smoke When Stressed?</td>
<td>118</td>
</tr>
<tr>
<td>Better Ways to Deal with Stress and Bad Moods</td>
<td>119</td>
</tr>
<tr>
<td>A Nonsmoking Life</td>
<td>121</td>
</tr>
<tr>
<td>Who Gains Weight?</td>
<td>122</td>
</tr>
<tr>
<td>Why Do Ex-Smokers Gain Weight?</td>
<td>123</td>
</tr>
<tr>
<td>Weight Control After Quitting</td>
<td>124</td>
</tr>
<tr>
<td>What If You Do Smoke?</td>
<td>125</td>
</tr>
<tr>
<td>Can’t I Have Just One Cigarette?</td>
<td>126</td>
</tr>
<tr>
<td>Keeping a Slip From Turning into Full Relapse</td>
<td>127</td>
</tr>
<tr>
<td>How is Stress Related to Relapse?</td>
<td>128</td>
</tr>
<tr>
<td>The Most Important Messages</td>
<td>128</td>
</tr>
<tr>
<td>How Can This Information Help You Stay Quit?</td>
<td>129</td>
</tr>
</tbody>
</table>
Appendix O (Continued)

This is the second booklet in the Lights Out series. This booklet discusses life without cigarettes and how to keep it that way!! It also reviews some of the key points from the first booklet.

Quitting smoking is the one most important thing you can do for your health. You should be very proud of yourself for requesting smoking cessation information! There are a number of things that you should keep in mind as you strive toward your goal to live a smoke-free life. We hope that this information will help motivate you to quit and live a healthy smoke-free life. But first of all, we want to congratulate you!! By now we hope you see how important this first step you have taken towards life without cigarettes is for you and for those around you.

Benefits of Quitting

Some smokers tend to forget their reasons for wanting to quit.

Think of all of the benefits you will have from not smoking. We'll even start you off with a few:

1. You will have done a great thing by quitting. You will join many others in living a healthier life! Smoking in the United States is at an all time low!
2. You will have reduced your chances of getting a smoking-related illness. One year after quitting, your extra risk of heart disease has been cut in half, and five years after quitting, your risk of dying from lung cancer has been cut in half. You will be adding years to your life—and healthier years at that.
3. You will save money. Take a look at the chart below and circle how much you have spent on cigarettes at $3.00 a pack (or how much you can save by not smoking).

<table>
<thead>
<tr>
<th>Years Quit</th>
<th>1 Pack Per day</th>
<th>2 Packs Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$1,095</td>
<td>$2,190</td>
</tr>
<tr>
<td>2</td>
<td>$2,190</td>
<td>$4,380</td>
</tr>
<tr>
<td>3</td>
<td>$3,285</td>
<td>$6,570</td>
</tr>
<tr>
<td>5</td>
<td>$5,475</td>
<td>$10,950</td>
</tr>
<tr>
<td>10</td>
<td>$10,950</td>
<td>$21,900</td>
</tr>
</tbody>
</table>

Total Amount Saved on the Cost of Cigarettes (Based on $3.00/pack)
Appendix O (Continued)

Take a minute to write down some other benefits of quitting!

4. ______________________
5. _______________________
6. ______________________
7. ______________________

And now remind yourself of some of your reasons for wanting to quit:

1. _____________________
2. _____________________
3. _____________________
4. _____________________

As you can see, you have some good reasons for quitting!

Ivette quit smoking 3 years ago. Her original reasons for quitting were the high cost of smoking and health concerns. She had had two miscarriages. At the time, most of her friends were still smoking, and smoking was allowed at work and at most places she went. Since that time, most of Ivette's friends have quit, and smoking is not allowed at most public places. Now she is even more glad that she quit smoking. With more information being reported about the harmful effects of smoking, Ivette is even more sure about being a nonsmoker. She never thought of herself as an addict, but she sees now that she was. Smoking was more than just a bad habit. Ivette feels good about giving up this negative addiction. She has even developed a few “positive” or “good addictions." She has taken up walking and has a new interest in dancing. She has more energy from not smoking. She recently found out she is pregnant, another reason she is glad she quit. She and her husband are very happy.

Quitting Smoking Helps Others, Too

Quitting smoking will not only improve your health—it will also improve the health of the people around you. People who live or work around smokers take in all the same substances in tobacco smoke. In fact, nonsmokers who spend time around smokers may "smoke" one or two cigarettes per day. This puts nonsmokers at risk of the same diseases mentioned earlier, such as cancer and heart disease. For example, it is estimated that
Appendix O (Continued)

3,000 American nonsmokers die each year of lung cancer caused by breathing second-hand smoke.

Second-hand smoke is very bad for babies and young children. Babies, they are more likely to die of SIDS (Sudden Infant Death Syndrome) if their parents smoke. Infants and children whose parents smoke are more likely to have asthma, chronic bronchitis, and allergy symptoms than children of nonsmokers. They are also more likely to get pneumonia, middle ear infections, sore throats, and colds.

By quitting smoking you will help to improve the lives and health of your family, your friends, your co-workers, and others. Is there really any better gift that you could give them? Probably not.

**How is Stress Related to Smoking?**

People who have a lot of stress tend to have a harder time quitting smoking. We also know that when ex-smokers start smoking again, they often have their first cigarette in response to stress or moods.

Why is this? When you are stressed or frustrated, what do you do? When you are feeling blue or bored, what do you do? When you are nervous, what do you do? Chances are that you smoke. Most smokers learn to use cigarettes as a way to deal with stress.

**Why do smokers deal with stress by smoking?** The answer to this question is not really known. However, we have some good ideas. Nicotine causes the brain to release chemicals, called neurotransmitters. Some of these chemicals, such as beta-endorphin and norepinephrine, can cause a person to feel better, but only for a short time. They can improve your mood for a while. So smoking can serve as a quick "pick-me-up." Indeed, nicotine is a stimulant, which is why a smoker's pulse gets faster after a cigarette.

Aside from this chemical reason that smoking might seem to help someone who is under stress; there are also other reasons. Smokers often use the act of lighting and smoking a cigarette as a "time out" from thinking about or dealing with stress. Like any activity, smoking can distract a person from his/her troubles. Because smoking is often a social activity, some people find that lighting a cigarette brings to mind feelings of group support. Last, an addicted smoker will feel better after smoking because it relieves nicotine withdrawal symptoms.

**So, Why Not Smoke When Stressed?**

There are many problems with using cigarettes as a way to cope with stress or other unpleasant feelings:
Appendix O (Continued)

- The relief only lasts a short time. Soon your stress will return and you will need to smoke another cigarette.

- Smoking doesn't solve your problem; it only hides it. The cause of your problem remains.

- Smoking is not a healthy way to deal with stress. The stress probably won't kill you, but the smoking may.

- After you quit smoking; you may have trouble dealing with stress and bad moods. If smoking was your main way of coping with stress, you will need to find new and better ways after you quit.

**Better Ways to Deal with Stress and Bad Moods**

Most people, of course, are able to deal with stress and bad moods without smoking or using other drugs or alcohol. How do they do it?

1. **Deal with the Problem**—Smokers use cigarettes as a way to avoid dealing with a problem. Yet, it does not solve the problem that is causing the stress. One good way to cope with life's challenges is to try to deal directly with the problem facing you. Look at the source of the problem. Think about ways to solve it, and then act.

   Tiffany had quit smoking 6 months earlier. Today, on the way to work, her car skidded and ran into a guardrail. There was a lot of damage to her car's front end. That day, Tiffany felt very stressed and anxious. She was worried that she would not be able to afford to have the car fixed, and that she would have no way to get to work. She thought about having a cigarette, which is how she used to calm herself down. Instead, she decided to try to find solutions to her problems.

   First, she found a co-worker who would be able to give her a ride to work while her car was being fixed. One problem solved. Next, she called her insurance company and found out that they would cover the repairs, except for a $500 deductible. She didn't have $500 at hand, so she had to figure out how to get it. She decided to borrow some money from her parents, hold a garage sale that she had been planning for years, and to delay buying some new clothes. This was not an ideal answer, but it did allow her to repair her car and get back to work. She solved the problem without smoking!

2. **Do Other Activities** There are other things besides smoking that can reduce stress. These include reading, exercise, relaxation, deep breathing, prayer, meditation, and taking a walk. All of these can take your mind off of a stressful situation. They can also improve your mood. —
Larry was one of those smokers who lit a cigarette when his mood was not good. When something the least bit stressful happened, he would reach right away for a cigarette. After he quit, he had urges to smoke when he felt stressed or down. He quickly found out that he needed to come up with something that helped him feel the way he did when he smoked. He came up with the idea of doing deep breathing exercises. Deep breathing was like smoking, and it also let his body relax. When he felt tense, this is what he would do. He would close his mouth, relax his shoulders, and inhale deeply while counting to eight. Then he would hold his breath for four seconds. Next he would exhale slowly while counting to eight. Larry found that if he repeated these steps five times he would feel a relief of stress and tension. It worked at least as well as smoking used to.

3. Talk to Someone—One of the best ways to deal with stress is to talk to someone. Most of us do this, by talking to friends, family, or co-workers.

Whenever Janice felt stressed, she would call her best friend, Alice, and they would talk about her problem. Sometimes they were able to come up with good answers to the problem. But, even when they couldn't solve it, just talking about it helped Janice.

Other people like to join a support group. Often the people in a support group have the same types of problems, and they can help each other.

Some people may benefit from seeing a health professional such as a psychologist, psychiatrist, or social worker.

4. Accept Temporary Stress—A certain amount of stress is a part of life. Success at quitting smoking may mean simply getting used to what stress feels like without smoking. Feelings of stress will pass on their own even if you don’t have a cigarette.

5. Look at Your Life—Another way is to change your lifestyle to reduce the amount of stress. Is your life more stressful than it has to be? Clearly, there are some stresses that people may have little control over. But, ask yourself if there are ways to reduce the stress in your life. Ask yourself if there are ways to get more good things from life. Surely there must be; try to eliminate all unnecessary hassles from your daily events. Here is an example from one of our clients:

After Steve quit smoking, he figured that it was a good time to take a look at the rest of his life. He was so proud of himself for quitting that he now felt that he could make other decisions that might improve his life. The main conclusion that he reached was that he was not spending the time with his family that he would like. He felt that he was missing much of his children's childhood years. He realized that he had become a "workaholic" in his effort to succeed.
His job required long, stressful hours. During the little time he spent at home he was too tired to have fun with his family. But he decided to change. He looked for other jobs that would needed less hours. After a couple of months he found a job that needed only 40 hours per week. He quit his current job to take the new one. This let him spend time after work and on weekends with his family. He found that he was much happier than before, and felt a lot less stressed.

A Nonsmoking Life

In the first booklet, we asked you to think about risky situations that may lead to strong urges to smoke. Also you should think about using mental coping skills if and when you do have those urges. Quitting is easier if smokers make changes to their lives. A question that you might want to ask yourself is:

Do I have enough pleasure or fun in my life? We can look at what we do in our life in two ways:

1. **Wants** - Things we **enjoy** doing.

2. **Shoulds** - Things we feel we **have** to do.

As time goes by, we tend to look more on the "shoulds" in our lives, and forget about the "wants." One young ex-smoker wanted to "get back to singing, but smoking had made her voice change." Think about your "wants" and "shoulds." Are there things that you enjoy but haven't been doing? These may be hobbies, social/family events, sports, reading, and so on. Smoking may have given you some pleasure (at a very high price). Now that you are thinking about quitting, try to bring your "wants" and "shoulds" back into balance by finding other (healthier) sources of pleasure.
List three pleasure or fun activities that you want to do more often:

1. __________________________
2. __________________________
3. __________________________

The next section talks about how smoking and weight are related, the reasons that people often gain weight after quitting smoking, and what can be done to control weight after quitting. This section may be of interest even to people who are not worried about their weight. Exercise and diet are important for everyone who wants to live a healthy lifestyle.

**Are you concerned about gaining weight as an ex-smoker? You are not alone.**

Four out of every five people who stop smoking gain some weight. While the health benefits of quitting far exceed the problems of gaining weight, many people do not like putting on a few extra pounds.

However, six months after quitting, most people have lost at least some of the weight that they gained. It is important to know that you can quit smoking and control your weight. It may take some time and effort, but it can be done!

**Who Gains Weight?**

The average person who quits smoking gains between 4 and 10 pounds. It turns out that the average smoker weighs 4-10 pounds less than the average nonsmoker—even if they have the same levels of exercise and food intake. Thus, it seems that the weight gained by quitting smoking brings most ex-smokers up to what they would weigh if they had never smoked. Please note that these numbers are only averages. You may be above average or below average. Half the people who quit smoking gain less than the average 4-10 pounds. And, about one out of ten ex-smokers gain as much as 25-30 pounds.

This weight gain is small compared to the health benefits of quitting. Smoking does much more harm to your health and to your looks than does the added weight. The stress on your heart of smoking one pack of cigarettes per day is equal to being 90 pounds overweight!

Also, think about how much better you will be as a nonsmoker, even if you weigh a few pounds more. Your skin is healthier, your teeth whiter. You do not smell of smoke. And you are much healthier!
Why Do Ex-smokers Gain Weight?

Metabolism

The nicotine in cigarettes raises the “metabolic rate” of smokers, which increases the amount of calories used. But it is a very unhealthy way to burn calories. After smoking a cigarette your “metabolism” increases right away. Your heart may beat 10-20 more times per minute after you have a cigarette. (This adds to the high rate of heart disease in smokers.)

When you quit smoking, your metabolic rate slows down to a healthy level. It may even slow down an extra amount before going back to normal. It can take a few weeks or even months for your metabolism to rise back to a normal level. Meanwhile, this slower rate burns fewer calories, leading to weight gain.

There are more healthy ways to increase metabolism, rather than smoking. Exercise is the best way, and it will be discussed later in this book.

Changes in Eating Habits

Another reason you might gain weight after quitting is because of changes in your diet. It is normal for your appetite to increase after quitting smoking. Studies show that people who quit smoking increase their food intake. Increased appetite is a common withdrawal symptom after quitting. It tends to last somewhat longer than other symptoms.

When you quit smoking, your senses of taste and smell improve and return to normal. This may also increase your appetite. Also, studies show that alcohol use often increases after people quit smoking. Alcohol is very high in calories, so increased drinking may cause weight gain.

Oral Gratification (or Feeling the Need to Have Something in Your Mouth)

Another reason that people gain weight after quitting is because they miss the feeling of having something to do with their mouth and hands. Eating or snacking is like the action of smoking. The need to have something in your mouth goes away over time. Keep your hands and/or mouth busy with objects, such as toothpicks or straws. Or you can chew on foods such as carrots, celery, or even sugar free mints.
Appendix O (Continued)

Other Reasons for Eating

Research has shown that people tend to use food in the same ways they used cigarettes. They use them to deal with stress or boredom, to reward oneself, to pass time, or to be social.

Susan had been without cigarettes for 3 months. During that time she had gained 16 pounds. Others barely noticed the extra pounds. When Susan's son got engaged, she decided that she must lose the weight before the wedding--she wanted to look good. Three months before the wedding, Susan began smoking again in order to lose the weight. She told everyone that she would quit again after the wedding. By smoking, Susan was able to lose the weight she had gained after quitting. She did, however, miss her son's first dance at the reception because she was outside smoking a cigarette. Her son later told her that he would have much preferred if she had stayed quit rather than worry about a few pounds of weight. He said that he was embarrassed that everyone at the wedding saw that his mother was a smoker.

Susan's story has many lessons in it:

• Often the only one who notices the weight gain after quitting is the ex-smoker.
• Smoking can lead to weight loss, but it is a very unhealthy way to lose weight. Cutting off your arm or removing your liver will also reduce your weight, but you wouldn't consider doing those things. Smoking is a harmful way to lose weight.
• Smoking is no longer sexy. In today's world, smoking is seen as less attractive than being overweight.
• Although Susan said that she would quit again after the wedding, it is likely that other things will come up when she will feel she must lose weight. As long as her weight is more important to her than is her health, Susan will have a hard time staying off cigarettes. This is why quitting smoking—and staying quit—needs to be your goal.

Weight Control after Quitting

As stated before, weight gain after quitting is likely but not a sure thing. About 80% of people who quit smoking gain weight at first and most lose weight over time with no special action. But there are things that can be done to reduce the chances of gaining weight after quitting.

1. Eating Right—One way to reduce caloric intake is to change your eating habits. For example, perhaps you are used to having a cigarette after a meal, and once you quit you start eating more. You may want to leave the table right after your meal and find something else to do, like
Appendix O (Continued)

reading or walking. You may also want to write down what you eat each day for a week in a Diet Diary. This might help you see where you are eating more than you should. Eating, like smoking, is something we that we do sometimes without noticing how much we do it. We often do not realize how all the snacking between meals adds up until we see it on paper. Do this for a week and see where you can make changes.

Some people eat to deal with stress. If this is the case, you may want to find other ways to deal with these feelings. Try relaxing or deep breathing exercises. Choose snacks that are low in fat and calories. Many tasty products are now on the market, like low salt pretzels.

2. Exercise
Exercise after quitting smoking is good for many reasons:
1) Exercise burns calories
2) Exercise depresses appetite and makes you want to eat less
3) Exercise helps you not want a cigarette
4) Exercise helps you deal with stress

You may want to set aside time to exercise and/or fit exercise into your normal day. Planned exercises such as going for a walk after dinner, joining a dance class or gym, or sports are great ways to improve your health. Take the dog for a walk, or take the stairs rather than the elevator, or play basketball with the guys. Just think of all of the money you can save by not smoking (over $1000 per year for most ex-smokers). Perhaps this money could go towards something special.

Jim quit smoking 4 months ago and he has gained 8 pounds. He has started to cut down on snacking between meals. He knows that if he increases his exercise it will be easier for him to not gain any more weight and even lose weight. One thing Jim loves to do is golf. Jim decided that with the money he is saving from not buying cigarettes he would golf once a week. Jim also decided that he would begin taking his dog for a walk three times a week.

Jim has found FUN ways to increase his exercise and caloric use.

1. Think about the types of exercise that you like to do.

2. Think about how you can make exercise a part of your day. Think about things that might get in the way of regular exercise, such as time or money, and how you can overcome that.

3. Think about the benefits of exercise.

But remember it is very important to talk to your doctor before making any major changes in diet or exercise.
Appendix O (Continued)

What If You Do Smoke?

As an ex-smoker, your goal should be to never have a cigarette. Many smokers fail because they tell themselves that they "can have just one." You must tell yourself that you cannot have "just one." This is even more true of cigarettes than it is of alcohol for alcoholics! Remember how addicting nicotine is. Research has shown that if you have even one cigarette after quitting, there is a 90% chance that you will return to regular smoking! It might not happen right away. It may take a few weeks, but one cigarette almost always leads to another, and another... So, you should do whatever it takes to avoid having any cigarettes. This is very important.

But, what if you do end up having a cigarette? What happens then? Some people are afraid to read this part because they fear that it will make them think that they can have a cigarette and then get better. But remember, if you do smoke, the odds are against you. We added this section to give you a fighting chance against those odds.

Think of it like preparing for a fire. If you have children, you may have taken the time to talk to them about what to do in case of fire. They should know how to get out. They should feel doors for heat before opening them. They should roll on the ground if their clothes catch on fire, etc. However, they also should know that a fire is very serious. Just because they now know how get ready for a fire doesn't mean that it is OK to play with matches. They still need to prevent fires at all costs.

The same is true for smoking. Avoid it at all costs, but know what to do just in case.

Two things tend to happen when people have a cigarette after quitting. First, they think that all is lost and, therefore, that there is no point in trying any longer. It is like the dieter who has that first piece of cake: "I've blown my diet, so I may as well finish the cake." Thinking like that only gets you into more trouble. An entire cake is worse than one slice, and a pack of cigarettes is worse than one puff.

The second thing that happens after a cigarette is that smokers tend to feel guilty and depressed. They tend to "beat themselves up." This makes them feel worse. And remember that one of the big risk factors is negative mood, which may cause an urge to smoke.

Can't I Have Just One Cigarette?

The answer to this question is "NO!!" Sometimes ex-smokers try to tell themselves that they will be able to smoke only one cigarette without a problem. There are times when it
Appendix O (Continued)

can be very tempting to think of smoking "just one." For example: when you are under a lot of stress, when you are having a strong urge, when you are with smokers, or when you are in any high-risk situation.

Therefore, you must do everything you can to avoid having that first cigarette. When you are tempted to smoke, remember to use the behavioral and mental coping skills that are listed in Booklet 1.

Keeping a Slip from Turning into Full Relapse

You will be a lot better off if you see your isolated slip as a way to learn about yourself. What do you think led up to your urge for the first cigarette? In other words, what was the high-risk situation? What coping skills should you use next time you have a strong urge to smoke? Look back in Booklet 1 for ideas.

Just in case, you might want to be careful during events that used to involve smoking, even if they have occurred less often since quitting. If you have urges or thoughts of smoking, tell yourself that the event is causing the urge. Each time you have that event without smoking, you greatly reduce the chance of having an urge in the future.

Some less-frequent events linked with smoking might be:

- vacations
- weddings
- holidays or family parties

In summary: What should you do if you find yourself smoking a cigarette?

1. Put it out right away. Get rid of any cigarettes.
2. Think of that cigarette as a "slip" instead of a "relapse." It doesn't have to mean that all is lost.
3. Make that cigarette your last. Do not put off quitting again until tomorrow, next week, or next year. The sooner you try to quit again, the easier it will be because your body will not yet have gotten used to nicotine.
4. Do not "beat yourself up" even though you may feel bad.
5. Learn from the slip. Ask yourself what led up to your smoking. You now know that this is a high-risk situation. You will need to get prepared for it in the future.
6. Use your coping skills to deal with urges to smoke.

We know you don't plan to fail...
...So please don't fail to plan!
How is Stress Related to Relapse?

Stressful events are also risk factors for relapse after a period of quitting. Very stressful events might include:
- death of a loved one
- losing your job
- being apart from a loved one
- money problems

Even though smoking may have seemed small compared to the stress or sadness you are feeling at the time, you will be glad later on if you don't smoke. Don't turn one tragedy into two tragedies!

The Most Important Messages

You should be proud for thinking about quitting smoking and taking a step toward a better and longer life. Once again, congratulations!

We ask that you save this copy of Lights Out and read it many times during the process of quitting. People often forget the important points. To help you remember, here is a list of some of the most important Lights Out messages.

1. Remember the situations that are risky for you. Be prepared for them. They may be:
   - Habit situations (places or times you usually smoke)
   - Stress and negative moods.
   - Positive moods and celebrations.
   - Alcohol.

2. When having a strong urge to smoke, use coping skills to get your mind off smoking. These include asking yourself “What can I do or what can I say when I have an urge to smoke?”

3. Do not fool yourself into thinking, "I can have just one cigarette." Avoid smoking at all costs.

4. Make that cigarette your last. Avoid having any other cigarettes.
Appendix O (Continued)

**How Can This Information Help You Stay Quit?**

Quitting smoking is probably the most important thing you can do to improve your health. For most people, quitting smoking is more important than losing weight, exercising more, or lowering cholesterol level. All of these would be healthy changes. But quitting smoking improves your health more than any of these other changes.

So give yourself a big pat on the back for thinking about making such an important and hard change.

Smokers often tend to forget that quitting smoking is a “big deal.” Don't forget it. Be proud. Not only will quitting help you, but it will also help your children, your spouse or partner, or other people who spend time with you.

Sometimes smokers forget the reasons why they should quit smoking. Perhaps this information helped to remind you. The diseases caused by smoking are disabling, painful, and often deadly. By quitting, you will greatly reduce the odds of getting these illnesses. You will increase your life by many years. And you will increase the quality of your life.

Once again, congratulations for taking a step towards quitting smoking!

---

**If you are thinking about quitting smoking…here are some tips that may help:**

1. Go back and read *Lights Out* booklets 1 and 2 about how to cope with urges to smoke.

2. Pick a new quit date in the near future. Stick to it. If you have ever quit smoking, the sooner you quit again, the easier it will be.

3. Increase your chances of success; talk to your doctor. Think about using one of the 5 FDA approved products, which are (1) the nicotine patch (2) nicotine gum (3) Zyban® (4) nicotine inhaler and (5) nicotine nasal spray.

4. Make quitting smoking your number one goal.

5. Remember, if you've quit before, you can quit again. Do not feel bad about it. You now know more than you did last time. Use that knowledge to quit again.
Appendix O (Continued)

We wish you success in your goal of living a healthy life. We hope you will take advantage of the great benefits of life without cigarettes. And congratulations once again!
About the Author

Monica S. Webb received her Bachelor’s degree in Psychology from the University of Miami in May of 1999. She entered the clinical psychology graduate program at the University of South Florida in the fall of 1999. She earned her Master’s degree in Clinical Psychology in the fall of 2002. She completed her Ph.D. in June 2005, following a clinical internship at the University of Florida Health Sciences Center.

While in graduate school, Ms. Webb developed a specialty in health psychology and conducted research in an addictions laboratory. She is interested in the psychological management of chronic medical conditions, particularly those affected by tobacco smoking. She is also interested in minority health and health disparities. She has conducted or participated in research related to tobacco use, cessation, and relapse prevention. She has presented research findings at national conferences and coauthored several peer reviewed journal articles. Ms. Webb anticipates beginning her career as an Assistant Professor in the Clinical Psychology Doctoral Program at Syracuse University.