Capitalizing on the Teachable Moment:
Improving Self-Help Smoking Cessation Interventions

By
Laura Jane Fish

A dissertation submitted to the faculty of the University of North Carolina at Chapel Hill in
partial fulfillment of the requirements for the degree of Doctor of Philosophy in the
Department of Health Behavior and Health Education, School of Public Health.

Chapel Hill
2006

Approved by:

Advisor: Dr. Brenda M. DeVellis

Reader: Dr. Lori A. Bastian

Reader: Dr. Robert F. DeVellis

Reader: Dr. Megan A. Lewis

Reader: Dr. Celette Sugg Skinner

Abstract

Laura Jane Fish. Capitalizing on the Teachable Moment: Improving Self-Help
Smoking Cessation Interventions
(Under the direction of Brenda M. DeVellis, PhD)

The Teachable Moment (TM) model suggests that there are certain times when an
individual is especially ready to change behavior and thus, especially open to receiving
messages about behavior change. According to the TM model, experiences that jointly 1)
increase risk perceptions, 2) prompt concordant emotional responses, and 3) impact self-
concept may offer a powerful motivational context for promoting behavior change. Further,
tailoring smoking cessation interventions on TM components may increase the salience of
health messages.

The TM model was used to examine desire to quit smoking among family members
of lung cancer patients. Further, the relationship between desire to quit and engagement with
and reactions to self-help smoking cessation materials was examined. Participants were
family members of lung cancer patients recruited for a randomized controlled trial testing a
counseling intervention for smoking cessation.

Study results indicate that components of the TM model were related to desire to quit
in family members of lung cancer patients. Specifically, increased perceived risk, negative
self image, and high subjective norm for quitting were related to high desire to quit. Non-
whites were more likely to have a high desire to quit than whites. There was a significant

interaction between worry and gender, such that women with low worry were less likely to have a high desire to quit than were men and women with high worry.

Findings on engagement with and reactions to materials were mixed. Engagement with materials was not related to baseline desire to quit, but was related to positive reactions to the materials. Those with a higher desire to quit were more likely to report that the information in the tailored booklet applied to them, and was new to them, interesting, trustworthy, and moving. Finally, family members with a higher desire to quit were more likely to say that the information in the booklet make them want to quit smoking.

Evidence from this initial study indicates that the TM model provides a strong conceptual framework for 1) identifying specific determinants of desire to quit among family members of lung cancer patients; and 2) developing effective tailored self-help materials for this population.

To Jim, Isabel and Max

Acknowledgements

I am fortunate to have had the support of many people in the completion of this dissertation. I want to thank Brenda DeVellis, my committee chair, for 10 years of unwavering support and guidance. Lori Bastian, thank you for your friendship, first-rate mentoring, and your enthusiasm. I am sure that I could not have completed this without your help and support. Celette Skinner, thank you for your knowledge and experience with health behavior interventions, hand holding and keen editing skills. Thank you to Bob DeVellis and Megan Lewis for your incredibly thoughtful contributions.

Colleen McBride developed the concept of the Teachable Moment and originally conceived The Family Ties project, the grant that produced the data for this dissertation. Thank you for your remarkable creativity, keen intellect, and constant support.

Thank you to the Family Ties project team, Stephanie Molner, Pauline Lyna, Xiaomei Gao, Luis Ballon, Jennifer Terry, and Bridget Penaskovic for your work and support. Special thanks to Pauline Lyna for her help with data analysis and for her kindness. I would also like to thank the patients and family members who participated in the Family Ties study.

Thank you to my original dissertation support group Jean Breny-Bontempi, Kari Hartwig, Claudia Gras, and Ellen Lopez. It was a privilege to work with each you.

Thank you to my friends and colleagues especially Laura Lauffer, Rebecca Brouwer, Donna McCarraher, and Kath Pollak. Special thanks to Jessica Revels who helped me decide that I actually did want to finish and helped me figure out how go about doing it.

Thank you to my family, Debbie, Mary, Jim, and Joan. I have been blessed with a wonderful sister and the most supportive in-laws and for that I am extremely grateful.

Finally, thank you to my husband Jim for being supportive when I started the doctoral program, when I decided not to finish, and when I changed my mind. Thank you to my children, Isabel and Max, who are always there to remind me what is most important. Everything I do begins and ends with the three of you.

Table of Contents

List of Figures and Tables

Chapter 1 - Introduction

The goal of health behavior intervention research is to design the most effective intervention and deliver it in the most receptive context. This study assesses whether a relative's diagnosis of lung cancer presents such a context for delivery of a tailored smoking cessation intervention. Thus, this dissertation addresses an important question with results that can have both theoretical and practical implications.

Cigarette smoking is associated with increased overall morbidity and mortality. In the United States, cigarette smoking causes approximately 440,000 deaths annually(CDC 2005). Smoking is a cause of cancer of the lung, oral cavity, larynx, bladder, and kidney and a contributing factor in the development of cancer of the pancreas, esophagus, stomach, cervix, liver, penis, and rectum. Lung cancer causes more deaths than the next three most common cancers combined (colon, breast, and prostate) and accounted for approximately 29% of all cancer deaths in 2005 (Jemal, Murray et al. 2005). In the United States, lung cancer remains the leading cause of cancer death in both men and women (Alberg and Samet 2003). Smokers are also at greater risk for coronary artery disease, cerebrovascular disease, and atherosclerotic peripheral vascular disease. Furthermore, cigarette smoking is the single most important risk factor for chronic obstructive pulmonary disease. Despite awareness of the causal association between smoking and numerous health conditions, approximately 22% of Americans continue to smoke (CDC 2005).

Smoking cessation leads to appreciable reductions in risk for cancer and cardiovascular disease (Fagerstrom 2002; Critchley and Capewell 2003). For example,

smokers who quit smoking experience a two-fold reduction in lung cancer risk in comparison to continuing smokers (Brodish and Ross 1998). The excess risk of coronary heart disease halves within one year of stopping smoking, and after 15 years is equivalent to that in non-smokers (US Dept of Health and Human Services1990). Thus, encouraging smoking cessation among apparently healthy smokers is necessary to reduce the incidence of smoking-related health outcomes.

Increasing the effectiveness of self-help smoking cessation interventions

Self-help smoking cessation interventions can help smokers quit smoking, but there is more that can be done to improve these interventions. Self-help interventions are behavioral programs for smoking cessation that do not require attendance at treatment sessions, either in person or via telephone (Curry 2000).   They are designed to change the cognitions associated with behavior that then lead to behavioral changes (Dijkstra and De Vries 2001).

Compared with face-to-face interventions, printed self-help materials offer the potential advantages of low cost and easy, widespread dissemination (Webb, Simmons et al. 2005).   In a review of self-help interventions for smoking cessation, the Cochrane Tobacco Addiction Group, Lancaster and Stead (2005) found that standard self-help materials may increase quit rates compared to no intervention, but the effect is likely to be small. Because the majority of successful quitters do so on their own (Fiore, Novotny et al. 1990), methods to support otherwise unaided quit attempts have the potential to help a large proportion of the smoking population. Thus, it is important to investigate ways to increase the effectiveness of self-help cessation interventions.

Two possible methods for increasing the effectiveness of self-help materials are 1) timing the intervention to coincide with naturally occurring events that increase motivation to quit, and 2) tailoring interventions to individual smokers to approximate the natural customization of treatment that takes place during face-to-face counseling. By intervening with smokers at times when they are more likely to consider quitting, we may capture the potential of a "teachable moment". The teachable moment (TM) model described by McBride et al. (2003) posits that health events and life transitions that jointly increase perceptions of vulnerability to health risks, prompt concordant emotional responses, and impact self-concept may offer a powerful motivational context for promoting behavior change. Examples of potential teachable moments include pregnancy, the diagnosis of a serious illness, visits to a health care provider, or receipt of test results. In sum, a TM is a time when an individual is most likely to be open to and interested in health education messages related to the behavior of interest.

Although the term "teachable moment" is widely used and intuitively appealing, related research is limited. McBride et al. (2003) suggest that assessment of conceptually based variables in relation to specific events could enable us to evaluate contribution to the teachable moment. Thus, there is a need for research that quantifies the "teachable moment" experience and evaluates the impact of smoking cessation interventions that capitalize on the TM.

The TM model can also provide a conceptual framework for designing individually tailored self-help interventions. Computer tailoring self-help materials to specific needs of individual smokers has shown promise as a high-reach, low-cost intervention for smoking cessation (Strecher, Marcus et al. 2005). Studies examining the efficacy of tailored

interventions for smoking cessation have generally found that tailored interventions are more effective than no-intervention control conditions (Dijkstra, De Vries et al. 1998; Dijkstra and De Vries 1999) Reviews of the efficacy of tailored vs. non-tailored smoking cessation materials have found a modest yet significant effect of tailoring (Strecher, Marcus et al. 2005). The objective of message tailoring is to reduce superfluous or non-relevant information in health education messages so that they are as relevant as possible to each individual. Thus, highly relevant messages are more likely to be persuasive because an individual will be more likely to pay attention to the messages which, in turn, leads to more in-depth cognitive processing of the messages (McGuire 1984).   By delivering interventions to individuals at a time when they are most open to receiving information and tailoring the intervention to components of the TM model, there is the potential to increase the effectiveness of those messages.

In this dissertation, I will first examine the fit of the TM model in the context of desire to quit among family members of lung cancer patients.   Second, I will describe engagement with and reactions to self-help smoking cessation materials tailored to components of the TM model.

Chapter 2 – Literature Review

In the next section, I introduce the TM model and define specific components in the context of smoking cessation – a) motivation to quit, b) perceived risk, c) emotional response, and d) self concept. First I describe the TM model and review theoretical support for the model. Second, I discuss various conceptualizations of motivation to quit and the relationship of motivation for smoking cessation. Third, I review the TM components of perceived risk, emotional response and self concept in relation to motivation to quit. This section provides the theoretical background for examining the TM model in the context of smokers who have had a family member diagnosed with lung cancer. The second section of this literature review examines the literature on tailored print materials including the efficacy of this intervention method and the selection of variables on which to tailor. Finally, I will discuss the literature on engagement with and reactions to tailored print materials.

What is a "Teachable Moment"?

McBride et al. (2003) use the term "teachable moment" to describe an individual's interpretation and judgments of an event that in turn determine whether the event will prompt behavior change.   The authors suggest that three key constructs underlie whether a cueing event is a significant motivator -- the extent to which the event 1) increases perceptions of risk and influences outcome expectations, 2) prompts strong emotional or affective

responses, and 3) redefines self concept or social role - defined as role expectations and other social influences important in promoting or inhibiting behavior change. The individual's interpretation and judgment of the cueing event precedes motivation to change, self efficacy, and skill acquisition. See Figure 2.1.

Figure 2.1. Teachable Moment Model

```
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
                ┌─────────────────┐                           ┌──────────────────┐
                │   Emotion is    │              Motivation   │                  │
                │   increased     │                  ⇕        │                  │
                └─────────────────┘                           │                  │
 ┌─────────────┐         ⇑             Acquisition of         │                  │
 │  Perceived  │    ┌──────────┐           skills         ──▶ │    Behavior      │
 │  risk and   │    │  Cueing  │              ⇕               │    Change        │
 │  positive   │ ◀─ │  Event   │ ─▶                           │                  │
 │  outcome    │    └──────────┘        Self efficacy         │                  │
 │ expectations│         ⇓                                    └──────────────────┘
 │  increased  │    ┌─────────────────┐
 └─────────────┘    │  Self concept / │
                    │   social role   │
                    │    redefined    │
                    └─────────────────┘
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
```
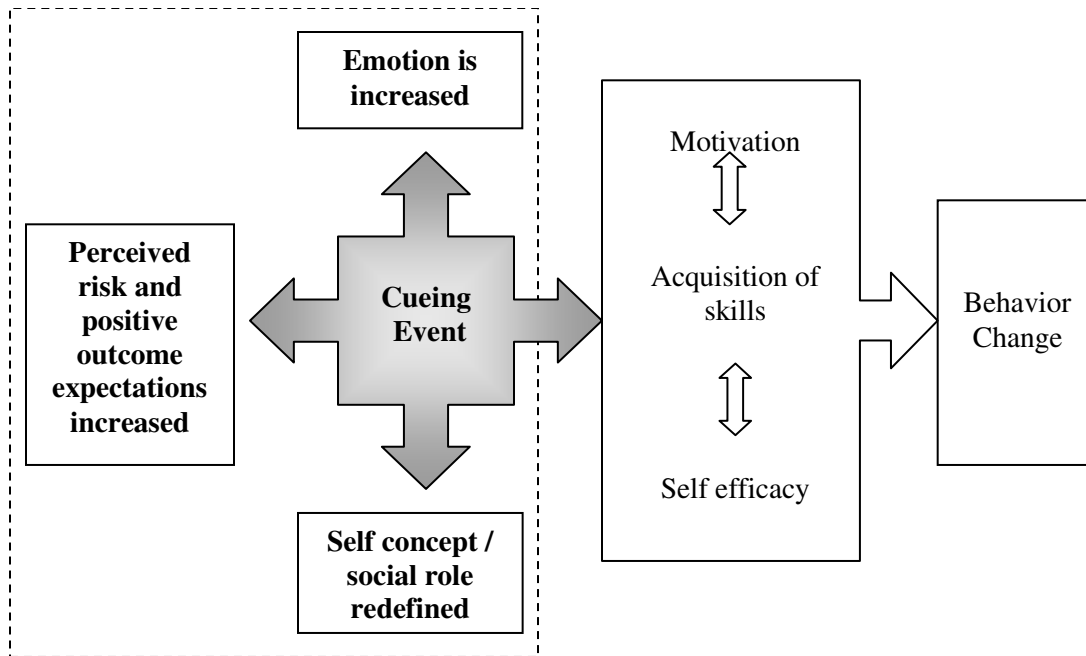
The TM concept is drawn from theories of health behavior such as the Health Belief Model (HBM) (Janz and Becker 1984) and the Protection Motivation Theory (PMT) (Rogers and Prentice-Dunn 1997) which suggest that awareness of health risk and perceived vulnerability to negative health outcomes are necessary to motivate behavior change. Research by Weinstein and others suggest that more personally salient health risks increase the motivational impact of health information (Weinstein 1984).

The term "teachable moment" is consistent with the concept of a cue action in the HBM, described by (Hochbaum 1958) as an important antecedent to motivation and behavior change. Janz and Champion (2002) define cues to action as events or experiences that activate one's readiness. Prior to evaluating threat, an individual must be aware of and attend to the threat. According to the HBM, perceived threat is comprised of the degree to which an outcome is serious and the degree to which the individual feels susceptible to the outcome. While the HBM has been one of the most widely used conceptual frameworks for health behavior interventions over the past 5 decades, the concept of a cueing event serving as a trigger to action has not been systematically studied (Janz, Champion et al. 2002). By examining the cues to action construct through the lens of the "teachable moment" we can further explore this little studied construct. The TM model may allow health behavior researchers to identify times when motivation to change is highest and individuals are more likely to attend to behavior change interventions. In addition, observing the cognitive and behavioral changes that occur at teachable moments could provide insight into the mechanisms that underlie motivation more generally.

Learning that a loved one has lung cancer may lead a smoker to think that she is more likely to get lung cancer and that quitting smoking might decrease her chance of developing the disease. That is, a smoker may have always known that she could get lung cancer from smoking, but suddenly it becomes more of a reality. The smoker may feel sad, angry, and frightened for a loved one and for herself. She may also feel angry that either of them ever started smoking. The smoker may also determine that she and her loved one are going to do everything to fight the cancer and her addiction to cigarettes. Friends and family are urging her to stop smoking. It occurs to her that, in light of the current situation, she could and

should be a non-smoker. All of this together motivates her to try to give up smoking once and for all. For her this is a teachable moment – a time period when she is open to talking about quitting and motivated to give quitting a try.

Although many health behavior theories suggest psychosocial determinants of behavior and behavior change, the TM model may add to the literature by examining these determinants in relation to the timing of a cueing event. The TM model suggests that the more an event impacts risk perception, emotional response, and self concept, the more likely the event will increase motivation for behavior change. The key to capitalizing on the potential of the TM is to identify naturally occurring life events that may serve as cueing events for health behavior change. In the next section I define and review relevant literature on the components of the TM model – risk perception, emotional response, self concept – that are theorized to lead to increased motivation to quit smoking.

Motivation to quit

Motivation is defined as the likelihood that an individual will initiate, pursue, and continue to follow a specific program of behavior change (Miller and Rollnick 1991). Motivation is one of the fundamental, widely studied elements in the smoking cessation process (Prochaska and DiClemente 1983; Curry, Wagner et al. 1990; Nezami, Sussman et al. 2003; McCaul, Hockemeyer et al. 2006). Motivation to quit can also be referred to as desire to quit. In this dissertation, the terms are used interchangeably. Three conceptualizations of motivation that are informative in the context of the TM model and smoking cessation are 1) the classical direction/effort notion 2) the Transtheoretical Model (TTM), and 3) the intrinsic/extrinsic framework. Although each of these conceptualizations

has varying definitions and methods of measurement for the construct of motivation, research findings have been consistent – smokers who are motivated to quit make more quit attempts and report higher quit rates (Orleans, Rotberg et al. 1990; Flay, McFall et al. 1993; Rose, Chassin et al. 1996; Yong, Borland et al. 2005).

Most contemporary theories of motivation assume that people initiate and persist at behaviors they believe will lead to desired outcomes (Deci and Ryan 2000). This conceptualization of motivation includes two components - goals and the effort needed to achieve those goals. The goal component of motivation is guided by a perceived discrepancy between the person's current state and a desired future state. That is, individuals are motivated to change because the way they want to be differs from the way they are. Particular discrepancies that may lead to motivation to quit smoking include the discrepancy between 1) current health and desired health state in the future, 2) current self-image and how individuals would like to see themselves in the future, and 3) desired and current mood states. The effort component of motivation is the amount of energy an individual is willing to expend to change behavior. Three sources of energy for change relevant to smoking cessation are the perceived capacity to make the change, self-regulation ability, and social pressure (Nezami, Sussman et al. 2003).

A second conceptualization of motivation pertinent to smoking cessation is that proposed by Prochaska et al. in the Transtheoretical Model (TTM) (Prochaska, Redding et al. 2002). Motivation is key to the TTM, a model that explains the process of why and how people change by progressing through a series of five stages: precontemplation, contemplation, preparation, action, and maintenance. In precontemplation, the individual is not considering doing anything to change behavior in the foreseeable future. In

contemplation, the individual is considering behavior changes and is weighing the pros and cons of that change, but the cons outweigh the pros of changing. In preparation, the individual intends to take action in the immediate future and has taken some steps towards change in the recent past. In action, the individual has made specific overt lifestyle changes in the recent past. In maintenance, the individual is trying to prevent relapse and persisting in the behavior change.

Since it was first introduced in 1983, the TTM has become a mainstay of smoking cessation research. It is intuitive and provides a recipe or outline for helping people change. Empirical research on the TTM is plentiful and the findings generally validate the model (Prochaska, Redding et al. 2002). Progression through the stages is cyclical as opposed to linear. Velicer, Fava et al. (1995) found that approximately 20% of smokers are prepared to make an active quit attempt in the immediate future (*i.e.*, within 30 days) and an additional 40% are seriously considering quitting in the near future (*i.e.*, within 6 months). However, fully 40% of smokers are not seriously considering quitting in the near future. Thus, the TTM provides a simple method to categorize readiness to change in any given population of smokers.

Processes of change, a core construct of the TTM, refer to covert and overt actions people take to progress through the stages and are pertinent to this discussion of motivation and the Teachable Moment model. Processes of change are divided into two categories – experiential and behavioral. The experiential processes of change (consciousness raising, environmental revaluation, self-reevaluation, and dramatic relief) are most relevant to this discussion of the components of the Teachable Moment (TM). The process of consciousness-raising would increase an individual's awareness of the risk associated with

continued smoking. The process of environmental reevaluation targets the individual's perception of how smoking impacts their physical and social environment. Finally, the process of dramatic relief involves increasing the emotional response to encourage taking action. Herzog, Abrams et al. (1999) found that the use of processes increased from early to late stages of change. Movement in early stages is associated with experiential processes such as self-reevaluation and consciousness-raising, whereas movement in later stages is associated with behavioral processes such as counter conditioning and reinforcement management. In sum, factors associated with motivation to change in the early stages of the TTM are similar to those associated with increased motivation in the Teachable Moment (TM) model. However, the TTM does not directly address contextual factors such as emotional response.

The third conceptualization of motivation relevant to the Teachable Moment (TM) model and smoking cessation is the source of motivation, that is, intrinsic or extrinsic. Curry, Grothaus et al. (1997) suggest that motivation to quit is comprised of two components – strength or level of desire to quit and type of motivation. Intrinsic and extrinsic motivation refers to the origins of the desire to engage in a particular behavior. Intrinsically motivated behaviors are generally driven by the desire to achieve rewards internal to the person, whereas extrinsically motivated behaviors are in response to external rewards or punishments (Deci and Ryan 1985). Although both types of motivation may initiate behavior change, intrinsically motivated behavior is more likely to persist over time (Curry, Grothaus et al. 1997).

Curry et al. (1990) identified two dimensions of intrinsic motivation (health concerns and self control) and two dimensions of extrinsic motivation (immediate reinforcement and

social influence). Findings indicate that higher levels of intrinsic relative to extrinsic motivation predict smoking cessation among self-selected volunteer samples of smokers seeking assistance in quitting, as well as a general population sample of smokers. Among continuing smokers, movement forward in readiness to quit is associated with significant increases in intrinsic motivational factors of health concerns and self-control motivation (Curry, Grothaus et al. 1997). Based on these findings, the authors conclude that it is important to maximize levels of intrinsic relative to extrinsic motivation as a means motivating smokers to quit. In the context of the Teachable Moment model, Curry's conceptualization of motivation suggests that TM components of risk perception and emotional response may have a greater influence on motivation than the TM component of social role.

The conceptualizations of motivation reviewed here provide support for the relationship Teachable Moment (TM) components to motivation. Although the classical direction/effort notion, the Transtheoretical Model (TTM), and the intrinsic/extrinsic framework describe the relationship among the components differently, perceived risk, emotional response, and aspects of self concept are important concepts in all three frameworks. Using the Teachable Moment model to examine motivation builds on this previous work by linking factors associated with motivation to a specific life event such as a family member's diagnosis of lung cancer.

Perceived risk

Perceived risk is an individual's belief about the probability of developing illness (Weinstein 2000). Other terms used for this construct include perceived vulnerability, perceived susceptibility, and subjective risk perception. Perceived risk is central to many theories of health behavior which posit that heighten perceptions of risk encourage self-protective behavior (Weinstein 2000; Janz, Champion et al. 2002; Wenzel, Glanz et al. 2002). Among smokers, risk perceptions are positively associated with intention to quit (Romer and Jamieson 2001), participation in cessation programs (Klesges 1988) and likelihood of a quit attempt (Cummings 2004). Because of the association with risk perception and quitting behavior, risk perception is frequently the target of smoking cessation interventions.

Extensive research on risk perception and smoking cessation suggests that smokers are aware of an increased risk of developing smoking-related illnesses, yet many maintain an "illusion of invulnerability" regarding personal health risk (Hay, Shuk et al. 2005). Weinstein et al. (2004) ask "why the threat from the largest and most preventable single cause of serious illness and mortality in Western society is not more effective at deterring smoking?"(p. 375). One possible explanation is that many consequences of smoking are too far in the future to be influential. A second explanation is that smokers deny the risk. While most smokers agree that smoking is harmful and can lead to fatal illnesses, they rate the risk as considerably less severe than do nonsmokers. Smokers also tend to believe that their own risks are less than those of other smokers (Weinstein 1998). People do not want to believe that they are at risk and readily construct arguments to explain why their risks are lower than others (Weinstein 1998). This "optimistic bias" is very strong and attempts to reduce it are often unsuccessful (Klein and Weinstein 1997). A third explanation is that smoker's

knowledge of smoking-related illnesses is limited. In a study examining public understanding of illnesses caused by cigarette smoking, findings showed that smokers could site an average of only two smoking-related illnesses, and underestimated the severity of both lung cancer and emphysema (Weinstein, Slovic et al. 2004).

Events such as a family member's diagnosis of lung cancer may have a strong "debiasing" effect on smokers, leading to increases in perceived risk and in turn, an increase in the desire or motivation to quit.   Experiencing a serious health event, whether personally or vicariously, can increase cognitive availability of risk perception, and therefore, increase salience of the threat. For example, women with a family history of breast cancer have exaggerated perceptions of the personal breast cancer risk (Rees, Fry et al. 2001). Perceived risk is related to screening and adherence among family members of colorectal cancer patients (Blalock, DeVellis et al. 1990; Vernon 1999; Manne, Markowitz et al. 2002). In the smoking cessation literature, a relative's diagnosis of lung cancer has been linked to high risk perception in smokers (Schilling, Conaway et al. 1997; McBride, Pollak et al. 2003). This evidence suggests that increased risk perception in relation to a specific life event may increase the likelihood that it will be a "teachable moment".

McBride et al. (2003) suggest that perceived risk alone is insufficient to change health risk behaviors; individuals must also perceive that changing their behavior will have a positive effect on the health outcomes. The term for this construct is outcome expectations. Outcome expectations influence behavior according to the hedonic principle: if all other things are equal, a person will choose to perform an activity that maximizes a positive outcome or minimizes a negative outcome (Baranowski, Perry et al. 2002). These expectations are thought to be important determinants of smoking behavior (Copeland and

Brandon 2000). Specifically, expectations about the undesirable effect of smoking are related to quitting, whereas expectations about the reinforcement value of smoking are linked to greater rates of smoking and nicotine dependence, maintenance of smoking and relapse (Copeland 1995). The experience of a serious health event, personally or vicariously, may increase the expectation that behavior such as continued cigarette smoking will lead to negative outcomes or that quitting smoking will lead to positive outcomes.   This change in outcome expectations can lead to an increase in motivation to quit.

Emotional response

Emotional or affective responses can influence an individuals' judgment about the significance and meaning of an event (Bagozzi, Baumgartner et al. 1998; Folkman and Moskowitz 2000). Events that elicit a strong emotional response, either positive or negative, are perceived as meaningful and enhance the likelihood of a teachable moment. When we experience a negative emotion, the natural tendency is to try to return to a state of equilibrium by coping either through taking an action or changing the meaning of the event. Two conceptualizations of emotional response relevant to the TM model in the context of smoking cessation are affective response and worry.

There is a large body of research on the relationship between affective responses and smoking, most of which links smoking status with multiple indices of negative affect (NA) such as depression, neuroticism, hostility, anger, dysphoria, and anxiety (Kassel, Stroud et al. 2003).   That is, smokers experience more NA relative to nonsmokers. There appears to be a dose-response relationship, or threshold effect, as affective distress is associated more with heavy smoking and nicotine dependence and less so with intermittent or nondependent

smoking (Kassel, Stroud et al. 2003). Increased negative affect makes it difficult for smokers to achieve and maintain abstinence (Lerman, Audrain et al. 1996). This difficulty in quitting has been observed even with low, subclinical levels of depressive symptoms or a history of depression in the absence of current depression (Haaga, Thorndike et al. 2004). Depression-vulnerable smokers are especially likely to use smoking as a means of managing NA (Lerman, Audrain et al. 1996). For smokers who are experiencing depression or have high NA, quitting smoking is particularly difficult because cigarettes are a very effective mood regulator. However, no studies examining the relationship between negative affect and quitting have been linked to a specific event such as a family members diagnosis of lung cancer. Research on NA and coping has found that NA is associated with both adaptive and maladaptive coping responses. For example anger prompts the urge to attack and fear prompts the urge to flee (Folkman and Moskowitz 2000). Fear may also foster a sense of urgency to act (Witte 1994). Alternatively, negative affect can be paralyzing and lead an individual to take no action at all (Billings, Folkman et al. 2000). For family members of lung cancer patients, it is possible that increased negative affect could decrease the motivation to quit, as has been found in the general population (Kassel, Stroud et al. 2003) . Alternatively, it is possible that increased negative affect related to a specific cueing event could increase the motivation to quit because it prompts an active coping response.

Research on the relationship between positive affect (PA) and smoking or smoking cessation is limited. Previous studies, focused more on the effects of cessation on affect, have found that PA declines after quitting (Lerman 2002; Cook, Spring et al. 2004) and that decline persists during 30 days of abstinence (Gilbert, McClernon et al. 1999). No studies were found that looked at PA as a predictor of cessation. Research on the relationship

between PA and other health behaviors suggests that PA could be an important predictor of cessation. Previous studies have shown that PA is positively associated with self-reported physical health, exercise, nutrition, self-care, and overall health practices (Griffin, Friend et al. 1993; Dua 1994; Pettit, Kline et al. 2001). In general, PA has been associated with more persistent and resourceful problem solving, and with improved coping and resilience (Isen, Daubman et al. 1987; Fredrickson and Joiner 2002).   Thus, increased positive affect could be related to increased motivation to quit among family members of lung cancer patients.

It is reasonable to conclude that there may be a relationship between affective responses, both positive and negative, and a behavior such as smoking. However, the directionality of the relationship in the context of a cueing event such as a family member's diagnosis with lung cancer is unclear.

The second conceptualization of emotional response relevant to this discussion of the TM model is worry. Cancer worry is defined as an emotional reaction to the threat of cancer. The relationship between cancer worry and health behavior has been studied in the context of mammography, breast self-examination, and genetic testing (Alagna, Morokoff et al. 1987; Rimer, Keintz et al. 1989; Stefanek and Wilcox 1991; Lerman, Croyle et al. 2002). The construct of worry has been described as a prompt that causes an individual to direct attention to the current concern and prepares the individual for action (Tallis and Eysenck 1994). Cancer worry is conceptually and empirically distinct from perceived cancer risk (Lipkus, Kuchibhatla et al. 2000) as well as general distress, anxiety, or depression (Sutton 1998). Perceived risk and cancer worry are only moderately correlated (Lipkus, Kuchibhatla et al. 2000) and both are independently related to cancer screening (McCaul 1996)

17

In the context of smoking, Dijkstra and Brosschot (2003) suggest that worry is a cognitive mechanism that keeps the mind aware of potential threats. In this case, worry is an emotional response that could cause a smoker to evaluate the preponderance of risk information about the harms of smoking and try to quit. It is also possible that smoking-related worry could lead to maladaptive coping such as disengagement or denial of threat. This study suggests the worrying about the health hazards of smoking might help smokers to quit smoking, especially defensive smokers and those with low self-efficacy for quitting. The authors conclude that the smoking cessation process includes a phase where worry is optimal and another where worry is detrimental. More research is needed to determine the conditions under which worry is a constructive cognitive activity, such as in the context of cueing event such as a family member's diagnosis with lung cancer.

Self concept

McBride et al (2003) have used the term self concept to describe the third component of the TM model. In the context of smoking, they suggest that the more committed an individual is to the role or norm, the greater their sense of obligation to comply and thus avoid the stigma of non-compliance. The work of Shadel and Mermelstein (1996) support the use of the term "self concept" in the TM model. Based on self-schema theory, the authors developed the concept of smoker self-concept and abstainer self concept and examined these concepts as a function of participation in a smoking cessation program. Findings from this research suggest that, over time, experience as a non-smoker leads to a decrease in the importance of defining oneself as smoker. Additionally, continued smoking leads to an increase in the importance of defining oneself as a smoker. And, perhaps repeated failures to

quit reinforce the image of oneself as a smoker. The authors recommend intervening by attempting to alter aspects of self that do not support cessation and build on aspects of self that facilitate cessation. Naturally occurring events that prompt changes in an individual's assessment of him or herself in relation to smoking could be optimal times for promoting behavior change.

The work cited above helps to specify those aspects of the self that are likely related to motivation to quit, however, the term and definition of "self concept" as described by McBride et al (2003) may be too broad. For this dissertation, the definition of self-concept deviates from the definition described in the original TM model. The component of self-concept was conceptualized as a global description of one's personal essence -a sense of self that is acquired and influenced by social interactions and experiences. The self is a composite of thoughts and feelings from which each person derives his conception of who and what he is (Jerslid 1952). It is a set of innate values and attitudes, learned and developed through transactions within the environment, which creates a self-image. Through the self-regulation of behaviors, each person strives to maintain a positive self-concept in a world of dynamic interactions (Kear 2000). Based on this broad conceptualization of self-concept, the component of self-concept was operationalized using the constructs of self-image and subjective norm. The construct of self-image captures the <u>identity</u> aspect of self concept, while the subjective norm construct captures the <u>social influence</u> aspects of the broader term self concept. Both of the aspects are important to the discussion of how life events may increase motivation to change.

Identity is defined as an individual's perception of "who am I?"   Identities are subcomponents of self, situated in the context of a particular role (e.g., self as caregiver, self

as smoker) (Stets 2000). Identities hold accompanying expectations from both the individual holding that identity and from others and, these in turn guide behavior (Cast, Stets et al. 1999). Further, individuals differ in the extent to which they assimilate a particular identity into their sense of self (Ryan and Deci 2003). Identity salience – the importance of an identity relative to other identities – influences behavior. The higher the salience of an identity, the greater the probability that behavior will be in agreement with the expectations associated with that identity (Stryker and Burke 2000). When an individual is confronted with a situation with undesirable implications to an important part of identity, it is likely to be perceived as a threat to self. Reactions to this threat can take one of two courses. First, the individual will be defensively motivated to deny the threat and the need to modify behavior (Invernizzi, Falomir-Pichastor et al. 2003). Second, the individual will be motivated to modify their behavior to bring about congruency between behavior and identity (Stets 2000; Stryker and Burke 2000). Clearly, the latter is the focus of smoking cessation interventions. For some smokers, the threat of a family member with lung cancer could be the catalyst for the change in the smoker's self-image.

Subjective norm, a social influence aspect of self concept, is defined as an individual's perception that important others in his or her social environment wish or expect him or her to behave in a certain way. Subjective norm is a central component of the Theory of Planned Behavior (TPB) (Mantano and Kasprzyk 2002). A few studies have applied the TPB to smoking cessation and found that subjective norm was not associated with intention to quit, but did have a small significant effect on number of quit attempts (Crittenden, Manfredi et al. 1998; Manfredi, Lacey et al. 1998; Norman 1999; Bursey and Craig 2000). In a study examining factors associated with motivation and intention to quit smoking among

employed smokers at five worksites, Abrams and Beiner (1992) found that stronger perceptions that smoking was against the social norms of the workplace were predictive of higher motivation to quit.

Van den Putte (2005) examined six social influence factors on smoking cessation among 2895 smokers who were members of an internet panel of 50,000 people hosted by the research company ITM-International. The authors found that subjective norm had the strongest effect on intention to quit smoking. Among family members of lung cancer patients, it is likely that subjective norm will have a strong influence on motivation or desire to quit. This is a time when families and friends are likely to come together to take action around a threat to one of their own. This collective attitude of a family is likely to include strong negative feelings towards smoking.

Lung cancer diagnosis as a teachable moment

A loved one's diagnosis of lung cancer may prompt relatives who smoke to consider smoking cessation. The diagnosis of cancer has a strong emotional impact on the social network of the cancer patient (Lewis 1986; Kristjanson and Ashcroft 1994; Lederberg, Jacobs et al. 1998). Serious illness and death of a close loved one is widely considered to be a major life event that can signal a shift in priorities, increase awareness of one's mortality, and, in turn, can have broad-reaching influences on life choices and lifestyle (Lewis 1986; Galloway 1990). Reactions of fear, anxiety, sadness, and existential concerns are commonly reported and may be greater for family members than for the patient (Weisman and Worden 1976; Rait and Lederberg 1989). In the initial time following the diagnosis, relatives may be especially distressed (Kaye and Gracely 1993; Baider, Koch et al. 1998; Sarna 1998). Thus,

this can be a time of rallying and mobilization of the extended family and friends when illness-related issues become a major focus (Cassileth, Lusk et al. 1985).

The diagnosis of lung cancer and a general awareness of its association to smoking may be a teachable moment for relatives who smoke. McBride, Pollak et al. (2003) found that the relatives of lung cancer patients who smoke reported distress related to the patient's lung cancer diagnosis and 79% of relatives who smoked reported the diagnosis increased their desire to quit. However, despite their relatively strong desire to quit, 71% of relatives continued to smoke after their loved one's diagnosis. Sarna (1995), in a descriptive evaluation of lung cancer patients and their relatives, reported that 74% (48/65) of relatives continued to smoke after their loved one's diagnosis of lung cancer. Although many family members report a strong motivation to quit, having a family member with lung cancer is also a difficult time – a time where family members are likely to be under stress and apt to rely on their usual coping mechanisms (e.g., smoking). Because there is evidence that a loved one's diagnosis of lung cancer increased relatives motivation to quit smoking, this is a time when relatives who smoke are in need of and may be especially receptive to smoking cessation intervention.

Potential moderating factors

The relationships between TM components – perceived risk, outcome expectations, worry, positive affect, negative affect, self-image, and subjective norm – and motivation or desire to quit may vary as a function of demographics, nicotine dependence, and relationship characteristics. I first discuss the literature related to demographics and the TM components.

Then I discuss the literature related to nicotine dependence. Finally, I discuss the literature on relationship characteristics and the TM components.

Demographic factors that may moderate the relationship between TM components and desire to quit are age, race, gender and education. Research suggests that demographic characteristics are related to behavioral outcomes such as smoking cessation, quit attempts, lapses and relapses (Daza, Cofta-Woerrel et al. 2006). There is also evidence suggesting that demographic characteristics are related to cognitive antecedents of behavior such as stage of readiness, intention to quit, and motivation to quit.

Older smokers are likely have a long history of smoking and failed quit attempts. Because of this history, they may perceive themselves to be less able to quit. Older smokers are also more likely to feel the physical effects of long-term smoking (Falba 2005). Lyna et al. (2002) found that older smokers perceived themselves at greater risk than younger smokers, regardless if they quit smoking or continued to smoke. Among older smokers (>60) concern about the health effects of smoking and the perception that others want them to quit is related to readiness to quit (Clark, Kviz et al. 1995). Thus, age may be related to perceived risk, subjective norm, and self-image as a smoker.

Research on gender differences in smoking quit rates suggests that more men than women successfully quit smoking (Wetter, Kenford et al. 1999). In general, risks tend to be judged lower by men than by women (Finucane, Slovic et al. 2000). A study of distress and motivation among relatives of lung cancer patients found that women were more likely to report distress than men (McBride, Pollak et al. 2003). Furthermore, women have greater expectations that smoking reduces negative affect and are more likely to report smoking in

response to stress (McKee, Maciejewski et al. 2003). Thus, gender may be related to perceived risk, outcome expectations, and emotional response.

In population-based studies, African Americans are more nicotine dependent and have a lower cessation rates than Whites (Caraballo, Giovino et al. 1998). In a study of low income, African American smokers, (Pulvers, Catley et al. 2004) found that higher positive expectancies about smoking were related to less readiness to quit. Among low SES African motivation to quit was related to health concerns and having close others who want the smoker to quit (Manfredi, Lacey et al. 1998) Thus race is related to perceived risk, outcome expectations and subjective norm.

Education status clearly plays a role in smoking cessation. In the US, rates of quitting smoking have consistently increased (and increased more rapidly over time) for those with more education (Wray, Herzog et al. 1998).   The mechanisms by which socioeconomic factors, such as education, influence smoking cessation are not clear. Although, there is evidence indicating that lower education status is related to determinants of intention such as subjective norm and positive attitude (Droomers, Schrijvers et al. 2004)

The relationship between nicotine dependence and smoking cessation is clear – heavier smokers are less likely to quit successfully (Hymowitz, Cummings et al. 1997; Foulds, MB et al. 2006). Nicotine dependence is also associated with determinants of smoking cessation. Heavier smokers have less motivation to quit (Shadel, Stein et al. 2005). Heavier, more dependent smokers tend to hold more positive expectancies about the consequences of smoking than lighter smokers (Brandon and Baker 1991).

Relationship factors may also moderate the relationship between TM components and motivation or desire to quit. McBride et al. (2003) found that immediate family members

were more likely to experience avoidant thinking, an indicator of distress, than extended family members. Family members who are closer to the patient with lung cancer may be more likely to want to quit than those who are not as close (Sarna 1995). Caregivers may also be more likely to want to quit, for themselves and because of the role they have taken as primary caregiver. Caregivers may also feel uncomfortable smoking around the patient because it may harm them or it may cause the patient to want to smoke. Caregivers who are related by blood to the patient may also have some concern about increased genetic risk of lung cancer.

Family members who are spouses may be similar to caregivers in that they feel a large responsibility to the patient to not smoke. They may also be more impacted by the diagnosis and feel that they need to quit to stay healthy for the rest of the family.

Summary

There is ample evidence in the smoking cessation literature to support the relationship of each of the individual components of the TM model –perceived risk, outcome expectations, worry, positive affect, negative affect, subjective norm and self image – to motivation to quit. It is also important to examine how the components interact with each other and how all of them together are related to motivation to quit. TM components vary by demographic factors, nicotine dependence, and relationship characteristics and these factors may moderate the relationships in the TM model. Exploring the factors that may moderate these relationships can help intervention researchers tailor interventions to important individual characteristics.

Tailored Written Interventions for Smoking Cessation

A generally positive body of evidence supports the efficacy of computer-tailored printed smoking cessation materials. These interventions enable individuals to engage in the cessation process at their own pace and to avoid the logistical barriers of group-based programs. Self-help guides can offer information and the specific skills needed to quit smoking and can be tailored to individual needs. In a review of 13 randomized trials that assessed the effectiveness of tailored print materials for smoking cessation, (Lancaster and Stead 2005) found that tailored materials were more effective than standard self-help manuals.

The rationale for tailored health communications can be summarized in a five-step logic sequence (Kreuter, Strecher et al. 1999). First, tailoring eliminates superfluous information. Second, the information that remains is more personally relevant to the recipient. Third, people pay more attention to information perceived as personally relevant. Fourth, personally relevant information that is attended to is more likely to lead to thoughtful consideration of factors that could facilitate or hinder behavior change. Finally, when information is attended to and thoughtfully processed, it will be more useful in helping an individual change their behavior. The elaboration likelihood model (ELM) supports this sequence. The ELM suggests that health messages perceived as personally relevant stimulate thoughtful and thorough consideration of a proposed behavior change (Petty, Goldman et al. 1981).

Tailoring print materials begins with the development of message objectives, the translation of those objectives into message elements (e.g., text, illustrations and graphic design characteristics), and assignment of the elements to participant variables (e.g.,

26

relationship to patient, stage of readiness to quit). Individual responses to questionnaires are used to select relevant message elements from a computer-based library of possible text and graphical pieces. For example, the materials for a woman, depicted by a photograph of a woman of similar race and age, who talks about the steps she took towards quitting after her brother was diagnosed with lung cancer. Using word processing packages, photographs, clip art, and a high-grade color printer, these graphics and text are placed into a graphical layout to yield a highly customized printed health communications. The materials have a similar look but the content and graphics that are customized to each individual's needs and characteristics.

Thus, computer tailoring enables print materials to be customized to individual and contextual factors theoretically linked to the smoking cessation process. Although research on the technique of computer tailoring is well-established, research on the variables which are most important to tailor on is limited. There is as yet insufficient evidence to determine which elements of personalization may be important, and which theories should inform the tailoring of materials (Skinner, Campbell et al. 1999; Strecher 1999; Dijkstra and De Vries 2001; Webb, Simmons et al. 2005). The content of tailored interventions has generally been framed according to one or more psychosocial models of behavior change, a process referred to as behavioral construct tailoring(Kreuter, Oswald et al. 2000). Theoretical frameworks that have guided the development of tailored print smoking cessation materials include the Transtheoretical Model (Prochaska, Diclemente et al. 1993; DeVries, Mudde et al. 1998; Aveyard, Griffin et al. 2003), Health Belief Model (Champion, Maraj et al. 2003), and Social Cognitive Theory (Dijkstra and De Vries 2001). Behavior change models outline the determinants of the behavior as well as the potential mediating and moderating variables.

Tailoring matches the intervention content to an individual's profile, as indicated by the theoretical framework of the intervention. For example, a tailoring intervention based on the TM model would assess participant's perceived risk, outcome expectations, emotional responses, subjective norm, and self-image and then provide relevant messages to each participant addressing those factors.

Evidence suggests that tailored print materials for smoking cessation are effective, however, the reasons for this effectiveness remains unclear. Briefly, tailoring works because it increases the relevance of the communication and, therefore, recipients are more likely to read, process, and retain the information. Although most studies evaluating the effects of tailored print communications include some type of process evaluation, this information has not been consistently reported along with study outcomes (Rimer and Orleans 1994; Dijkstra, De Vries et al. 1998; Brug, Campbell et al. 1999). Quantifying exposure to and use of tailored print materials is essential if we are to determine why these materials are effective. Kreuter, Farrel, et al. (2000) propose six categories of intermediate outcomes related to how materials are received by a target population: exposure and reading, reactions to appearance, reactions to content, perceived personal relevance, effects on communication with others, and perceived usefulness of the information. For a tailored print intervention to influence cognition and, in turn, behavior, an individual must first be exposed to it, pay attention to it, and like it. The tailored materials will be more effective if the individual perceives them to be personally relevant and useful, and shares or discusses them with other people.

Exposure is generally measured by asking if the individual recalls receiving the materials. Reading is measured by asking how much of the materials the individual read. The responses are: *glanced at it, skimmed it, read some of it, read most of it, read all of it*.

These categories are usually dichotomized by combining those who "read all of it" or "read most of it" into one group and combining all others responses into the other group. Data from a number of studies indicate that a large proportion of participants do not read or remember receiving tailored materials (Campbell, DeVellis et al. 1994; Skinner, Strecher et al. 1994; Strecher, Kreuter et al. 1994; Brug, Steenhuis et al. 1996; Kreuter and Strecher 1996; Bull, Kreuter et al. 1999). Reactions to materials, including perceived personal relevance, are asked only of those participants who actually read some of the materials. In five studies that evaluated the impact of tailored materials on smoking cessation, engagement and reactions varied greatly. It appears that the methods of assessing engagement are fairly standard, however, the methods of reporting these data varies widely.

Orleans et al. (1998) conducted a trial evaluating the effectiveness of a tailored culturally sensitive intervention for African American smokers who called the NCI Cancer Information Service for help to quit smoking. The authors reported that 58% of participants who received the tailored cessation guide read all of it. Reactions to the tailored guide were positive: 40% thought the guide had helpful information, 19% thought the guide had little new information, and 19% found it hard to identify with stories in the guide. Participants receiving the tailored guide were more likely to set a quit date, to make a quit attempt, and to reduce the number of cigarettes smoked. Information linking the amount of the guide read to behavioral outcomes was not reported.

Dijkstra (1998) randomly assigned smokers with low intention to quit to one of five conditions: multiple tailored letters with a self-help guide, multiple tailored letters only, single tailored letters with a self help guide, single tailored letter only, and a non-tailored intervention. All participants were asked about the extent to which they read and

remembered the intervention message and to what extent they learned from it. Percentages of how much was read were not reported only mean rating. Participants who received multiple tailored letters read significantly more of the materials and reported "learning more" than those in the other groups. Dijkstra (2005) also did a study that attempted to identify the working mechanisms of tailoring. He compared smoking cessation messages that were tailored on personalization, adaptation, and feedback and found that personalization and feedback were related to quitting activity. Further the effect of condition on quitting activity was mediated by evaluation. Specifically, messages stating "it appears from your response in the questionnaire..." were rated as significantly more interesting than messages that did not include this kind of feedback. Again, data on engagement and reactions was reported as mean differences between groups rather than frequencies.

Strecher et al. (2005) conducted a randomized controlled trial to assess the efficacy of web-based tailored cessation materials for nicotine patch users. All participants read the messages when they logged on to the website, therefore, rates of amount read are not applicable. Data on reactions to the intervention were reported: 86% found the materials helpful and 89% found them to be personally relevant.

Campbell et al. (2002) assessed the effects of the Health Works for Women intervention on improving multiple behaviors including smoking. The trial compared exposure and reactions to a tailored magazine to a control group who received a delayed intervention. In the intervention group, 86% of participants recalled receiving the materials and 76% read a lot of the magazine. Eighty percent "believed" the materials and 47 % reported that the materials were personally relevant. Forty seven percent also report that the information in the magazine caused them to think about changing behavior.

In a placebo-controlled trial, Webb et al. (2005) examined mechanisms underlying the effectiveness of a tailored intervention for motivating smoking cessation. The authors tested whether the efficacy of tailoring was due to personalized features in addition to theoretically based content. Participants in the three groups (standard, minimal personalization, and extensive personalization) were sent tailored booklets that included information on smoking cessation and relapse prevention. The majority of participants in each group reported reading some or all of the materials (standard 80%, minimal personalization 84% and extensive personalization 79%), remembered all or most of the content (69% for each group), and saved the booklets (standard 84%, minimal personalization 80% and extensive personalization 77%). The differences between groups in engagement were not statistically significant. Participant's evaluation of the materials were related to the personalization manipulation, such that those in the extensive personalization group were more likely to have positive reactions to the materials.

None of the research on smoking cessation and tailored materials has looked at the relationship between theoretical determinants of behavior and engagement and reactions to tailored materials. In a study examining the effects of tailored printed materials on dietary behavior, (Brug, Steenhuis et al. 1996) found that education and stage of readiness were related to amount read. To date, most of the research on tailoring and smoking cessation has focused on testing different types of content or ways of delivering the content. Limited research has focused on factors related to engagement and reactions to materials.

Summary

For tailored print materials to have an effect, recipients need to engage with the materials and perceive them positively. Research examining predisposing factors related to engagement and reactions is limited. Applying the TM model will help determine if predisposing factors such as motivation to quit are related to engagement and reactions to materials. If a life event, such as a family member's diagnosis of lung cancer is a TM, than we would expect that an individual would have greater engagement and more positive reactions to tailored print smoking cessation materials. Further, it will be useful to examine subgroup differences in the relationship between desire to quit and engagement and reactions.

Chapter 3 - Conceptual Model and Research Questions

The TM model proposes that certain life events, such as a family member's diagnosis of lung cancer, can increase an individual's desire to change behavior such as smoking. According to this model, desire to quit is influenced by five factors: 1) increased perceived risk, 2) positive outcome expectation, 3) increased emotional response, 4) a change in self-image, and 5) high subjective norm for not smoking. The effect of this combined model on desire to quit may vary by factors such as age, race, education and nicotine dependence. In the context of family members of lung cancer patients, the relationship between the components of the TM model and desire to quit are moderated by characteristics of the relationship between the smoker and the family member with lung cancer. The relationships described here are depicted in Figure 3.1.

The concept of the teachable moment (TM) also suggests that family members with high desire to quit will be more open to or ready for health education messages about smoking cessation than family members with lower desire to quit. Therefore, engagement with and reactions to materials tailored on the TM components will be predicted by family members' baseline desire to quit smoking.

Figure 3.1 Conceptual Model

TM Components

Moderating
Factors
Age
Race
Education
Nicotine
Dependence
Closeness
Caregiver role
Spouse role

Perceived
Risk

Outcome
Expectancy

Family
Members Lung
Cancer
Diagnosis

Emotional
Response

Desire to Quit

Self
Image

Subjective
Norm

Engagement
and reactions
to materials
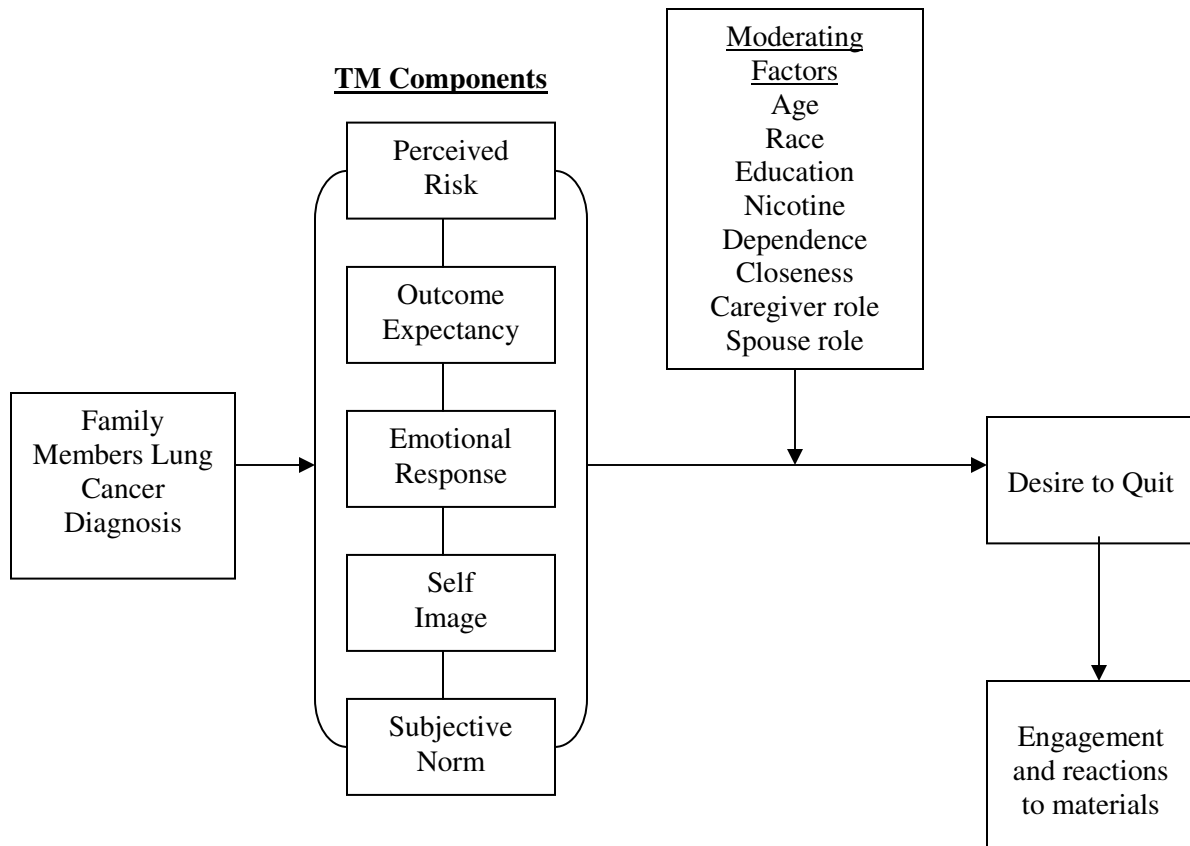
RQ1.   Are components of the TM model related to desire to quit among family

members of lung cancer patients?

Hypothesis 1: Variables measuring the individual components of the teachable moment model

will each be associated with desire to quit.

Hypothesis 2: Desire to quit will be predicted by a model that includes variables from the TM

model.

Hypothesis 3: The effect of the TM components on desire to quit will be moderated by

- demographics (age, race, gender, education),

- nicotine dependence, and

- relationship characteristics (closeness to the patient, spouse role, caregiver role).

RQ2. Is desire to quit related to engagement with and reactions to self-help materials?

Hypothesis 4: Family members with higher desire to quit at baseline will:

A. be more likely to engage with the self-help materials than family members with lower desire to quit.
   - Recall receiving the materials
   - Share the materials with someone else
   - Read most or all of the tailored booklet

B. have more positive reactions to the self help materials than family members with lower desire to quit.
   - Report that the information was personally relevant
   - Report that the information was new
   - Report that the information was interesting
   - Report that the information was trustworthy
   - Report that the information was moving
   - Report that the information made them want to quit smoking

Hypothesis 5: Engagement with and reactions to self-help materials will vary by gender, race, education, age, nicotine dependence, closeness to the patient, caregiver role, and spouse role.

Chapter 4 - Methods

Overview of study design

The data for this research were collected as part of a five-year randomized trial to evaluate the effect of coping-focused telephone counseling added to state-of-the-science smoking cessation programs for increasing the likelihood of abstinence from smoking among relatives of lung cancer patients. There were two levels of recruitment for the study – patients and family members. Eligible patients were called and asked to enumerate their relatives who smoke and to give consent to contact these relatives. Relatives who smoked were sent an introductory letter and were contacted by telephone to complete the baseline survey. Relatives who agreed to participate were randomized to one of two intervention groups: Standard self-help materials (N=240) or coping-focused counseling plus self-help materials (N=240). All relatives of the same patient were randomized to the same intervention group. Participating relatives were surveyed at 2-weeks, 6-, and 12-months post-intervention. The primary outcome of the parent trial was self-reported 7-day point prevalent abstinence at each follow-up. The outcomes for this dissertation are desire to quit at baseline and engagement and reactions to materials at the 2-week intervention follow-up.

Patient Recruitment

Lung cancer patients were recruited from the Duke University Medical Center's Thoracic Oncology Program (Duke), the Durham Veteran's Administrative Medical Thoracic Oncology Clinic (Durham VA) , University of North Carolina Medical Center's Multidisciplinary Thoracic Oncology Program (UNC) , and University of South Florida H. Lee Moffitt Cancer Center and Research Institute (USF) from September 2004 – July 2006. Patients were eligible to participate if they were ages 18 and older, diagnosed with lung cancer, and intended to continue care at one of the study sites. A trained interviewer contacted patients to obtain verbal consent. For this study, family members included both nuclear and extended family, as well as anyone who the patient perceived as family. Patients were asked for permission to contact family members who were over eighteen. Patients who were smokers were sent a self-help smoking cessation guide. Patients who reported that they were planning on quitting in the next 30 days were also sent a 6 week supply of nicotine patches.

At Duke University Medical Center, eligible patients were identified from the patient database maintained by clinic staff. Each week, a list of newly diagnosed lung cancer patients was transferred from the Duke clinic database to a secure site accessible by password by study personnel only. At the Durham VA, eligible patients were identified using medical records from the VAMC intake system. Eligible patients from both sites were sent an introductory letter from their oncologist describing the study and asking for their participation.

At UNC and USF, a research assistant approached newly diagnosed lung cancer patients attending the clinic. The research assistant met with eligible patients in clinic,

obtained written consent from the patient to participate in the study, and scheduled a day/time to contact the patient over the phone to complete a brief survey and to enumerate their relatives who smoke. Patients were provided a brochure with information about the study that they could pass on to family members.

Eligible patients from all four sites were contacted by a research assistant and asked to complete a brief telephone survey. Questions included smoking history, perceived health status, symptoms, and demographics. The research assistant also asked the patient to identify family members and loved ones who smoke, obtained contact information on those people, and obtained permission to contact them.

Family Member Recruitment and Randomization

All family members for whom the patient gave permission to contact and for whom the patient gave a valid address were sent an introductory letter describing the study. The letter provided family members with a toll free number to call to decline participation. After 7 days, family members who did not call to decline participation were contacted over the phone, consented, and asked to complete a 30-minute baseline survey.

All surveys were conducted using a computer-assisted telephone interviewing program (CATI) at the Durham, North Carolina office of Battelle Centers for Public Health Research. CATI enabled question sequencing, presentation, and screen design of questionnaires and reduced the steps between data collection and tailoring by enabling on-screen data entry and editing coincident with the telephone interview. Logic checks and correct branching patterns were incorporated into the CATI programming for the instrument.

Family member eligibility criteria included cognitive ability to give consent to participate, access to a telephone, smoked at least 100 cigarettes in his/her life, and having smoked at least 7 cigarettes in the prior 7 days. There was a 3-week window to contact all family members identified by the patient. At the end of three weeks, all family members who completed the survey were randomized to either standard or coping-focused group of the parent study. Randomization was stratified by family size (<=2 family members and >2 family members). Within one week of randomization, family members were mailed a package with the tailored intervention materials. Family members were contacted to complete the first of three follow up surveys 14 weeks after the package was mailed.

Intervention Overview

As stated previously, relatives were randomized to one of two groups. Both groups received an introductory letter, and a Family Support Album (FSA) that included a self-help cessation guide, a tailored booklet, a quit kit, and the nicotine patch if stage appropriate. In the parent study, the coping-focused intervention group (Group 2) also received 6 telephone-counseling sessions. For this paper, I focus on the FSA and tailored booklet only, therefore, I analyzed data on reactions to the materials among all study participants.

The introductory letter provided an introduction to the study and made an appeal to the relative to quit smoking. The self-help cessation guide was "Freedom from Smoking, published by the American Lung Association (2004). The quit kit included relaxation tapes, gift items to keep hands busy such as playing cards and rubber bands, straws to chew on, a variety of hard candies, a picture frame, and a small notebook. Based on baseline survey data, relatives who were in the contemplation stage or higher and smoked at least 10

cigarettes per day received a starter kit of nicotine patches (NRT) (along with detailed instructions for use and common side effects, and a telephone number to call with questions/concerns about the patch). Those in the precontemplation stage who progress during the intervention also had the option of receiving NRT, if appropriate.

The transactional model of stress and coping, social cognitive theory (Bandura 1986) and the Transtheoretical Model (Prochaska and DiClemente 1983) provided the foundation for the intervention in the parent study. The Teachable Moment (TM) model provided the specific theoretical framework for the development of the tailored booklet.   The assumptions that guided the development of the tailored booklet were: 1) smoking cessation is a process, and individuals vary in their readiness to quit; 2) having a loved one with lung cancer makes family members think about quitting; 3) emotional messages will help persuade family members to quit smoking; 4) smokers must perceive that positive outcomes can be realized with cessation; and 5) risk information that is novel will be persuasive.

The 8-page individually tailored booklet was developed with the following objectives: 1) increase or reinforce the salience of the loved one's lung cancer diagnosis as a motivator to quit smoking; 2) provide stage-based information to encourage engagement with cessation kit materials; and 3) increase relative's confidence in their ability to take steps towards quitting. Table 4.1 provides and overview of the sections in the tailored booklet.

Table 4.1   Overview of Tailored Booklet Content.

Section	Description
Cover	A brief introduction to the booklet and the Family Ties program. The cover of the booklet states that it is personalized for the recipient.
Why Now?	Two page spread with three vignettes and head shot photos. Each of the three vignettes focused on one component of the teachable moment – emotional impact, perceived risk, and self concept.
It's all related	Informational piece describing the cognitive behavioral model. Graphics depicted the physiologic, behavioral, and cognitive aspects of quitting smoking. Physiologic, behavioral, and cognitive challenges and solutions were tailored on stage of readiness.
Facts about smoking	Potentially novel information about the thousands of chemicals in cigarettes, environmental tobacco smoke, and the benefits of quitting.
Steps to change	This section will introduce the elements of the quit kit and provided the reader with stage-based information about items in the quit kit.
Letter from a lung cancer patient	This section was in the format of a letter from a lung cancer patient to his/her family. The patient appealed to family members to stop smoking so that they may avoid the suffering, both physical and emotional, he/she experienced and encouraged them to choose to live a healthy, smoke free life.
Resources	The resources include national organizations, internet resources, reading materials, and local organizations on lung cancer and smoking cessation.

We followed a three step, iterative development process for the tailored print booklet based on the Kreuter's recommendations (Kreuter, Farrell et al. 2000).   In step one, we developed a material 'blueprint" that specified communication objectives and an outline of written content based on a review of literature on smoking cessation. This review focused on

perceived risk, subjective norm, emotional responses, stress and coping in the context of smoking cessation. In addition, the authors reviewed the literature on families and lung cancer.

We decided that the booklet would take the form of a family photo album to capture the emotional tone we thought would have the most impact. Several streams of research support the notion that emotional arousal mediates the effectiveness of communication. Advertising research consistently finds that emotional messages are remembered better than non-emotional ones (Keller and Block 1996) and are more likely to promote higher order cognitive processing (Donohew, Lorch et al. 1998). The research of Beiner, Ji et al. (2004) found that messages designed to elicit strong negative emotions were seen as more effective by smokers in higher rather than lower stages of readiness to quit. Furthermore, those who had quit smoking saw them as most effective. Therefore, we explicitly designed the booklet content to focus on positive emotions or the transformation from negative to positive. Research in health communications also suggests that messages high in "sensation value" (reflecting content that is novel, stimulating, graphic or explicit, among others are more likely to increase attention than those with lower sensation value (Donohew, Lorch et al. 1998).

In step 2, draft non-tailored and tailored text was written by the author and principal investigator and then reviewed by study investigators and consultants. First, we developed a central theme for each message. Once we determined the "essence of the message", we decided how the message should vary. Four things were considered in the selection of tailoring variables and levels of variation. First, the selection of variables was theory-driven. The components of TM model guided the selection of tailoring variables. Second, each message needed to make sense in and of itself. The text should relate specifically to the

central theme. This helped us to hone the text down to only that which was essential. Third, the message had to work with the other messages in that section of the booklet and other sections in the booklet. For example, the "Why Now" section of the booklet included three first person stories of how a relative's lung cancer influenced the person's decision to quit smoking. Although each of the three stories had a different central theme, it was important to make sure there was no redundancy in the elements of each story. If one vignette varied on the relationship to the patient, than the other two did not. The stories had to fit together as one section. Finally, we could have varied the message on multiple levels, however, just because it is possible doesn't mean it is necessary. We started by varying each message on two levels and determined if this achieved the theoretical and logical objectives of message. If not, we then increased the level of variation. The tailoring algorithm and the message library were developed by the author (Appendix A).

In step 3, a design concept that incorporated the draft text was developed by People Designs. People Designs is a private contract design firm, located in Durham, NC, that specializes in the development and production of tailored print materials. We worked with People Designs to refine the concept of the Family Photo Album. We decided to tailor the photographs displayed in the album on race (African American/not African American) and age (<50, >=50). We chose only two levels for race because we anticipated that the majority of participants would be either White or African American. We used older photographs for the older age group. A vast array of family photos was collected from the research team and colleagues.

A draft of the tailored booklet was pre-tested with 4 relatives of lung cancer patients from the Duke clinic through one-on-one and group interviews. We also elicited feedback

from the patient counselor at the UNC clinic and a consultant to the grant. The feedback was incorporated into the design and content of the materials. A final version of the design template, non-tailored, and tailored text was proof read and digital files were prepared for press. Documents were produced by People Designs on a weekly basis over the course of the study.

Measures

Demographics: Age, race, gender, education, and employment status were assessed.

Nicotine dependence (Heaviness of smoking index): Nicotine dependence was measured using a two-item subset of the Fagerstrom Test for Nicotine Dependence that assesses number of cigarettes per day and time to the first cigarette of the day (Heatherton, Kozlowski et al. 1989).

Closeness: Emotional closeness with the patient was measured using a 3-item subset of the 5-item closeness scale developed by Townsend and Franks (1995). The items were "You feel that your (*RELATIONSHIP*) and you have a relationship that is closer than most, "Your (*RELATIONSHIP*) understands what you value in life", and "Your (*RELATIONSHIP*) is someone you can really talk with about the things that are important to you". Responses were *strongly disagree, disagree, agree, and strongly agree.* Cronbach's α on the original 5-item measure was .84. Cronbach's α on the three item version used in this study was .85.

Spouse role: Participants were asked how they were related to the patient. Participants were considered spouses if they answered husband or wife.

Caregiver role: Participants were asked if they considered themselves to be one of the main people taking care of the patient on a day to day basis (Yes or No)

TM variables

Emotional response was measured in two ways at baseline. First, a modified version of the positive and negative affective states (PANAS) was used to measure positive and negative affect (Watson, Clark et al. 1988). Positive affect reflects the extent to which a person feels enthusiastic, active and alert. High positive affect is a state of high energy, full concentration, and pleasurable engagement, whereas low positive affect is characterized by sadness and lethargy. In contrast, negative affect is a general dimension of subjective distress and unpleasurable engagement that takes on a variety of aversive mood states, including anger, contempt, disgust, guilt, fear and nervousness, with low negative affect being a state of calmness and serenity. At baseline, participants were asked to rate the extent to which they felt a certain way since learning of their loved one's diagnosis with lung cancer. Positive affective scale was determined, alert, energized, strong, and calm. Negative affective states were nervous, guilty, irritable, afraid, and ashamed. Responses were *very slightly or not at all, a little, moderately, quit a bit, and extremely*. Cronbach's α was .70 for the positive affect subscale and .76 for the negative affect subscale.

Second, participants were asked how worried they were about getting lung cancer in their lifetime and how worried they were about having a health problem such as heart disease, stroke, or emphysema in their lifetime. The response set for both questions was *not at all worried, slightly worried, somewhat worried, worried, very worried*. We used the mean score of the two items together. Based on a review of the relevant literature, these items were developed specifically for this study; therefore no psychometric data are available.

The perceived risk component was measured with two risk items and one outcome expectancy item. Participants were asked to rate their risk for lung cancer if they continued to smoke, then to rate their chance of having another health problem, such as heart disease, stroke or emphysema, if they continue to smoke. The response set for both questions was *certain not to happen, very unlikely, unlikely, moderate chance, likely, very likely, and certain to happen*. We used the mean score of the two items together. A 1-item measure of perceived benefits of quitting asked participants to rate their chances of getting lung cancer if they quit smoking. The response set for this item was *certain not to happen, very unlikely, unlikely, moderate chance, likely, very likely, and certain to happen*. As with the items measuring worry, these items were developed specifically for this study based on a review of the literature and the experience of the research team with similar items used in other research projects. No psychometric data are available.

The third component of the TM model was measured using a single item subjective norm question and a single-item self-image question. The subjective norm question was worded "Most people close to you think you should quit smoking". Participants were asked to rate their level of agreement on a 7 point scale, ranging from *strongly disagree to strongly agree*. The self-image question asked participants to rate how you feel about yourself as a smoker. Participants were asked to rate their feelings on a 7-point scale, with *1 meaning feel bad about yourself because you smoke and 7 meaning feel good about yourself because you smoke*. Again, this item was developed specifically for the study based on a review of the literature and no psychometric data is available

Dependent Measures

Desire to quit

Desire to quit is a simple, global measure of motivation used in smoking cessation research (Hymowitz, Cummings et al. 1997). This construct is a measure of certainty or strength of choosing to quit smoking. Desire to quit has been shown to predict participation, quit attempts and cessation in worksite, minimal or self-help, and physician-led interventions (Glasgow, Hollis et al. 1990; Gritz, Carr et al. 1991; Curry, McBride et al. 1995). At baseline, participants were asked to rate their desire to quit smoking on a 7-point scale from *not at all (1), to a great deal (7)*. The distribution of this item was extremely skewed, with 63% of participants responding "7" at baseline. Based on this distribution, I dichotomized the variable, using the median of 6 as the cut point.

Reactions to tailored materials

At the 2-week follow up, participants were first asked whether they recalled receiving the family support album. Those who recalled receiving the FSA were then asked specific questions about the components of the FSA including the tailored booklet. Questions on reactions to the tailored booklet included how much of the booklet they read *1) didn't read it, 2) skimmed it, 3) read part of it, 4) read most of it, 5) read all of it.* Participants who responded 2 or higher to the previous questions were ask to rate the following on a 7-point scale: how much the information in the booklet applied to you, how much of the information in the booklet was new to you, how interesting and how trustworthy was the information in the booklet. The participants were also asked how much the information in the tailored

47

booklet made them want to quit smoking and how moving was the information in the booklet. These items were also measured on a 7-point scale ranging from *not at all to a lot*.

Human Subjects Review

The research project from which this data comes was originally submitted and approved by the Institutional Review Boards at Duke University Medical Center, the Durham Veterans Administration and the University of North Carolina Medical Center in 2004.

Analysis Plan

To analyze the data for the first research question, I first calculated descriptive statistics to characterize the sample in terms of teachable moment components, potential moderating variables, and desire to quit. The variables were not normally distributed, so I created dichotomous variables by splitting the sample at the median value of each variable.

Second, bivariate analysis assessed the relatedness of TM and moderating variables to each other prior to putting them into the full model. Logistic regression was used to identify the best combination of variables associated with dichotomous "desire to quit" variable. TM variables were included in the model if they had a bivariate association with desire to quit statistically significant at the $p < .25$ level. In the second step, potential moderating variables that were significantly related to desire to quit ($p < .25$) were included in the regression model. Third, interaction terms of the significant TM variables and the significant potential moderators were tested. Variables were considered moderators if the interaction term was significant after controlling for the main effects.

For the second question I calculated descriptive statistics to characterize engagement with and reactions to the self-help materials. Bivariate analysis assessed the association of baseline desire to quit and engagement with and reactions to the tailored booklet. In addition, bivariate analysis assessed the relationships among demographic, nicotine dependence, and relationship variables and engagement and reactions variables.

All analyses were done using SAS Statistical Software for the Personal Computer version 8.2.

Chapter 5 - Results

Research Question 1

A total of 494 family members were enrolled in the Family Ties study. The mean age was 47, 85% were white, 56% were female, 52% had less than college education. Thirty six percent described themselves as the primary caregiver for the patient and 10% were married to the patient or living as married. The majority of family members, 63%, reported a high desire to quit. (Table 5.1).

Table 5.1 Sample Characteristics

	N	%
Race		
White	346	85%
Gender		
Female	230	56%
Education		
Less than college	211	52%
Caregiver	146	36%
Spouse	42	10%

	Mean	SD
Age (18-79)	47	13
Closeness (3-12)	9	2.4
HSI (0-6)	3.1	1.5
Perceived risk (1-7)	5.5	.9
Perceived benefits of quitting (1-7)	4.3	1.0
Positive affect (5-25)	15.2	4.3
Negative affect (5-25)	12.3	5.0
Worry (1-5)	3.6	1.2
Self-image (1-5)	2.5	1.1
Subjective norm (1-7)	6.6	1.1
Desire to quit (1-7)	6.2	1.8

Bivariate analysis found that non-whites were more likely to report a high desire to quit than whites (p=.04) and family members with less education were more likely to report a high desire to quit than those with more education (p=.002). Caregivers were more likely to report high desire to quit than family members who were not caregivers (p=.01). The

distributions of all continuous variables were not normal, so each was dichotomized at the median value for bivariate and multivariate analysis. Family members who scored higher on the closeness index were more likely to report high desire to quit than family members who scored lower on the closeness index (p<.001). TM components of perceived risk, negative affect, worry, self-image and subjective norm were significantly related to desire to quit. Higher perceived risk (p<.0001), higher negative affect (p<.0001), higher worry (p<.0001), higher subjective norm (p<.0001) and a more negative self-image as a smoker (p<.0001) were significantly related to high desire to quit (Table 5.2)

Table 5.2 Bivariate associations between TM components and desire to quit

	Desire to quit <7 N=181 (%)	Desire to quit >7 N=313 (%)	P value
Age			
>46	53	50	ns
Race			
White	89	82	.04
Gender			
Female	57	59	ns
Education			
Less than college	43	57	.002
Caregiver status			
Yes	29	40	.01
Spouse			
Yes	11	13	ns
Closeness			
>=10	39	57	.001
HSI			
>3	40	41	ns
Perceived risk			
>5.4	23	56	<.0001
Perceived benefits			
>4	36	40	ns
Positive affect			
>15.4	45	50	ns
Negative affect			
>12.4	30	55	<.0001
Worry			
>=4	30	69	<.0001
Subjective Norm			
=7	73	90	<.0001
Self-image			
<2.5	33	67	<.0001

Correlation analysis was used to examine the relationships among the TM components and moderators to detect multicollinearity. There were a number of significant correlations, however, most were only slightly correlated (Table 5.3). Multiple significant slight-to-moderate correlations among the independent variables indicate interdependencies that could influence the multivariate analysis.

Table 5.3 Correlation Matrix of Study Variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	PR	-														
2.	PB	.21	-													
3.	PA	.002	.04	-												
4.	NA	.15^b	.02	.20^a	-											
5.	W	.39^a	.06	.01	.24^a	-										
6.	SI	.31^a	.03	-.09^c	.28^a	.32^a	-									
7.	SN	.19^a	.11^b	.03	.02	.25^a	.19^a	-								
8.	Age	-.13^b	.12^b	.006	-.11^c	-.19^a	.01	-.07	-							
9.	Gender	.07	.07	-.11^c	.17^b	.08	.18^b	.12^c	.08	-						
10.	Race	.04	.01	.13^b	.02	-.01	-.02	-.05	.16^b	-.05	-					
11.	Education	-.06	-.05	.06	-.15^b	-.06	-.12^b	-.01	.01	.06	-.09^c	-				
12.	Closeness	.02	-.02	.12^b	.10^c	.22^a	.12^b	.17^b	-.04	.01	-.01	.06	-			
13.	HIS	.07	.13^b	-.05	.12^b	.06	.11^c	.02	-.06	-.04	-.13^c	-.13^b	-.01	-		
14.	Spouse	.02	-.009	-.06	-.08	.02	-.02	.04	-.21^a	-.14^b	-.15^b	.02	-.16^b	.15^b	-	
15.	Caregiver	-.06	-.04	.09	-.14^b	-.04	-.09	-.09	-.007	-.07	-.17^b	.12^c	-.31	.06	.47^a	-

[a] p<.0001
[b] p<.01
[c] p<.05

All independent variables were entered into linear regression analysis with desire to quit at the dependent variable. This analysis produced collinearity diagnostic statistics - tolerance and variance inflation factor - for each variable. For each independent variable, tolerance = $1 - R^2$, where R^2 is the coefficient of determination for the regression of that variable on all remaining independent variables, low values (<.3) indicate high multivariate correlation. The variance inflation factor (VIF) is 1/tolerance, the number of times the variance of the corresponding parameter estimate is increased due to multicollinearity, compared to what it would be if there were no multicollinearity. Values of VIF exceeding 2.5 indicate multicollinearity (Allison 1999). Diagnostic statistics for all TM components and moderator variables indicate that multicollinearity is low among these variables. Based on these results, none of the variables were excluded from the multivariate analysis due to multicollinearity (Table 5.4).

Table 5.4 Multicollinearity Diagnostics Statistics for TM Components and Moderator Variables

	Tolerance	VIF
Perceived Risk	.77	1.3
Perceived Benefits	.70	1.4
Positive Affect	.80	1.2
Negative Affect	.92	1.1
Worry	.93	1.1
Self-image	.78	1.3
Subjective Norm	.89	1.1
Age	.87	1.1
Gender	.91	1.1
Race	.92	1.1
Education	.93	1.1
Closeness	.83	1.2
HSI	.95	1.1
Spouse	.73	1.4
Caregiver	.69	1.4

Multivariate logistic regression was used to determine whether combined TM components predicted desire to quit. All TM components, except positive affect, met the criteria of a p-value <.25 in the bivariate analysis. Therefore, the saturated or full model, to predict desire to quit consisted of TM components: perceived risk, perceived benefits, perceived worry, negative affect, self-image and subjective norm. The saturated model was significant (χ^2=131.08, df=11, p<.0001). The best model fit was determined by performing the likelihood ratio test - subtracting the χ^2 value and DF of the smaller model from the χ^2 value and DF of the larger model. The difference was compared to the chi-square distribution to determine the adequacy of the full model. If the difference was not significant then the variable could be dropped from the model. The final model included the variables perceived risk (PR), worry (W), self-image (SI), and subjective norm (SN) (χ^2=118.74, df=4 , p<.0001) (Table 5.5). Family members with higher perceived risk, higher worry, who felt bad about themselves because they smoked, and who strongly agreed that people important to them thought they should quit smoking, were more likely to have high desire to quit. Specifically, 21% of family members who had low perceived risk, low worry, less negative self-image, and low subjective norm had high desire to quit compared to 90% of family members with high perceived risk, high worry, negative self-image, and high subjective norm who had high desire to quit.

Table 5.5 Multivariate logistic regression with TM components related to desire to quit

TM Components	Odds ratio	95% confidence interval	p-value
High Perceived risk (PR)	2.5	(1.5, 4.1)	.0005
High Worry (W)	2.7	(1.7, 4.4)	<.0001
Negative Self-image (SI)	3.2	(2.0,5.2)	<.0001
High Subjective Norm (SN)	2.1	(1.1,3.9)	.032

Multivariate logistic regression was conducted to determine if the effect of TM

components on desire to quit was moderated by demographics or relationship characteristics.

Each moderator was analyzed with each individual TM component as a main effect and as an

interaction term. Three significant interactions were found and were included in the full

model – perceived risk x age, worry x gender, perceived risk x gender. The full model with

TM components (PR, W, SI, SN), moderators (age, gender, race), and interaction terms (PR

x age, W x age, W x gender) was significant (χ^2=129.89, df=10, p<.0001). Again, the best

model was determined by performing the likelihood ratio test - subtracting the χ^2 value and

DF of the smaller model from the χ^2 value and DF of the larger model.   The final model

included the variables PR, W, SI, SN, gender, race and the interaction term for worry and

gender (χ^2=138.30, df=7, p<.0001) (Table 5.6). These adjusted results suggest that higher

perceived risk (PR) (OR=2.3, 95% CI=1.4-3.7), feeling bad about yourself because of

smoking (SI) (OR=3.0, 95% CI=1.9-4.8), and strongly agreeing that people important to you

think you should quit (SN) (OR=2.2, 95% CI=1.2-3.9) were related to desire to quit

(p<.0001). Non-whites were more likely to have a high desire to quit than whites (OR=2.6

95% CI=1.4-4.9). There was a significant interaction between worry and gender, where

women with high worry were more likely to have high desire to quit than men and women with low worry (OR= 2.8 95% CI=1.7-4.6).

Table 5.6 Multivariate logistic regression with TM components, moderators and interactions predicting desire to quit

Factor	Odds ratio	95% confidence interval	p-value
Perceived risk	2.3	(1.4,3.7)	.0006
Worry	1.3	(.7,2.5)	ns
Self-image	3.0	(1.9,4.79)	<.0001
Subjective norm	2.2	(1.2,3.9)	.008
Gender	.4	(.2,.7)	.001
Race	2.6	(1.4, 4.9)	.003
Gender x Worry			
Female low vs. others	.3	(.2,.4)	<.0001

Figure 5.1 shows the interaction. Among women, having high worry is important in relation to high desire to quit. For men with low worry, when all other TM components are high, there is a 63% chance they will have high desire to quit. For women with low worry, there is only a 38% chance they will have a high desire to quit.   For both men and women, high worry, when all TM components are high, is related to high desire to quit (men 85% and women 90%).

Figure 5.1 Predictive Probability of High Desire to Quit by Gender and Worry
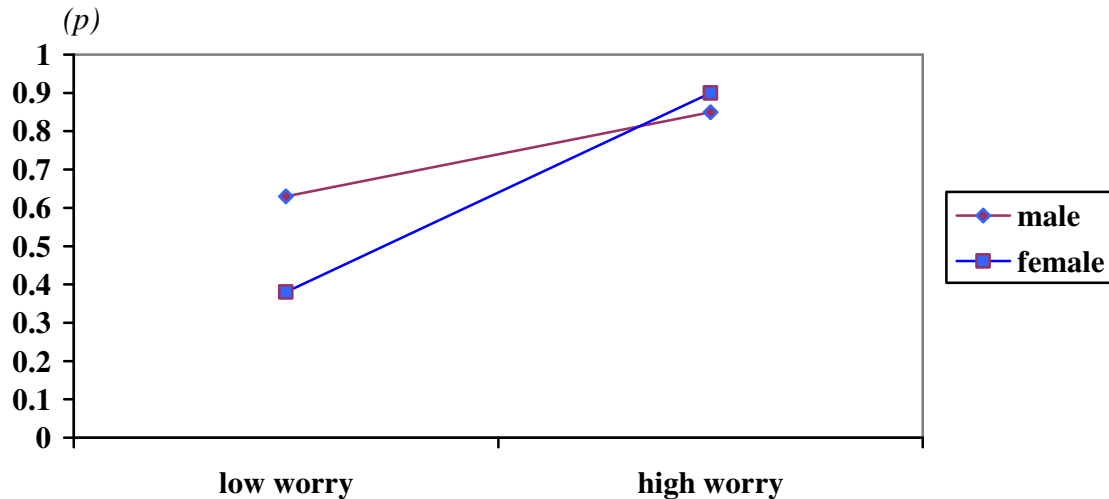
Research Question 2

As of September 15, 2006, 89% of the 494 family members were eligible to complete the 2-week intervention follow up survey and 266 (61%) family members completed the follow up survey. The main reasons for not completing the follow up survey were that we unable to contact them (27%) and they refused to continue in the study (8%). There was no relationship between desire to quit at baseline and completion of the follow up survey. There were differences in completion rates by age and education. Older family members were more likely than younger family members to complete the survey. Family members with less than high school education were less likely to complete the survey than those with more than high school education. In addition, family members of patients who were deceased were more likely to complete the follow up survey.

The data for this dissertation comes from a randomized controlled trial in which both groups received the tailored self-help materials and participants in the treatment group also received telephone counseling. The follow up survey occurred 14 weeks after the baseline survey, approximately 2 weeks after participants in the treatment group completed the

counseling intervention. It was possible that participants in the counseling group may have had greater engagement with the materials due to more interaction with the study. Therefore, it was necessary to test for differences in the follow up data by group assignment. There were no significant differences in engagement and reactions by study group; therefore, the sample for this analysis included all family members who completed the 2-week follow up survey (n=266).

Almost all family members (98%) recalled receiving the Family Support Album (FSA) and reported looking through the FSA (93%). Thirty two percent found the contents of the FSA useful in helping them try to quit smoking. More than half of the family members (52%) showed the FSA to someone else. Nearly half of the family members read most or all of the tailored booklet included in the FSA. A high percentage (57%) found the materials trustworthy.

Table 5.7 Reactions to materials

	N = 266	%
Recalled receiving the FSA	260	98
Looked through FSA	247	93
Showed to someone else	132	50
Read most or all of tailored booklet	125	47

	Mean	SD
Thought FSA was useful to help quit smoking (1-7)	4.9	1.8
Booklet applied to you (1-7)	5.2	1.5
Information new to you (1-7)	3.6	1.9
Information interesting (1-7)	5.5	1.6
Information trustworthy (1-7)	6.4	.9
Information moving (1-7)	5.4	1.6
Information made you want to quit smoking (1-7)	5.4	1.8

Bivariate analysis found that there were no differences in engagement with materials by desire to quit. All variables were dichotomized at the median value. Family members with low and high desire to quit were equally likely to recall receiving the FSA, look at it, share it with someone else, and to read some or all of it. High desire to quit was related to more positive reactions to the FSA and tailored booklet. Family members with a higher desire to quit at baseline were more likely than those with lower desire to quit to report that the information in the tailored booklet was useful in helping them try to quit (p=.05). Family members with a higher desire to quit were more likely those with lower desire to quit to report that the information in the tailored booklet applied to them (p=.04), was new to

them (p=.05), was interesting (p=.002), was trustworthy (p=.0005), and was moving

(p<.0001). Family members with a higher desire to quit at baseline were more likely to say

that the information in the booklet made them want to quit smoking (p=.0002). (Table 5.8)

Table 5.8 Bivariate associations of reactions to materials with desire to quit

	Desire to quit <7 N=99 (%)	Desire to quit >7 N=167 (%)	P value
Recalled receiving the FSA			
Yes	97	98	ns
Looked through FSA			
Yes	95	95	ns
Showed to someone else			
Yes	57	49	ns
Read most or all of tailored booklet			
	45	48	ns
Thought FSA was useful to help quit smoking			
>5	33	45	.05
Booklet applied to you			
>5	31	44	.04
Information new to you			
>3	35	48	.05
Information interesting			
>5	36	56	.002
Information trustworthy			
>6	43	65	.0005
Information moving			
>5	28	55	<.0001
Information made you want to quit smoking			
>5	34	58	.0002

Bivariate analysis of reactions and engagement and potential moderating variables

revealed some group differences (data shown in Appendix B). Women were more likely

than men to look through the FSA (97% vs. 92%, p=.03), to read most or all of the Family

Ties booklet (52% vs. 39%, p=.03), to say the information in the booklet was trustworthy

(65% vs. 46%, p=.002), and to say the information was moving (52% vs. 36%, p=.009). Nonwhites were less likely than whites to read some or all of the booklet (31% vs. 50%, p=.02), and more likely than whites to say that the information in the booklet made them want to quit smoking (64% vs. 46%, p=.02). Family members with lower education were more likely than those with higher education to say the information in the booklet was trustworthy (56% vs. 42%, p=.01), and to report that the information in the booklet was moving (52% vs. 39%, p=.02). Older family members were more likely than younger family members to say that the information in the booklet was moving (50% vs. 39%, p=.05). There were no differences in reactions to materials by nicotine dependence.

Family members who were close to the patient were more likely than those who were not close to the patient to say the in the tailored booklet made them want to quit smoking (55% vs. 43%, p=.05). Spouses were significantly less likely than non-spouses to read most or all of the booklet (31% vs. 49%, p=.05). Caregivers were more likely than non-caregivers to say the information in the booklet was new (53% vs. 38%, p=.01), the information was interesting (58% vs. 44%, p=.03), the information was trustworthy (66% vs. 52%, p=.02), and the information made you want to quit smoking (60% vs. 44%, p=.01).

Chapter 7 - Discussion

This chapter provides a summary of the study and a discussion of the major findings from the two research questions. Next, the implications for future research and practice are discussed. It concludes with a discussion of study limitations.

Summary of the study

This dissertation consisted of two research questions. First, the Teachable Moment (TM) model was used to examine the impact of the diagnosis of lung cancer on family members desire to quit smoking. The basic assumption of the TM model is that the experience of certain life events has the potential to change individual thoughts and related risk behaviors. The purpose of the first research question was to examine if TM components were related to desire to quit among a group of individuals who are experiencing what could objectively be termed a "teachable moment".   The analysis was cross-sectional, using the baseline data from the Family Ties study. These results could inform the development of smoking cessation interventions.   Second, follow-up data from the Family Ties study was analyzed to determine if desire to quit at baseline was related to engagement with and reactions to print materials tailored on the TM components.   If a family member's diagnosis was a TM, operationalized as high desire to quit, then greater engagement with and more positive reactions to the tailored print materials was expected.

Finding from Research Question 1

The data suggest that a family member's diagnosis of lung cancer may be a strong motivator for quitting in that it impacts smoker's perceived risk, self-image, and subjective norm. Worry was also related to desire to quit; however, worry appeared to be more important for women than for men. Additionally, the main effect of race in the model suggests that the impact of the TM components on desire to quit is greater for non-whites. Thus, a family member's diagnosis of lung cancer can be a motivating factor for family members who smoke. Family members who have heightened risk perceptions, strong emotional responses, and changes in aspects related to self are likely to be more motivated to quit smoking.

Previous discussions of the TM model have been largely theoretical. This is the first study to operationalize the components of the model and test the relationships among those components. The model did a good job explaining factors related motivation to quit among family members of lung cancer patients. Although these preliminary results are promising, more research is needed to test the applicability of the TM model to other situations that objectively fit the criteria of a "teachable moment".

Findings regarding individual components of the TM model provide information that could be used to improve smoking cessation interventions. The finding that perceived risk for lung cancer and other smoking related illness was related to desire to quit suggests that having a family member with lung cancer may have a powerful "debiasing" effect on smokers risk perceptions. For some family members, the experience of having a loved one with lung cancer appears to make the risk of getting cancer or other smoking related diseases more salient and that contributes to increased motivation to quit. Other population-based

studies have shown that risk perceptions are positively associated with intention to quit and number of quit attempts (Klesges 1988; Weinstein, Marcus et al. 2005). Thus, it appears that timing smoking cessation interventions to naturally occurring events that increase risk perception could be an effective strategy for smoking cessation interventions.

The data presented in this paper indicate that self-related components of the TM model are particularly important; however, interpreting these results is complicated due to methodological issues. In describing the TM model, McBride et al. (2003) used the term "self concept" to refer to an individual's commitment to social roles or norms. The construct of self concept is actually much broader and social roles and norms are just two elements. Since the purpose of this dissertation was to test the fit of the TM model, it was important to try to adhere to the original conceptualization of self concept discussed by McBride. Although the way "self concept" was operationalized is limiting, the variables were significantly related to desire to quit. Having a family member with lung cancer appears to have a strong influence on how an individual feels about themselves as a smoker and feeling bad about oneself as a smoker motivates family members to quit. The belief that other people think that it is important to quit smoking is also motivating.

Undoubtedly, a more complete examination of self-related variables would add support to the TM model. For example, the measure of smoker self concept and abstainer self concept developed by Shadel and Mermelstein (1996) could be used in other studies examining the concept of the TM and smoking cessation. This simple measure of smoker self concept has known psychometric properties and has been shown change as a function of participation in cessation programs. Further, qualitative research should be conducted to explore aspects of self that are activated during events that may be teachable moments.

66

Given these findings, self image and subjective norm are clearly potential targets for intervention. The difficulty is determining how to effectively intervene without inducing guilt or other negative reactions. We attempted to do this in the Family Ties booklet. Figure 7.1 shows an example from the tailored booklet, tailored on self image and subjective norm. The message for a smoker who didn't feel bad about themselves because of smoking featured text acknowledging the importance of smoking to her life, but that a family member's lung cancer had a transforming effect. The text for the smoker who did view herself negatively acknowledged that negative image. The text addressing low subjective norm discussed low family involvement and the need for greater involvement. The text addressing high subjective norm affirmed high family involvement. A picture of a woman, which was tailored to race and age, accompanied the text.

Figure 7.1   Sample tailored text addressing self image and subjective norm

Participant who did not feel bad about herself because she smoked and who didn't think people important to her wanted her to quit	Participant who felt bad about herself because she smoked and who thought people important to her wanted her to quit
My sister and I both started smoking when we were in high school. Over the years we've shared so much, and smoking together is a big part of that. When I found out my sister had lung cancer, I took a long hard look at myself and my smoking. I've always had it in my mind that I'd quit when I was ready. Well, I'm ready now.	*My sister and I both started smoking when we were in high school. Over the years we've talked a lot about why we should quit smoking, but neither of us has been able to give it up for good. It really is a disgusting habit. When I found out my sister had lung cancer, I took a long hard look at myself and my smoking.*
Its funny no one in our family has said anything to me about quitting, even my sister. I guess they feel it's my business if I want to keep smoking. Now that I'm ready to quit, I'm going to need their help. It's time to make it everyone's business.	*Unfortunately, it took my sister getting sick to give me the push I needed. Everyone in our family has been on me to quit. Now that I feel ready to quit, I know I can depend on them to help me. I'm going to need all the help I can get!*
Shaded text shows tailoring	

Emotional response, specifically worry, was evidently an important factor related to desire to quit. Because the analysis was cross sectional, it is not possible to determine the temporality of the relationship. Nevertheless, these results are particularly interesting because emotional response is not a specific component of other models used frequently in the design of tailored print materials such as TTM and the HBM. The majority of research involving tailored print materials has focused on behavioral constructs as determinants of behavior change. That is, theoretical constructs from the TTM, the Health Belief Model, or Social Cognitive Theory that have been found to predict behavior change. In a study looking

at other possible variables for tailoring, Kreuter et al. (2004) found that participants

responded to tailoring on cultural factors such as religiosity, collectivism, racial pride, and

time orientation was equally effective in generating positive responses as tailoring to

commonly used behavioral constructs. Findings from this dissertation are preliminary;

however results suggest that tailoring on emotional factors could also be effective.

Emotional response was also operationalize as negative and positive affect and the

lack of significance of this component, especially negative affect, was unexpected. The

research on the relationship between negative affect and smoking suggests that there is a

strong relationship; however, the nature of that relationship was unclear in the context of a

family member's diagnosis with lung cancer.   Affective response was measured using a

modified version of the PANAS, a commonly used to measure affective response. It is

possible that the modified PANAS did not capture the dimensions of emotional response that

are most important to motivation to quit among family members of lung cancer patients.

More research is needed to understand the dimensions of emotional response related to

smoking behavior and quitting among this study population or others experiencing an event

that objectively meets the criteria of a "teachable moment".

All other things being equal, African Americans had a higher desire to quit compared

to whites. Race had a significant main effect on desire to quit. This finding indicates that

having a relative with lung cancer is a particularly strong motivator for African Americans.

Due to the generally low quit rates among African Americans, there is a need for innovative

cessations methods for this population. It could be that offering African Americans smoking

cessation interventions at a "teachable moment" might increase the potency of a cessation

intervention.

Finding from Research Question 2

The second research question was whether desire to quit at baseline was predictive of engagement with and use of tailored print materials. The data showed that that the objective to achieve high exposure was met - that is, most family members recalled getting the family support album (FSA), regardless of desire to quit at baseline. However, desire to quit was not related to engagement with the materials. Nearly half of family members read less than some of the booklet and the amount of the booklet read did not differ by baseline desire to quit. These results, albeit discouraging, are similar to other studies that show it is difficult to get participants to engage with tailored print materials (Brug, Steenhuis et al. 1996; Orleans, Boyd et al. 1998; Campbell, Tessaro et al. 2002; McBride 2004), especially when face-to-face contact is not part of the study design. Men, non-whites, and spouses were less likely to read the booklet than were women, whites, and other family members respectively. Based on a review of the literature, formative research, and expertise with similar interventions, the materials we used were designed to be attractive and interesting to family members. It seems that the desired effect was achieved with some family members but not others. The results indicate that there is some room for improvement. Thus, future studies could benefit from additional formative research as a means of testing message and design concepts.

There are two possible general explanations for the level of engagement found in this study. Perhaps the amount of material in the FSA was too much and it discouraged family members from reading the materials. However, the format and amount of materials sent out was similar to self help materials disseminated in other studies (McBride 2004; Emmons, McBride et al. 2005). Another explanation is that materials that felt too personal could have put off family members. The goal in writing the messages in several sections of the tailored

booklet was to "pull at the heartstrings" of participating family members. It appears that this was the right strategy for those with high desire to quit (55% reported that the materials were moving). However, it seems to have been unsuccessful with those family members with low desire to quit (only 22% reported that the materials were moving). Rimer and Krueter (2006) suggest that tailored messages may be especially useful when emotional arousal facilitates behavior change. One way to interpret this finding is that heightened emotional awareness among family members with high desire to quit may have made them more open to smoking cessation messages with an emotional theme. This finding suggests that emotional processing of cessation messages may an intermediate step in the behavioral pathway between tailored print communications and behavioral change. Further exploration of the path linking motivation, emotional processing, and behavioral outcomes such as quit attempts and cessation is needed.

Differences in reactions to materials by demographic and relationship variables indicate that tailoring worked better for some subgroups than for others. Overall, family members with higher desire to quit had more positive reactions to the tailored print materials. There are a few subgroup differences that were interesting. Women were more likely than men to say the materials were trustworthy and moving. Similar gender differences in reactions to tailored materials have not been reported in other smoking cessation studies. Perhaps the overall emotional tone of the booklet may have been more appealing to women than to men. Family members with less education were also more likely say the materials were trustworthy and moving. Others studies have found similar differences by education level (Brug and van Assema 2000; Champion, Maraj et al. 2003). The tailored booklet was designed for people at all educational levels which involved some tradeoffs. The messages

had to be understandable to all family members, therefore, the text was written at a 7th grade reading level. It is possible that the use of simple language led to less positive reactions among family members with more education.

Finally, the booklet was most appealing to family members who were caregivers to the patient with lung cancer. This was not the original intent, but it is a positive outcome nevertheless. Perhaps family members who are caring for a person with lung cancer are particularly open to receiving cessation messages. Although baseline desire to quit did not differ by caregiver status, it is possible that more positive reactions to the materials among caregivers is a function of greater desire to quit in this subgroup. Further research using multivariate analysis could determine the unique contribution of caregiver status. In sum, caregivers had positive reactions to the materials, but it is not possible to determine why in this analysis.

The materials for the Family Ties study were specifically designed to be attractive and relevant for family members of lung cancer patients. These results indicate that the materials achieved the desired effect and struck a chord with some of the family members enrolled in this study. Thus, as hypothesized in the TM model, an individual who is motivated to change behavior will be especially open to receiving messages about changing that behavior.

Implications for Research and Practice

This initial examination of the TM model was promising and suggests a number of paths for further research. First, research is needed to refine the operational definitions of TM model components. This dissertation was a good first attempt at measuring the

components and testing the relationships described in the TM model. However, the definitions of some model components, specifically outcome expectations and self-related variables, were problematic and yielded mixed results. Future studies should include multiple measures of model components when possible so that new measures of model components can be validated by standard measures.

In addition, better measures of TM components, either new or existing, are needed. Developing new measures should begin with qualitative exploration of specific life events that objectively meet the criteria of a teachable moment. Qualitative data can be used to identify common themes and clarify concepts related to each of the TM components. The next step would be to follow well-established scale development methods (DeVellis 2003) such as generating a pool of potential items, having experts review the items, pilot testing the items, and conducting analysis to optimize scale length. Selecting appropriate existing measures is a trade off between brevity and strength. One the one hand, a measure needs to be reliable and valid. On the other hand, it should be easy to administer. In general, telephone interviews for research purposes should take no longer than 20-25 minutes to administer. That said, powerful measures of self concept, such as that developed by Linville (1987), are incredibly lengthy and would be difficult to administer in a brief telephone survey.

Second, testing the model in other contexts will help to refine it. In relation to smoking cessation, the model could be used to examine other experiences that might be considered a teachable moment. Other potential teachable moments could be receiving test results or being diagnosed with a smoking-related illness.

Third, it appears that tailoring on TM components promotes message elaboration among motivated smokers. Of course, the next step is to determine if greater message elaboration was related to behaviors such as quit attempts and cessation. Further exploration of the utility of the TM model as a conceptual framework for tailored print materials should also include a study to test the effects of tailoring on TM components compared to tailoring on more common behavioral constructs. This type of study would help determine if tailoring on TM components is equally or more effective than behavioral construct tailoring.

Limitations

There are a number of limitations to this research. First, the analysis for the first research question was cross-sectional; therefore, the temporality among the variables cannot be distinguished. Second, the sample for this study was predominately white, motivated quitters. Therefore, the results of this study may not be generalizable to all family members of lung cancer patients.

Third, the response rates at follow up were low (61%) and it is possible that family members lost to follow up may have had significantly different reactions to the tailored print materials. The main reason for non-response was "unable to contact". It is uncertain if the evaluation of engagement with and reactions to materials would have differed had we achieved a higher response rate. Differences in completion rates by education level suggest that SES may be a factor. Lipkus et al. have noted the difficulties in conducting intervention research with low-income populations due to frequent loss of phone services and transience (Lipkus, Lyna et al. 1999).

Differences in completion rates by age suggest that younger family members had busier lives compared to the older family members. It was also surprising to find that family members who lost their loved one's to lung cancer were more likely to complete the follow up survey. It was expected that family members might lose their motivation to participate after the death of the patient. One explanation for increased participation is that family members for whom the patient was still living were more likely to be in the midst of living with cancer, therefore, may not have had the time to complete the survey. Or perhaps seeing the patient survive with lung cancer may have decreased motivation to quit smoking and therefore decrease participation. In retrospect, response rates could have been improved through the use of monetary incentives for each follow up survey, with a small increase in the amount of incentive ($5) for each survey completed.

Fourth, some of the measures used were not previously tested and therefore, may have lacked precision. For example, outcome expectation was measured by one-item asking participants to rate the benefits of quitting and this may have been insufficient. Other studies have found a strong relationship between outcome expectations and measures of motivation (Copeland and Brandon 2000), therefore, finding no association was surprising. It is impossible to determine if the lack of association was due to a true lack of association or due to imprecise measurement. Future research examining the TM model should include multiple item measures with known psychometric properties.

Similarly, a modified version of the PANAS was used to measure positive and negative affect. The measure was modified by selecting a subset of 5 items that seemed most applicable to the emotional state of the study population. The modified scale may have had face validity; however, excluding items from a previously tested measure means that the

results may not be comparable to others studies that have used the PANAS. Although the reliabilities of the modified scales were acceptable - Cronbach's α was .70 for the positive affect subscale and .76 for the negative affect subscale – it is possible that the modified measure was missing those items that were most important in measuring affective response.

Finally, as described in the TM model desire to quit is a precursor to smoking cessation. The applicability of the TM model to smoking cessation intervention should be further tested using behavioral outcomes such as quit attempts, 7-day point prevalent abstinence and prolonged abstinence.

Concluding Statement

Finding ways to improve self-help smoking cessation interventions is important and one way to do that might be to use the TM model as a conceptual framework. The model includes typical behavioral constructs and emotional constructs set in the context of a significant life event. For some people, seeing someone else sick because of smoking provides strong motivation to quit. It motivates them because they feel more threatened, they feel bad about themselves because of smoking, they think others want them to quit, and for some, they are worried about what will happen to them. When family members are motivated to quit, they respond more positively to smoking cessation materials. Thus, tailoring on these factors related to motivation may improve the efficacy of self-help interventions.

Appendix A

Family Ties Booklet Message Library

Section Title: Cover
Page 1

Cover text 1 (Relationship = spouse, parent, sibling, Motivation = low or REF/DK)

When someone in your family gets lung cancer it can change the way you think about your own smoking. Now is a good time to think about quitting for you and for your family. The Family Ties Program can help you.

Cover text 2 (Relationship = other, Motivation = low or REF/DK)

When someone you know gets lung cancer it can change the way you think about your own smoking. Now is a good time to think about quitting for you and for your family. The Family Ties Program can help you.

Cover text 3 (Relationship = spouse, parent, sibling ; Motivation = Not low)

When someone in your family gets lung cancer it can make you think seriously about quitting smoking. Now is a good time to try to quit smoking for you and for your family. The Family Ties Program can help you.

Cover text 4 (Relationship = other ; Motivation = not low)

When someone you know gets lung cancer it can make you think seriously about quitting smoking. Now is a good time to try to quit smoking for you and for your family. The Family Ties Program can help you.

Section: Why Now
Page 2 and 3

When someone close to you gets lung cancer, it can be a wake-up call. This is the time for you to think about taking action.

Self Image Story 1 (Smoker self image=good, subjective norm=disagree)

My sister and I both started smoking when we were in high school. Over the years we've shared so much, and smoking together is a big part of that. When I found out my sister had lung cancer, I took a long hard look at myself and my smoking. I've always had it in my mind that I'd quit when I was ready. Well, I'm ready now. It's funny no one in our family has said anything to me about quitting, even my sister. I guess they feel it's my business if I want to keep smoking. Now that I'm ready to quit, I'm going to need their help. It's time to make it everyone's business.

Self Image Story 2 (Smoker self image=not good, subjective norm=disagree)

My sister and I both started smoking when we were in high school. Over the years we've talked a lot about why we should quit smoking, but neither of us was able to give it up for good. It really is a disgusting habit. When I found out my sister had lung cancer, I took a long hard look at myself and my smoking. Unfortunately, it took my sister getting sick to give me the push I needed. It's funny no one in our family has said anything to me about quitting, even my sister. I guess they feel it's my business if I want to keep smoking. Now that I'm ready to quit, I'm going to need their help. It's time to make it everyone's business.

 Self Image Story 3 (Smoker self image= REF/DK, subjective norm=disagree)

My sister and I both started smoking when we were in high school. Over the years we've shared so much, and smoking together is a big part of our relationship. We've also tried to quit together, but neither of us has been able to do it. When I found out my sister had lung cancer, I took a long hard look at myself and my smoking. Unfortunately, it took my sister getting sick to give me the push I needed. It's funny no one in our family has said anything to me about quitting, even my sister. I guess they feel it's my business if I want to keep smoking. Now that I'm ready to quit, I'm going to need their help. It's time to make it everyone's business.

Self Image Story 4 (Smoker self image=good, subjective norm=agree)

My sister and I both started smoking when we were in high school. Over the years we've shared so much, and smoking together is a big part of that. When I found out my sister had lung cancer, I took a long hard look at myself and my smoking. I've always had it in my mind that I'd quit when I was ready. Well, I'm ready now. Everyone in our family has been on me to quit. Now I'm ready, I know I can depend on them to help me. I'm going to need all the help I can get!

Self Image Story 5 (Smoker self image=not good, subjective norm=agree)

My sister and I both started smoking when we were in high school. Over the years we've talked a lot about why we should quit smoking, but neither of us has been able to give it up for good. It really is a disgusting habit. When I found out my sister had lung cancer, I took a long hard look at myself and my smoking. Unfortunately, it took my sister getting sick to give me the push I needed. Everyone in our family has been on me to quit. Now that I feel ready to quit, I know I can depend on them to help me. I'm going to need all the help I can get!

 Self Image Story 6 (Smoker self image= REF/DK, subjective norm=agree)

My sister and I both started smoking when we were in high school. Over the years we've shared so much, and smoking together is a big part of that. We've also tried to quit together, but neither of us has been able to do it. When I found out my sister had lung cancer, I took a long hard look at myself and my smoking. Unfortunately, it took my sister getting sick to give me the push I needed. Everyone in our family has been on me to quit. Now that I'm ready to quit, I know I can depend on them to help me. I'm going to need all the help I can get!

Self Image Story 7 (Smoker self image= good, subjective norm=REF/DK)

My sister and I both started smoking when we were in high school. Over the years we've shared so much, and smoking together is a big part of that. When I found out my sister had lung cancer, I took a long hard look at myself and my smoking. I've always had it in my mind that I'd quit when I was ready. Well, I'm ready now. I'm not sure what everyone in my family is going to think about my quitting.   I guess they think my smoking is my business. Now that I'm ready to quit, I'm going to need their help. It's time to make it everyone's business!

Self Image Story 8 (Smoker self image= not good, subjective norm=REF/DK)

My sister and I both started smoking when we were in high school. Over the years we've talked a lot about why we should quit smoking, but neither of us has been able to give it up for good. It really is a disgusting habit. When I found out my sister had lung cancer, I took a long hard look at myself and my smoking. Unfortunately, it took my sister getting sick to give me the push I needed. I'm not sure what everyone in my family is going to think about my quitting.   I guess they think my smoking is my business. Now that I'm ready to quit, I'm going to need their help. It's time to make it everyone's business!

Self Image Story 9 (Smoker self image= REF/DK, subjective norm=REF/DK)

My sister and I both started smoking when we were in high school. Over the years we've shared so much, and smoking together is a big part of that. We've also tried to quit together, but neither of us was able to do it. When I found out that my sister had lung cancer, I took a long hard look at myself and my smoking. Unfortunately, it took my sister getting sick to give me the push I needed. I'm not sure what everyone in my family is going to think about my quitting. I guess they think my smoking is my business. Now that I'm ready to quit, I'm going to need their help. It's time to make it everyone's business!

Emotion Story 1 (Type of relationship = husband; Quality of relationship = close, patient smoking status=smoker, patient = alive)

It was really hard when we first found out my husband had lung cancer. I felt I needed to drop everything and do whatever it took to take care of him. When the doctor told us it was important for both of us to quit smoking, I knew I had to do my best to at least try. My husband doesn't see any reason to quit now that he has lung cancer. By quitting myself, I hope I can encourage him to try too. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my husband and that helps me through the rough spots.

Emotion Story 2 (Type of relationship = wife; Quality of relationship = close, patient smoking status=smoker, patient = alive)

It was really hard when we first found out my wife had lung cancer. I felt I needed to drop everything and do whatever it took to take care of her. When the doctor told us it was important for both of us to quit smoking, I knew I had to do my best to at least try. My wife doesn't see any reason to quit now that she has lung cancer. By quitting myself, I hope I can encourage her to try too. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my wife and that helps me through the rough spots.

Emotion Story 3 (Type of relationship = parent; Quality of relationship = close, patient smoking status=smoker, patient = alive)

When we first found out my mom had lung cancer, it was all I could think about. She has always been there for me, and now it is my chance to be there for her. The doctor told her she needed to quit smoking, but she doesn't see any reason to quit now that she has lung cancer. The doctor also said it might help my mom to quit if she knows other people in our family are trying to quit. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It really hasn't been as hard as I thought it would be. I just keep telling myself I'm doing this for my mom and that gets me through the rough spots.

Emotion Story 4 (Type of relationship =sibling; Quality of relationship = close, patient smoking status=smoker, patient = alive)

When my brother was first diagnosed with lung cancer, it was all I could think about. He has always been such a strong, healthy person, and it is really hard to see him feeling so bad. The doctor said it would help him to quit smoking, but he just doesn't want to listen. The doctor suggested it might help him quit if other people in our family try to quit with him. I'd do anything for my brother, so I decided to give it a try. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It really hasn't been as hard as I thought it would be. I just keep telling myself I'm doing this for my brother and that gets me through the rough spots.

Emotion Story 5 (Type of relationship = other, REF/DK; Quality of relationship = close, patient smoking status=smoker, patient = alive)

When my Uncle Joe was first diagnosed with lung cancer, it was a real shock to the whole family. I couldn't stop thinking about it.   Uncle Joe has always been such a strong, healthy person, and it is really hard to see him feeling so bad.   The doctor said it would help him to quit smoking, but he just doesn't want to listen. The doctor suggested it might help him to quit if other people in our family try to quit with him. I'd do anything for my uncle, so I decided to give it a try. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It really hasn't been as hard as I thought it would be. I just keep telling myself I'm doing this for my uncle and that gets me through the rough spots.

Emotion Story 6 (Type of relationship = husband; Quality of relationship = not close, patient smoking status=smoker, patient = alive)

When my husband was first diagnosed with lung cancer, he took it pretty hard. It's been a difficult time for both of us. I've had to take on things I've never done before like paying bills and repairs to the house. I keep telling myself just to take it one day at a time, one decision at a time. The doctor told us it was important for both my husband and I to quit smoking. I've tried give up smoking before and always went back to it. Now that I've seen lung cancer up close, this time feels different. Quitting smoking hasn't been as hard as I thought it would be. I keep telling myself that one person with lung cancer in our family is enough and that helps me through the rough spots.

Emotion Story 7 (Type of relationship = wife; Quality of relationship = not close, patient smoking status=smoker)

When my wife was first diagnosed with lung cancer, she took it pretty hard. It's been a difficult time for both of us. I've had to take on things I've never done before like the cleaning and the cooking. I keep telling myself just to take it one day at a time, one decision at a time. The doctor told us it was important for both my wife and I to quit smoking. I've tried give up smoking before and always went back to it. Now that I've seen lung cancer up close, this time feels different. Quitting smoking hasn't been as hard as I thought it would be. I keep telling myself that one person with lung cancer in our family is enough and that helps me through the rough spots.

Emotion Story 8 (Type of relationship = parent; Quality of relationship = not close, patient smoking status=smoker, patient = alive)

When my Dad was first diagnosed with lung cancer, I didn't really know what to feel. We don't always see eye to eye, but it's tough to think of him being sick. When the doctor told him he needed to quit smoking, my dad didn't think it would do any good since he already has lung cancer. The doctor tried to explain how it would help him, but I don't think he really understood. The doctor thought it might help my dad if some other people in our family quit smoking. I felt like I needed to do something for my dad, so I decided to quit. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my dad.

Emotion Story 9 (Type of relationship =sibling; Quality of relationship = not close, patient smoking status=smoker, patient = alive)

When my sister was first diagnosed with lung cancer, I didn't know what to think or feel. We aren't very close these days, but it's tough to think of her being sick. When the doctor told her that she needed to quit smoking, she didn't think it would do any good now that she already had lung cancer. The doctor tried to explain how it would help her, but it sounds like she didn't believe it. The doctor thought it might help my sister if some other people in the family also quit smoking. I may not be able to help her in any other way, but trying to quit is the least I can do. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my sister.

Emotion Story 10 (Type of relationship = other, REF, DK; Quality of relationship = not close, patient smoking status=smoker, patient = alive)

When my Aunt Marion was first diagnosed with lung cancer, I didn't know what to think or feel. We aren't very close these days, but it's tough to think of her being sick. She's always been so fun and full of life. When the doctor told her she needed to quit smoking, she didn't think it would do any good now since she already has lung cancer. The doctor tried to explain how it would help her, but it sounds like she didn't believe it. The doctor thought it might help if some other people in our family quit smoking. I may not be able to help her in any other way, but trying to quit is the least I can do. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my aunt.

Emotion Story 11 (Type of relationship = husband; Quality of relationship = close, patient smoking status=non-smoker, patient = alive)

It was really hard when my husband was first diagnosed with lung cancer. I wanted to drop everything and do whatever it took to take care of him. I get through by telling myself just to take it one day at a time, one decision at a time. The doctor said it is important not to smoke around my husband because smoke from my cigarettes can actually make him sicker. I can just smoke outside, but I decided that it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my husband and that helps me through the rough spots.

Emotion Story 12 (Type of relationship = wife; Quality of relationship = close, patient smoking status=non-smoker, patient = alive)

It was really hard when my wife was first diagnosed with lung cancer. I wanted to drop everything and do whatever it took to take care of him. I get through by telling myself just to take it one day at a time, one decision at a time. The doctor said it is important not to smoke around my wife because smoke from my cigarettes can actually make him sicker. I can just smoke outside, but I decided that it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my wife and that helps me through the rough spots.

Emotion Story 13 (Type of relationship = parent; Quality of relationship = close, patient smoking status= non-smoker, patient = alive)

When my mom was first diagnosed with lung cancer, it was all I could think about. She has always been there for me, and now it is my chance to be there for her. When I went with her to the doctor, he told me not to smoke around her because smoke from my cigarettes could actually make her sicker. I can just smoke outside when I'm around her, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my mom and that helps me through the rough spots.

Emotion Story 14 (Type of relationship =sibling; Quality of relationship = close, patient smoking status=non-smoker, patient = alive)

When my brother was first diagnosed with lung cancer, it was all I could think about. He has always been such a strong, healthy person, and it is really hard to see him feeling so bad. The doctor said it is important not to smoke around my brother because the smoke from other people's cigarettes can actually make him sicker. I can just smoke outside when I'm around him, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my brother and that helps me through the rough spots.

Emotion Story 15 (Type of relationship = other, REF, DK; Quality of relationship = close, patient smoking status=non-smoker, patient = alive)

When my Uncle Joe was first diagnosed with lung cancer, it was a real shock to the whole family. I couldn't stop thinking about it. Uncle Joe has always been such a strong, healthy person, and it is really hard to see him feeling so bad. The doctor said that it is important not to smoke around my uncle because the smoke from other people's cigarettes can actually make him sicker. I can just smoke outside when I'm around him, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. it hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my uncle and that helps me through the rough spots.

Emotion Story 16 (Type of relationship = husband; Quality of relationship = not close, patient smoking status=non-smoker, patient = alive)

When my husband was first diagnosed with lung cancer, he took it pretty hard. It's been a difficult time for both of us. I've had to take on things I've never done before like paying bills and repairs to the house. I keep telling myself just to take it one day at a time, one decision at a time. The doctor said it is important not to smoke around my husband because the smoke from my cigarettes can actually make him sicker. I can just smoke outside, but I decided it would be better to quit all together I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my husband and that helps me through the rough spots.

Emotion Story 17 (Type of relationship = wife; Quality of relationship = not close, patient smoking status=non-smoker, patient = alive)

When my wife was first diagnosed with lung cancer he took it pretty hard. It's been a difficult time for both of us. I've had to take on things I've never done before like cleaning the house and cooking. I keep telling myself just to take it one day at a time, one decision at a time. The doctor said it is important not to smoke around my wife because the smoke from my cigarettes can actually make her sicker.   I could just smoke outside, but I decided that it would be better if I quit all together.   I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself that I need to stay quit for my wife and that helps me through the rough spots.

Emotion Story 18 (Type of relationship = parent; Quality of relationship = not close, patient smoking status=non-smoker, patient = alive)

When my Dad was first diagnosed with lung cancer, I didn't really know what to feel. We don't always see eye to eye, but it's tough to think of him being sick. The doctor said it is important not to smoke around my dad because the smoke from other people's cigarettes can actually make him sicker. I can just smoke outside when I'm around him, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my dad.

Emotion Story 19 (Type of relationship =sibling; Quality of relationship = not close, patient smoking status=non-smoker, patient = alive)

When my sister was first diagnosed with lung cancer, I didn't know what to think or feel. We aren't very close these days, but it's tough to think of her being sick. The doctor said is important not to smoke around my sister because the smoke from other people's cigarettes can actually make her sicker. I can just smoke outside when I'm around her, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it.   It hasn't been as hard as I thought it would be. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my sister.

Emotion Story 20 (Type of relationship = other, REF, DK; Quality of relationship = not close, patient smoking status=non-smoker, patient = alive)

When my Aunt Marion was first diagnosed with lung cancer, I didn't know what to think or feel. We aren't very close these days, but it's tough to think of her being sick. She's always been so fun and full of life. The doctor said it is important not to smoke around my Aunt because the smoke from other people's cigarettes can actually make her sicker. I can just smoke outside when I'm around her, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it.   It hasn't been as hard as I thought it would be. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my Aunt.

Emotion Story 21 (Type of relationship = husband; Quality of relationship = close, patient smoking status=smoker, patient = deceased)

It was really hard when we first found out my husband had lung cancer. I felt I needed to drop everything and do whatever it took to take care of him. When the doctor told us it was important for both of us to quit smoking, I knew I had to do my best to at least try. My husband didn't see any reason to quit since he had lung cancer. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my husband and that helps me through the rough spots.

Emotion Story 22 (Type of relationship = wife; Quality of relationship = close, patient smoking status=smoker, patient = deceased)

It was really hard when we first found out my wife had lung cancer. I felt I needed to drop everything and do whatever it took to take care of her. When the doctor told us it was important for both of us to quit smoking, I knew I had to do my best to at least try. My wife didn't see any reason to quit since she had lung cancer. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my wife and that helps me through the rough spots.

Emotion Story 23 (Type of relationship = parent; Quality of relationship = close, patient smoking status=smoker, patient = deceased)

When we first found out my mom had lung cancer, it was all I could think about. She has always been there for me, and now it is my chance to be there for her. The doctor told her she needed to quit smoking, but she didn't see any reason to quit since she had lung cancer. The doctor also said it might help my mom to quit if she knows other people in our family are trying to quit. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It really hasn't been as hard as I thought it would be. I just keep telling myself I'm doing this for my mom and that gets me through the rough spots.

Emotion Story 24 (Type of relationship =sibling; Quality of relationship = close, patient smoking status=smoker, patient = deceased)

When my brother was first diagnosed with lung cancer, it was all I could think about. He was always such a strong, healthy person, and it was really hard to see him feeling so bad. The doctor said it would help him to quit smoking, but he just didn't want to listen. The doctor suggested it might help him quit if other people in our family try to quit with him. I'd do anything for my brother, so I decided to give it a try. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It really hasn't been as hard as I thought it would be. I just keep telling myself I'm doing this for my brother and that gets me through the rough spots.

Emotion Story 25 (Type of relationship = other, REF/DK; Quality of relationship = close, patient smoking status=smoker, patient = deceased)

When my Uncle Joe was first diagnosed with lung cancer, it was a real shock to the whole family. I couldn't stop thinking about it. Uncle Joe was always such a strong, healthy person, and it was really hard to see him feeling so bad. The doctor said it would help him to quit smoking, but he just didn't want to listen. The doctor suggested it might help him to quit if other people in our family try to quit with him. I'd do anything for my uncle, so I decided to give it a try. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It really hasn't been as hard as I thought it would be. I just keep telling myself I'm doing this for my uncle and that gets me through the rough spots.

Emotion Story 26 (Type of relationship = husband; Quality of relationship = not close, patient smoking status=smoker, patient = deceased)

When my husband was first diagnosed with lung cancer, he took it pretty hard. It's been a difficult time for both of us. I've had to take on things I've never done before like paying bills and repairs to the house. I keep telling myself just to take it one day at a time, one decision at a time. The doctor told us it was important for both my husband and I to quit smoking. I've tried give up smoking before and always went back to it. Now that I've seen lung cancer up close, this time feels different. Quitting smoking hasn't been as hard as I thought it would be. I keep telling myself that one person with lung cancer in our family is enough and that helps me through the rough spots.

Emotion Story 27 (Type of relationship = wife; Quality of relationship = not close, patient smoking status=smoker, patient = deceased)

When my wife was first diagnosed with lung cancer, she took it pretty hard. It's been a difficult time for both of us. I've had to take on things I've never done before like the cleaning and the cooking. I keep telling myself just to take it one day at a time, one decision at a time. The doctor told us it was important for both my wife and I to quit smoking. I've tried give up smoking before and always went back to it. Now that I've seen lung cancer up close, this time feels different. Quitting smoking hasn't been as hard as I thought it would be. I keep telling myself that one person with lung cancer in our family is enough and that helps me through the rough spots.

Emotion Story 28 (Type of relationship = parent; Quality of relationship = not close, patient smoking status=smoker, patient = deceased)

When my Dad was first diagnosed with lung cancer, I didn't really know what to feel. We didn't always see eye to eye, but it was tough to think of him being sick. When the doctor told him he needed to quit smoking, my dad didn't think it would do any good since he already had lung cancer. The doctor tried to explain how it would help him, but I don't think he really understood. The doctor thought it might help my dad if some other people in our family quit smoking. I felt like I needed to do something for my dad, so I decided to quit. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my dad.

Emotion Story 29 (Type of relationship =sibling; Quality of relationship = not close, patient smoking status=smoker, patient = deceased)

When my sister was first diagnosed with lung cancer, I didn't know what to think or feel. We weren't very close, but it was tough to think of her being sick. When the doctor told her that she needed to quit smoking, she didn't think it would do any good since she already had lung cancer. The doctor tried to explain how it would help her, but it sounds like she didn't believe it. The doctor thought it might help my sister if some other people in the family also quit smoking. I may not be able to help her in any other way, but trying to quit is the least I can do. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my sister.

Emotion Story 30 (Type of relationship = other, REF, DK; Quality of relationship = not close, patient smoking status=smoker, patient = deceased)

When my Aunt Marion was first diagnosed with lung cancer, I didn't know what to think or feel. We weren't very close, but it was tough to think of her being sick. She's always been so fun and full of life. When the doctor told her she needed to quit smoking, she didn't think it would do any good since she already had lung cancer. The doctor tried to explain how it would help her, but it sounds like she didn't believe it. The doctor thought it might help if some other people in our family quit smoking. I may not be able to help her in any other way, but trying to quit is the least I can do. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my aunt.

Emotion Story 31 (Type of relationship = husband; Quality of relationship = close, patient smoking status=non-smoker, patient = deceased)

It was really hard when my husband was first diagnosed with lung cancer. I wanted to drop everything and do whatever it took to take care of him. I get through by telling myself just to take it one day at a time, one decision at a time. The doctor said it was important not to smoke around my husband because smoke from my cigarettes could have actually made him sicker. I could have smoked outside, but I decided that it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my husband and that helps me through the rough spots.

Emotion Story 32 (Type of relationship = wife; Quality of relationship = close, patient smoking status=non-smoker, patient = deceased)

It was really hard when my wife was first diagnosed with lung cancer. I wanted to drop everything and do whatever it took to take care of him. I get through by telling myself just to take it one day at a time, one decision at a time. The doctor said it was important not to smoke around my wife because smoke from my cigarettes could have actually made him sicker. I could have smoked outside, but I decided that it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my wife and that helps me through the rough spots.

Emotion Story 33 (Type of relationship = parent; Quality of relationship = close, patient smoking status= non-smoker, patient = deceased)

When my mom was first diagnosed with lung cancer, it was all I could think about. She was always there for me, and it was my chance to be there for her. When I went with her to the doctor, he told me not to smoke around her because smoke from my cigarettes could have actually made her sicker. I could have just smoked outside when I was around her, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my mom and that helps me through the rough spots.

Emotion Story 34 (Type of relationship =sibling; Quality of relationship = close, patient smoking status=non-smoker, patient = deceased)

When my brother was first diagnosed with lung cancer, it was all I could think about. He had always been such a strong, healthy person, and it was really hard to see him feeling so bad. The doctor said it was important not to smoke around my brother because the smoke from other people's cigarettes could have actually made him sicker. I could have just smoked outside when I was around him, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my brother and that helps me through the rough spots.

Emotion Story 35 (Type of relationship = other, REF, DK; Quality of relationship = close, patient smoking status=non-smoker, patient = deceased)

When my Uncle Joe was first diagnosed with lung cancer, it was a real shock to the whole family. I couldn't stop thinking about it. Uncle Joe had always been such a strong, healthy person, and it was really hard to see him feeling so bad. The doctor said that it was important not to smoke around my uncle because the smoke from other people's cigarettes could have actually made him sicker. I could have just smoked outside when I was around him, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. it hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my uncle and that helps me through the rough spots.

Emotion Story 36 (Type of relationship = husband; Quality of relationship = not close, patient smoking status=non-smoker, patient = deceased)

When my husband was first diagnosed with lung cancer, he took it pretty hard. It's been a difficult time for both of us. I've had to take on things I've never done before like paying bills and repairs to the house. I keep telling myself just to take it one day at a time, one decision at a time. The doctor said it was important not to smoke around my husband because the smoke from my cigarettes could have actually made him sicker. I could have just smoked outside, but I decided it would be better to quit all together I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself I need to stay quit for my husband and that helps me through the rough spots.

Emotion Story 37 (Type of relationship = wife; Quality of relationship = not close, patient smoking status=non-smoker, patient = deceased)

When my wife was first diagnosed with lung cancer he took it pretty hard. It's been a difficult time for both of us. I've had to take on things I've never done before like cleaning the house and cooking. I keep telling myself just to take it one day at a time, one decision at a time. The doctor said it was important not to smoke around my wife because the smoke from my cigarettes could have actually made her sicker. I could have just smoked outside, but I decided that it would be better if I quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. Every day, I tell myself that I need to stay quit for my wife and that helps me through the rough spots.

Emotion Story 38 (Type of relationship = parent; Quality of relationship = not close, patient smoking status=non-smoker, patient = deceased)

When my Dad was first diagnosed with lung cancer, I didn't really know what to feel. We didn't always see eye to eye, but it was tough to think of him being sick. The doctor said it was important not to smoke around my dad because the smoke from other people's cigarettes could have actually made him sicker. I could have just smoked outside when I was around him, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it. It hasn't been as hard as I thought it would be. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my dad.

Emotion Story 39 (Type of relationship =sibling; Quality of relationship = not close, patient smoking status=non-smoker, patient = deceased)

When my sister was first diagnosed with lung cancer, I didn't know what to think or feel. We weren't very close, but it was tough to think of her being sick. The doctor said it was important not to smoke around my sister because the smoke from other people's cigarettes could have actually made her sicker. I could have just smoked outside when I was around her, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it.   It hasn't been as hard as I thought it would be. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my sister.

Emotion Story 40 (Type of relationship = other, REF, DK; Quality of relationship = not close, patient smoking status=non-smoker, patient = deceased)

When my Aunt Marion was first diagnosed with lung cancer, I didn't know what to think or feel. We weren't very close, but it was tough to think of her being sick. She was always so fun and full of life. The doctor said it was important not to smoke around my Aunt because the smoke from other people's cigarettes could have actually made her sicker. I could have just smoked outside when I was around her, but I decided it would be better to quit all together. I've tried give up smoking before and always went back to it. This time is different because I have a really good a reason to stick with it.   It hasn't been as hard as I thought it would be. When it gets hard, I remind myself I'm helping myself at the same time I might be helping my Aunt.

Risk Story 1 (Motivation=low, REF/DK , Perceived Risk =low, REF/DK)

I've always known I could get lung cancer from smoking. The warning is right there on every pack of cigarettes. It's one of those things you think "yeah, but it won't happen to me." I think of myself as a healthy person, and I try to take good care of myself. But when someone you love gets lung cancer, it makes you think more about your own smoking. Seeing cancer close up has been a real wake up call. I know it could just as easily be me with lung cancer, and I feel both lucky and guilty. The bottom line is I know it's time for me to thing about quitting smoking.

Risk Story 2 (Motivation=not low, Perceived Risk =low, REF/DK)

I've always known I could get lung cancer from smoking. The warning is right there on every pack of cigarettes. It's one of those things you think "yeah, but it won't happen to me." I think of myself as a healthy person, and I try to take good care of myself. But when someone you love gets lung cancer, it makes you think more about your own smoking. Seeing cancer close up has been a real wake up call. I know it could just as easily be me, and I feel both lucky and guilty. The bottom line is I know it's time for me to quit once and for all.

Risk Story 3 (Motivation=low, REF/DK, Perceived Risk =not low)

I've always known I could get lung cancer from smoking. The warning is right there on every pack of cigarettes. Knowing what could happen just wasn't enough to make me want to quit. It's one of those things you think "yeah, but it won't happen to me." I think of myself as a healthy person, and I try to take good care of myself. But when someone you love gets lung cancer, it makes you think more about your own smoking. Seeing cancer close up has been a real wake up call. I know it could just as easily be me with lung cancer, and I feel both lucky and guilty. The bottom line is I know it's time for me to think about quitting smoking.

Risk Story 4 (Motivation=not low, Perceived Risk =not low)

I've always known I could get lung cancer from smoking. The warning is right there on every pack of cigarettes. Knowing what could happen just wasn't enough to make me want to quit. It's one of those things you think "yeah, but it won't happen to me." I think of myself as a healthy person, and I try to take good care of myself. But when someone you love gets lung cancer, it makes you think more about your own smoking. Seeing cancer close up has been a real wake up call. I know it could just as easily be me with lung cancer, and I feel both lucky and guilty. The bottom line is I know it's time for me to quit once and for all.

Section: It's All Related
Page 4

Related 1 (STAGE= PC/C; PREVQUIT= No; SE=Low, REF/DK)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting can be challenging, but now you have a good reason to take on the challenge. No matter how hooked you are, you can take steps towards quitting. It may take several tries, but in the end you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	Solution
MIND	When things get tough, quitting doesn't seem very important any more.	Keep reminding yourself of why you want to quit.
BODY	You are concerned about headaches and irritability when you go without cigarettes.	Find out more about using the nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are with certain people.	Let them know that you are trying to quit and ask for their support.

Even though you've never tried to quit smoking before, you probably have an idea of the difficulties you will face if you quit. But once you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 2 (STAGE= PC/C, REF/DK; PREVQUIT= Yes; SE=Low, REF/DK)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting can be challenging, but now you have a good reason to take on the challenge. No matter how hooked you are, you can take steps towards quitting. It may take several tries, but in the end you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	Solution
MIND	When things get tough, quitting doesn't seem very important any more.	Keep reminding yourself of why you want to quit.
BODY	You are concerned about headaches and irritability when you go without cigarettes.	Find out more about using the nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are with certain people.	Let them know that you are trying to quit and ask for their support.

Since you've tried to quit smoking before, you have an idea about the difficulties you will face if you try to quit again. But since you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 3 (STAGE= PC/C; PREVQUIT= REF/DK; SE=Low, REF/DK)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting can be challenging, and now you have a good reason to take on the challenge. No matter how hooked you are, you can take steps towards quitting. It may take several tries, but in the end you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	Solution
MIND	When things get tough, quitting doesn't seem very important any more.	Keep reminding yourself of why you want to quit.
BODY	You are concerned about headaches and irritability when you go without cigarettes.	Find out more about using the nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are with certain people.	Let them know that you are trying to quit and ask for their support.

Even if you've never tried to quit smoking before, you probably know the difficulties you will face if you quit. But once you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 4 (STAGE= PC/C; REF/DK; PREVQUIT= No, SE=Not Low)

When someone you love gets lung cancer, it can move you to think about towards quitting smoking. You know quitting can be challenging, and now you have a good reason to take on the challenge. <u>Feeling like you can do what it takes to quit is half the battle</u>. It may take several tries, but you can get through it. In the end, you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	**Solution**
MIND	When things get tough, quitting doesn't seem very important any more.	Keep reminding yourself of why you want to quit.
BODY	You are concerned about headaches and irritability when you go without cigarettes.	Find out more about using the nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are with certain people.	Let them know that you are trying to quit and ask for their support.

Even though you've never tried to quit smoking before, you probably have an idea of the difficulties you will face if you quit. But once you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 5 (STAGE= PC/C; REF/DK; PREVQUIT= Yes, SE=Not Low)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting can be challenging, and now you have a good reason to take on the challenge. <u>Feeling like you can do what it takes to quit is half the battle</u>. It may take several tries, but you can get through it. In the end you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	**Solution**
MIND	When things get tough, quitting doesn't seem very important any more.	Keep reminding yourself of why you want to quit.
BODY	You are concerned about headaches and irritability when you go without cigarettes.	Find out more about using the nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are with certain people.	Let them know that you are trying to quit and ask for their support.

Since you've tried to quit smoking before, you have an idea about the difficulties you will face if you try to quit again. But since you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 6 (STAGE= PC/C, REF/DK; PREVQUIT= REF/DK; SE=Not Low)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting smoking can be challenging, and now you have a good reason to take on the challenge. Feeling like you can do what it takes to quit is half the battle. It may take several tries, but you can get through it. In the end you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	**Solution**
MIND	When things get tough, quitting doesn't seem very important any more.	Keep reminding yourself of why you want to quit.
BODY	You are concerned about headaches and irritability when you go without cigarettes.	Find out more about using the nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are with certain people.	Let them know that you are trying to quit and ask for their support.

Even if you've never tried to quit smoking before, you probably know the difficulties you will face if you quit. But, once you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 7 (STAGE= P; PREVQUIT= No; SE=Low, REF/DK)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting can be challenging, but now you have a good reason to take on the challenge. No matter how hooked you are, you can take steps towards quitting. It may take several tries, but in the end you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	**Solution**
MIND	When quitting gets tough, you tell yourself that you don't have the willpower to stay quit.	Think of things you can say to yourself to keep going when you feel like giving up.
BODY	You have strong cravings for a cigarette.	Drink plenty of water. Plan to use nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are in certain situations.	Have a plan for what you will do in those situations so you won't be tempted to smoke.

Even though you've never tried to quit smoking before, you probably have an idea of the difficulties you will face if you quit. But once you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 8 (STAGE= P; PREVQUIT= Yes; SE=Low, REF/DK)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting can be challenging, but now you have a good reason to take on the challenge. No matter how hooked you are, you can take steps towards quitting. It may take several tries, but in the end you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	Solution
MIND	When quitting gets tough, you tell yourself that you don't have the willpower to stay quit.	Think of things you can say to yourself to keep going when you feel like giving up.
BODY	You have strong cravings for a cigarette.	Drink plenty of water. Plan to use nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are in certain situations.	Have a plan for what you will do in those situations so you won't be tempted to smoke.

Since you've tried to quit smoking before, you have an idea about the difficulties you will face if you try to quit again. But since you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 9 (STAGE= P; PREVQUIT= REF/DK; SE=Low, REF/DK)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting can be challenging, and now you have a good reason to take on the challenge. No matter how hooked you are, you can take steps towards quitting. It may take several tries, but in the end you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	**Solution**
MIND	When quitting gets tough, you tell yourself that you don't have the willpower to stay quit.	Think of things you can say to yourself to keep going when you feel like giving up.
BODY	You have strong cravings for a cigarette.	Drink plenty of water. Plan to use nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are in certain situations.	Have a plan for what you will do in those situations so you won't be tempted to smoke.

Even if you've never tried to quit smoking before, you probably know the difficulties you will face if you quit. But once you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 10 (STAGE= P; PREVQUIT= No; SE=Not Low)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting can be challenging, and now you have a good reason to take on the challenge. Feeling like you can do what it takes to quit is half the battle. It may take several tries, but you can get through it. In the end, you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	Solution
MIND	When quitting gets tough, you tell yourself that you don't have the willpower to stay quit.	Think of things you can say to yourself to keep going when you feel like giving up.
BODY	You have strong cravings for a cigarette.	Drink plenty of water. Plan to use nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are in certain situations.	Have a plan for what you will do in those situations so you won't be tempted to smoke.

Even though you've never tried to quit smoking before, you probably have an idea of the difficulties you will face if you quit. But once you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 11 (STAGE= P, REF/DK; PREVQUIT= Yes; SE=Not Low)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting can be challenging, and now you have a good reason to take on the challenge. <u>Feeling like you can do what it takes to quit is half the battle</u>. It may take several tries, but you can get through it. In the end, you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	**Solution**
MIND	When quitting gets tough, you tell yourself that you don't have the willpower to stay quit.	Think of things you can say to yourself to keep going when you feel like giving up.
BODY	You have strong cravings for a cigarette.	Drink plenty of water. Plan to use nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are in certain situations.	Have a plan for what you will do in those situations so you won't be tempted to smoke.

Since you've tried to quit smoking before, you have an idea about the difficulties you will face if you try to quit again. But since you know what might get in your way, you can come up with a plan to deal with the difficulties.

Related 12 (STAGE= P, REF/DK; PREVQUIT= REF/DK; SE=Not Low)

When someone you love gets lung cancer, it can move you to think about quitting smoking. You know quitting smoking can be challenging, and now you have a good reason to take on the challenge. <u>Feeling like you can do what it takes to quit is half the battle</u>. It may take several tries, but you can get through it. In the end you can be smoke free.

If you are like most smokers, smoking is part of what you think and feel, how your body works, and the things you do. Quitting smoking successfully means facing challenges in all three areas - your mind, your body, and your actions.

	Challenge	Solution
MIND	When quitting gets tough, you tell yourself that you don't have the willpower to stay quit.	Think of things you can say to yourself to keep going when you feel like giving up.
BODY	You have strong cravings for a cigarette.	Drink plenty of water. Plan to use nicotine replacement such as the Patch.
ACTIONS	You feel tempted to smoke when you are in certain situations.	Have a plan for what you will do in those situations so you won't be tempted to smoke.

Even if you've never tried to quit smoking before, you probably know the difficulties you will face if you quit. But once you know what might get in your way, you can come up with a plan to deal with the difficulties.

Facts 1 (Lives with Patient=yes, lives with children=yes)

There is a lot of information out there about smoking cigarettes and your health. But there may be some things you do not know.

Did you know that cigarette smoke has over 4,000 different chemicals, of which at least 400 are poisonous and about 40 can cause cancer? Every time you smoke a cigarette you are breathing in:

Chemical	Other places you find it
Acetone	Nail polish remover
Ammonia	Floor cleaner
Arsenic	Rat poison
Butane	Lighter fluid
Cadmium	Car batteries
Carbon dioxide	Car exhaust
DDT	Insecticide
Hydrogen cyanide	Gas chamber
Methanol	Rocket fuel
Naphthalene	Moth balls
Toluene	Industrial solvent

About 85% to 90% of smoke from a cigarette ends up in the air and can harm the people around it or who breathe. This is called passive smoke. Passive smoke is harmful to your family. It can be especially harmful to people who are already sick. It is dangerous for children because it causes asthma, ear infections, bronchitis and sudden infant death syndrome (SIDS).

Did you know that your body starts to heal right away when you quit?

You know that it would be good for you to quit smoking. But did you know that your body begins to heal itself as soon as 20 minutes after you smoke your last cigarette?   Within 24 hours of quitting, your heart rate and blood pressure go down, and your lungs work better. After just one year, you have a lower risk of getting lung cancer and heart disease than when you smoked. The longer you stay quit, the lower your risk of getting lung cancer and heart disease in the future.

Facts 2 (Lives with Patient=no, lives with children=yes)

There is a lot of information out there about smoking cigarettes and your health. But there may be some things you do not know.

Did you know that cigarette smoke has over 4,000 different chemicals, of which at least 400 are poisonous and about 40 can cause cancer? Every time you smoke a cigarette you are breathing in:

Chemical	Other places you find it
Acetone	Nail polish remover
Ammonia	Floor cleaner
Arsenic	Rat poison
Butane	Lighter fluid
Cadmium	Car batteries
Carbon dioxide	Car exhaust
DDT	Insecticide
Hydrogen cyanide	Gas chamber
Methanol	Rocket fuel
Naphthalene	Moth balls
Toluene	Industrial solvent

About 85% to 90% of smoke from a cigarette ends up in the air and can harm the people around it or who breathe it. This is called passive smoke. Passive smoke is harmful to your family. It is especially dangerous for children because it causes asthma, ear infections, bronchitis and sudden infant death syndrome (SIDS).

Did you know that your body starts to heal right away when you quit?

You know that it would be good for you to quit smoking. But did you know that your body begins to heal itself as soon as 20 minutes after you smoke your last cigarette?   Within 24 hours of quitting, your heart rate and blood pressure go down, and your lungs work better. After just one year, you have a lower risk of getting lung cancer and heart disease than when you smoked. The longer you stay quit, the lower your risk of getting lung cancer and heart disease in the future.

Facts 3 (Lives with Patient=yes, lives with children=no)

There is a lot of information out there about smoking cigarettes and your health. But there may be some things you do not know.

Did you know that cigarette smoke has over 4,000 different chemicals, of which at least 400 are poisonous and about 40 can cause cancer? Every time you smoke a cigarette you are breathing in:

Chemical	Other places you find it
Acetone	Nail polish remover
Ammonia	Floor cleaner
Arsenic	Rat poison
Butane	Lighter fluid
Cadmium	Car batteries
Carbon dioxide	Car exhaust
DDT	Insecticide
Hydrogen cyanide	Gas chamber
Methanol	Rocket fuel
Naphthalene	Moth balls
Toluene	Industrial solvent

About 85% to 90% of smoke from a cigarette ends up in the air and can harm the people around it or who breathe it. This is called passive smoke. Passive smoke is harmful to your family. It can be especially harmful to people who are already sick. The chemicals in passive smoke can be even more harmful than the smoke you inhale.

Did you know that your body starts to heal right away when you quit?

You know that it would be good for you to quit smoking. But did you know that your body begins to heal itself as soon as 20 minutes after you smoke your last cigarette?   Within 24 hours of quitting, your heart rate and blood pressure go down, and your lungs work better. After just one year, you have a lower risk of getting lung cancer and heart disease than when you smoked. The longer you stay quit, the lower your risk of getting lung cancer and heart disease in the future.

Facts 4 (Lives with Patient=no, lives with children=no)

There is a lot of information out there about smoking cigarettes and your health. But there may be some things you do not know.

Did you know that cigarette smoke has over 4,000 different chemicals, of which at least 400 are poisonous and about 40 can cause cancer? Every time you smoke a cigarette you are breathing in:

Chemical	Other places you find it
Acetone	Nail polish remover
Ammonia	Floor cleaner
Arsenic	Rat poison
Butane	Lighter fluid
Cadmium	Car batteries
Carbon dioxide	Car exhaust
DDT	Insecticide
Hydrogen cyanide	Gas chamber
Methanol	Rocket fuel
Naphthalene	Moth balls
Toluene	Industrial solvent

About 85% to 90% of smoke from a cigarette ends up in the air and can harm the people around it or who breathe it. This is called passive smoke. Passive smoke is harmful to your family. It can be especially harmful to people who are already sick and to children. The chemicals in passive smoke can be even more harmful than the smoke you inhale.

Did you know that your body starts to heal right away when you quit?

You know that it would be good for you to quit smoking. But did you know that your body begins to heal itself as soon as 20 minutes after you smoke your last cigarette?   Within 24 hours of quitting, your heart rate and blood pressure go down, and your lungs work better. After just one year, you have a lower risk of getting lung cancer and heart disease than when you smoked. The longer you stay quit, the lower your risk of getting lung cancer and heart disease in the future.

Section: Steps to Change
Page 6

Steps to Change 1 (Stage = precontemplation, Group= standard care)

This Family Support Album was made especially for you. We've included things we know help people who are just starting to think about quitting smoking.

Quitting smoking is a process and thinking about it is the first step. Start with the Freedom from Smoking guide (p. 6) to learn more about your own reasons for quitting. The guide is full of tips that can help you through out the quitting process. The Family Support Album also includes other things that can help you as you think about quitting.

The Family Support Album What's Inside?

Lifesavers - Keep your mouth busy by sucking on a lifesaver.
Straws - Hold and puff on a straw instead of a cigarette.
Playing cards - Keep your hands busy with playing cards.
Frame - Frame a picture of the people you are helping by quitting smoking.
Post-it Notes - Remind yourself why you are quitting. Write down the reasons and stick notes
        in the car or on your bathroom mirror.
Journal - Use the notebook to write down your thoughts about quitting. You could also use
        it to write or draw to keep your hands busy.
Relaxation Tape - Listen to the tape and practice ways to relax without using cigarettes.

> The Nicotine Patch
> When you smoke, your body depends on the nicotine you get from each cigarette. Without nicotine, your body goes through withdrawal. Using the Nicotine Patch can help your body deal with the withdrawal symptoms while you focus on making other changes. We know the Nicotine Patch is safe, and it helps people quit successfully.
>
> If you decide you are ready to quit smoking and you would like to use Nicotine Patch to help you quit, just give us a call (toll free at 1-877-485-9858) and we will send you a free 2-week starter kit of the Nicotine Patch.

Steps to Change 2 (Stage = precontemplation, Group = Counseling)

This Family Support Album was made especially for you. We've included things we know help people who are just starting to think about quitting smoking.

Quitting smoking is a process and thinking about it is the first step. Start with the Freedom from Smoking guide (p. 6) to learn more about your own reasons for quitting. The guide is full of tips that can help you through out the quitting process. The Family Support Album also includes other things that can help you as you think about quitting.

The Family Support Album What's Inside?

Lifesavers - Keep your mouth busy by sucking on a lifesaver.
Straws - Hold and puff on a straw instead of a cigarette.
Playing cards - Keep your hands busy with playing cards.
Frame - Frame a picture of the people you are helping by quitting smoking.
Post-it Notes - Remind yourself why you are quitting. Write down the reasons and stick notes
        in the car or on your bathroom mirror.
Journal - Use the notebook to write down your thoughts about quitting. You could also use
        it to write or draw to keep your hands busy.
Relaxation Tape - Listen to the tape and practice ways to relax without using cigarettes.

> The Nicotine Patch
> When you smoke, your body depends on the nicotine you get from each cigarette. Without nicotine, your body goes through withdrawal. Using the Nicotine Patch can help your body deal with the withdrawal symptoms while you focus on making other changes. We know the Nicotine Patch is safe, and it helps people quit successfully.
>
> If you decide you are ready to quit smoking and you would like to use Nicotine Patch to help you quit, just give us a call (toll free at 1-877-485-9858) and we will send you a free 2-week starter kit of the Nicotine Patch.

Steps to Change 3 (Stage = contemplation, Group = standard)

This Family Support Album was made especially for you. We've included things we know help people who are thinking about quitting smoking.

Quitting smoking is a process and thinking about it is the first step. Start with the Freedom from Smoking guide (p. 10) about your roadblocks to quitting. The guide is full of tips that can help you through out the quitting process. The Family Support Album also includes other things that can help you as you think about quitting.

<u>The Family Support Album What's Inside?</u>

Lifesavers - Keep your mouth busy by sucking on a lifesaver.
Straws - Hold and puff on a straw instead of a cigarette.
Playing cards - Keep your hands busy with playing cards.
Frame - Frame a picture of the people you are helping by quitting smoking.
Post-it Notes - Remind yourself why you are quitting. Write down the reasons and stick notes
      in the car or on your bathroom mirror.
Journal - Use the notebook to write down your thoughts about quitting. You could also use
      it to write or draw to keep your hands busy.
Relaxation Tape - Listen to the tape and practice ways to relax without using cigarettes.

The Nicotine Patch
When you smoke, your body depends on the nicotine you get from each cigarette. Without nicotine, your body goes through withdrawal. Using the Nicotine Patch can help your body deal with the withdrawal symptoms while you focus on making other changes. We know the Nicotine Patch is safe, and it helps people quit successfully.

If you decide you are ready to quit smoking and you would like to use Nicotine Patch to help you quit, just give us a call (toll free at 1-877-485-9858) and we will send you a free 2-week starter kit of the Nicotine Patch.

Steps to Change 4 (Stage = contemplation, Group = counseling)

This Family Support Album was made especially for you. We've included things we know help people who are thinking about quitting smoking.

Quitting smoking is a process and thinking about it is the first step. Start with the Freedom from Smoking guide (p. 10) about your roadblocks to quitting. The guide is full of tips that can help you through out the quitting process. The Family Support Album also includes other things that can help you as you think about quitting.

The Family Support Album What's Inside?

Lifesavers - Keep your mouth busy by sucking on a lifesaver.
Straws - Hold and puff on a straw instead of a cigarette.
Playing cards - Keep your hands busy with playing cards.
Frame - Frame a picture of the people you are helping by quitting smoking.
Post-it Notes - Remind yourself why you are quitting. Write down the reasons and stick notes
        in the car or on your bathroom mirror.
Journal - Use the notebook to write down your thoughts about quitting. You could also use
        it to write or draw to keep your hands busy.
Relaxation Tape - Listen to the tape and practice ways to relax without using cigarettes.

The Nicotine Patch
When you smoke, your body depends on the nicotine you get from each cigarette. Without nicotine, your body goes through withdrawal. Using the Nicotine Patch can help your body deal with the withdrawal symptoms while you focus on making other changes. We know the Nicotine Patch is safe, and it helps people quit successfully.

If you decide you are ready to quit smoking and you would like to use Nicotine Patch to help you quit, just give us a call (toll free at 1-877-485-9858) and we will send you a free 2-week starter kit of the Nicotine Patch.

Steps to Change 5 (Stage = preparation; Group = standard)

This Family Support Album was made especially for you. We've included things we know help people who are ready to quit smoking.

Quitting smoking is a process and it's good to think about each step. Start with the Freedom from Smoking guide (p. 20) to help you make a plan for how you are going to quit. The guide is full of tips that can help you though the quitting process. The Family Support Album also includes other things that can help you quit smoking.

The Family Support Album What's Inside?

Lifesavers - Keep your mouth busy by sucking on a lifesaver.
Straws - Hold and puff on a straw instead of a cigarette.
Playing cards - Keep your hands busy with playing cards.
Frame - Frame a picture of the people you are helping by quitting smoking.
Post-it Notes - Remind yourself why you are quitting. Write down the reasons and stick notes
       in the car or on your bathroom mirror.
Journal - Use the notebook to write down your thoughts about quitting. You could also use
       it to write or draw to keep your hands busy.
Relaxation Tape - Listen to the tape and practice ways to relax without using cigarettes.

The Nicotine Patch
When you smoke, your body depends on the nicotine you get from each cigarette. Without nicotine, your body goes through withdrawal. Using the Nicotine Patch can help your body deal with the withdrawal symptoms while you focus on making other changes. We know the Nicotine Patch is safe, and it helps people quit successfully.

Use this 2-week supply of the Nicotine Patch to help you quit. If you would like more patches, just give us a call (toll free at 1-877-485-9858) and we will send you up to 4 more weeks of patches to help you quit.

Steps to Change 6 (Stage = preparation; Group = counseling)

This Family Support Album was made especially for you. We've included things we know help people who are ready to quit smoking.

Quitting smoking is a process and it's good to think about each step. Start with the Freedom from Smoking guide (p. 20) to help you make a plan for how you are going to quit. The guide is full of tips that can help you though the quitting process. The Family Support Album also includes other things that can help you quit smoking.

The Family Support Album What's Inside?

Lifesavers - Keep your mouth busy by sucking on a lifesaver.
Straws - Hold and puff on a straw instead of a cigarette.
Playing cards - Keep your hands busy with playing cards.
Frame - Frame a picture of the people you are helping by quitting smoking.
Post-it Notes - Remind yourself why you are quitting. Write down the reasons and stick notes
        in the car or on your bathroom mirror.
Journal - Use the notebook to write down your thoughts about quitting. You could also use
        it to write or draw to keep your hands busy.
Relaxation Tape - Listen to the tape and practice ways to relax without using cigarettes.

The Nicotine Patch
When you smoke, your body depends on the nicotine you get from each cigarette.
Without nicotine, your body goes through withdrawal. Using the Nicotine Patch can help
your body deal with the withdrawal symptoms while you focus on making other changes.
We know the Nicotine Patch is safe, and it helps people quit successfully.

Use this 2-week supply of the Nicotine Patch to help you quit. If you would like more
patches, ,just give us a call (toll free at 1-877-485-9858) and we will send you up to 4
more weeks of patches to help you quit.

Since the doctor told me I have lung cancer, I have been thinking a lot about all of you. Please listen to what I have to say. I want you to know how important you are to me.

When I first saw the doctor about my coughing, he thought I had pneumonia. Soon after that he told me it was lung cancer. You all know how hard it has been. The last few months have been filled with doctor visits and cancer treatment. The medicine has made me sick and weak. I'm not sure which is worse, the cancer or the treatment for it. Thank you all for standing by me through this. Thank you for driving me to all my appointments and for taking care of me.

I also want to thank you for participating in the Family Ties program. My one wish is to save you from this awful disease. Please hear me when I say that I wish I had taken the advice of everyone who has told me to quit over the years. You can still take that advice and quit smoking.

Please do it for me, for yourself, and for our family.

Section: Resources for you and your family
Page 8

Resources 1 (site=Duke)
Would you like more information about quitting smoking or taking care of someone with lung cancer?

National Cancer Institute
1-800-4-CANCER (9:00 a.m. to 4:30 p.m. Local Time)
www.cancer.gov
Confidential answers to all your questions about cancer, including cancer prevention, diagnosis, treatment, and support

1-877-44U-QUIT
Personalized information on quitting smoking. Referrals to local organizations to help you quit.

The American Cancer Society (ACS)
1-800-ACS-2345
www.cancer.org
Resources for families on coping with lung cancer, including financial support, transportation, and support groups

ACS Quitline: 1-877-937-7848
Information about quitting smoking, including self-help materials
Referrals to state quitlines and local resources
Some individuals may be eligible to receive free telephone smoking cessation counseling

The American Lung Association
1-866-784-8937
www.lungusa.org/tobacco
Information on lung cancer and other lung diseases
Information on quitting smoking and resources to help you quit

Inset: another good source is www.quitnet.com, an online step-by-step guide to quitting

Resources available at Duke University Medical Center

Duke Cancer Patient Resource Center: (919) 684-6955
Collection of resources for cancer patients and their families

Duke Cancer Patient Support Center: (919) 684-4497
Counseling and support groups for cancer patients and their families

Cornucopia House: (919) 401-9333
Provides education, companionship & support to people with cancer, their families and friends. Services are provided free-of-charge, and they can help you wherever you live

Resources 2 (site=UNC)

Would you like more information about quitting smoking or taking care of someone with lung cancer?

National Cancer Institute
1-800-4-CANCER (9:00 a.m. to 4:30 p.m. Local Time)
www.cancer.gov
Confidential answers to all your questions about cancer, including cancer prevention, diagnosis, treatment, and support

1-877-44U-QUIT
Personalized information on quitting smoking
Referrals to local organizations to help you quit

The American Cancer Society (ACS)
1-800-ACS-2345
www.cancer.org
Resources for families on coping with lung cancer, including financial support, transportation, and support groups

ACS Quitline: 1-877-937-7848
Information about quitting smoking, including self-help materials
Referrals to state quitlines and local resources
Some individuals may be eligible to receive free telephone smoking cessation counseling

The American Lung Association
1-866-784-8937
www.lungusa.org/tobacco
Information on lung cancer and other lung diseases
Information on quitting smoking and resources to help you quit

Inset: another good source is www.quitnet.com, an online step-by-step guide to quitting

Resources available at UNC Hospitals

UNC Patient/Family Resource Center: (919) 966-3097
Collection of resources for cancer patients and their families

Patient Counseling and Support, including Smoking Cessation: Liz Sherwood (919) 966-3494

Cornucopia House: (919) 401-9333
Provides education, companionship & support to people with cancer, their families and friends. Services are provided free-of-charge, and they can help you wherever you live

Resources 3 (site=VA)

Would you like more information about quitting smoking or taking care of someone with lung cancer?

National Cancer Institute
1-800-4-CANCER (9:00 a.m. to 4:30 p.m. Local Time)
www.cancer.gov
Confidential answers to all your questions about cancer, including cancer prevention, diagnosis, treatment, and support

1-877-44U-QUIT
Personalized information on quitting smoking
Referrals to local organizations to help you quit

The American Cancer Society (ACS)
1-800-ACS-2345
www.cancer.org
Resources for families on coping with lung cancer, including financial support, transportation, and support groups

ACS Quitline: 1-877-937-7848
Information about quitting smoking, including self-help materials
Referrals to state quitlines and local resources
Some individuals may be eligible to receive free telephone smoking cessation counseling

The American Lung Association
1-866-784-8937
www.lungusa.org/tobacco
Information on lung cancer and other lung diseases
Information on quitting smoking and resources to help you quit

Inset: another good source is www.quitnet.com, an online step-by-step guide to quitting

Resources available at the Durham VA

Cornucopia House: (919) 401-9333
Provides education, companionship & support to people with cancer, their families and friends
Services are provided free-of-charge, and they can help you wherever you live

Duke Cancer Patient Resource Center: (919) 684-6955
Collection of resources for cancer patients and their families

Duke Cancer Patient Support Center: (919) 684-4497
Counseling and support groups for cancer patients and their families

Resources 4 (site=MOFFITT)

Would you like more information about quitting smoking or taking care of someone with lung cancer?

National Cancer Institute
1-800-4-CANCER (9:00 a.m. to 4:30 p.m. Local Time)
www.cancer.gov
Confidential answers to all your questions about cancer, including cancer prevention, diagnosis, treatment, and support

1-877-44U-QUIT
Personalized information on quitting smoking. Referrals to local organizations to help you quit

The American Cancer Society (ACS)
1-800-ACS-2345
www.cancer.org
Resources for families on coping with lung cancer, including financial support, transportation, and support groups

ACS Quitline: 1-877-937-7848
Information about quitting smoking, including self-help materials
Referrals to state quitlines and local resources
Some individuals may be eligible to receive free telephone smoking cessation counseling

The American Lung Association
1-866-784-8937
www.lungusa.org/tobacco
Information on lung cancer and other lung diseases
Information on quitting smoking and resources to help you quit

Inset: another good source is www.quitnet.com, an online step-by-step guide to quitting

Resources available at the Moffitt Cancer Center

Cancer Hope Network : 1-877-HopeNet (467-3638)
Provides one to one support for cancer patients and their families.

Lung Cancer Awareness: 1-877-646-Lung
Provides the latest cancer news, experts to answer your questions, cancer education, and support.

Lung Cancer Support Group at Moffitt Cancer Center
Cancer patients and their families are invited to share what is on their mind and to receive support every Monday 11am-12pm.
Contact Scott or Cynthia at 813-972-8407.

Appendix B

Desire to quit by demographics, nicotine dependence, and relationship characteristics

Table 1. Engagement and Reactions by Gender

	Men N=107 (%)	Women N=159 (%)	P value
Recalled receiving the FSA			
Yes	99	97	ns
Looked through FSA			
Yes	92	97	.03
Showed to someone else			
Yes	45	53	ns
Read most or all of tailored booklet			
	39	52	.03
Thought FSA was useful to help quit smoking			
>5	33	45	.07
Booklet applied to you			
>5	36	42	ns
Information new to you			
>3	48	40	ns
Information interesting			
>5	44	52	ns
Information trustworthy			
>6	46	65	.002
Information moving			
>5	36	52	.009
Information made you want to quit smoking			
>5	46	52	ns

Table 2. Engagement and Reactions by Race

	White N=218 (%)	Non-white N=45 (%)	P value
Recalled receiving the FSA			
Yes	98	98	ns
Looked through FSA			
Yes	95	95	ns
Showed to someone else			
Yes	50	44	ns
Read most or all of tailored booklet			
	50	31	.02
Thought FSA was useful to help quit smoking			
>5	40	45	ns
Booklet applied to you			
>5	40	38	ns
Information new to you			
>3	41	56	.06
Information interesting			
>5	46	60	.08
Information trustworthy			
>6	57	58	ns
Information moving			
>5	43	56	ns
Information made you want to quit smoking			
>5	46	64	.02

Table 3. Engagement and Reactions by Education

	Less than College N=124 (%)	College or more N=142 (%)	P value
Recalled receiving the FSA			
Yes	98	98	ns
Looked through FSA			
Yes	95	95	ns
Showed to someone else			
Yes	54	46	ns
Read most or all of tailored booklet			
	42	51	ns
Thought FSA was useful to help quit smoking			
>5	44	37	ns
Booklet applied to you			
>5	41	38	ns
Information new to you			
>3	46	41	ns
Information interesting			
>5	56	42	.01
Information trustworthy			
>6	58	56	ns
Information moving			
>5	52	39	.02
Information made you want to quit smoking			
>5	53	46	ns

Table 4. Engagement and Reactions by Age

	Age (<47) N=117 (%)	Age (>= 47) N=149 (%)	P value
Recalled receiving the FSA			
Yes	97	98	ns
Looked through FSA			
Yes	96	95	ns
Showed to someone else			
Yes	56	45	.08
Read most or all of tailored booklet			
	50	44	ns
Thought FSA was useful to help quit smoking			
>5	39	42	ns
Booklet applied to you			
>5	43	37	ns
Information new to you			
>3	43	44	ns
Information interesting			
>5	44	52	ns
Information trustworthy			
>6	57	57	ns
Information moving			
>5	39	50	.05
Information made you want to quit smoking			
>5	53	46	ns

Table 5. Engagement and Reactions by Nicotine Dependence

	Not High HSI N=158 (%)	High HSI N=108 (%)	P value
Recalled receiving the FSA			
Yes	98	97	ns
Looked through FSA			
Yes	94	96	ns
Showed to someone else			
Yes	48	52	ns
Read most or all of tailored booklet			
	48	45	ns
Thought FSA was useful to help quit smoking	43	36	ns
>5			
Booklet applied to you			
>5	37	43	ns
Information new to you			
>3	42	45	ns
Information interesting			
>5	49	47	ns
Information trustworthy			
>6	59	55	ns
Information moving			
>5	48	41	ns
Information made you want to quit smoking			
>5	48	51	ns

Table 6. Engagement and Reactions by Closeness

	Not Close N=132 (%)	Close N=134 (%)	P value
Recalled receiving the FSA			
Yes	98	97	ns
Looked through FSA			
Yes	94	96	ns
Showed to someone else			
Yes	45	54	ns
Read most or all of tailored booklet			
	45	49	ns
Thought FSA was useful to help quit smoking			
>5	38	43	ns
Booklet applied to you			
>5	36	43	ns
Information new to you			
>3	39	48	ns
Information interesting			
>5	43	54	.08
Information trustworthy			
>6	58	56	ns
Information moving			
>5	42	47	ns
Information made you want to quit smoking			
>5	43	55	.05

Table 7. Engagement and Reactions by Spouse Role

	Non Spouse N=234 (%)	Spouse N=32 (%)	P value
Recalled receiving the FSA			
Yes	98	94	.10
Looked through FSA			
Yes	96	90	ns
Showed to someone else			
Yes	50	50	ns
Read most or all of tailored booklet			
	49	31	.05
Thought FSA was useful to help quit smoking			
>5	40	46	ns
Booklet applied to you			
>5	40	34	ns
Information new to you			
>3	42	53	ns
Information interesting			
>5	47	56	ns
Information trustworthy			
>6	57	59	ns
Information moving			
>5	44	50	ns
Information made you want to quit smoking			
>5	50	47	ns

Table 8. Engagement and Reactions by Caregiver Status

	Non caregiver N=174 (%)	Caregiver N=92 (%)	P value
Recalled receiving the FSA			
Yes	98	97	ns
Looked through FSA			
Yes	94	98	ns
Showed to someone else			
Yes	46	57	ns
Read most or all of tailored booklet			
	49	42	ns
Thought FSA was useful to help quit smoking			
>5	38	46	ns
Booklet applied to you			
>5	39	41	ns
Information new to you			
>3	38	53	.01
Information interesting			
>5	44	58	.03
Information trustworthy			
>6	52	66	.02
Information moving			
>5	41	52	.09
Information made you want to quit smoking			
>5	44	60	.01

References

Abrams (1992). "Motivational characteristics of smokers at the workplace: a public health challenge." Preventive Medicine **21**(6): 679.

Alagna, S. W., P. J. Morokoff, et al. (1987). "Performance of breast self-examination by women at high risk for breast cancer." Women Health **12**(2): 29-46.

Alberg, A. and J. Samet (2003). "Epidemiology of Lung Cancer." Chest **123**: 21S-49S.

Allison, P. (1999). Logistic Regression Using the SAS System. Cary, NC, SAS Institute, Inc.

Aveyard, P., C. Griffin, et al. (2003). "A controlled trial of an expert system and self-help manual intervention based on the stages of change versus standard self-help materials in smoking cessation." Addiction **98**(3): 345.

Bagozzi, R., H. Baumgartner, et al. (1998). "Goal-directed emotions." **12**(1): 1-26.

Baider, L., U. Koch, et al. (1998). "Prospective study of cancer patients and their spouses: The weakness of marital strength." Psycho Oncology **7**(1): 49-56.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ, Prentice Hall, Inc.

Baranowski, T., C. L. Perry, et al. (2002). How Individuals, Environments, and Health Behavior Interact: Social Cognitive Theory. Health Behavior and Health Education Theory, Research and Practice. K. Glanz, B. K. Rimer and F. M. Lewis. San Francisco, Jossey-Bass.

Biener, L., M. Ji, et al. (2004). "The Impact of Emotional Tone, Message, and Broadcast Parameters in Youth Anti-smoking Advertisements." Journal of Health Communication **9**(3): 259.

Billings, D., S. Folkman, et al. (2000). "Coping and Physical Health During Caregiving: The Roles of Positive and Negative Affect." Journal of Personality and Social Psychology **79**(1): 131-142.

Blalock, S. J., B. M. DeVellis, et al. (1990). "Risk perceptions and participation in colorectal cancer screening." Health Psychol **9**(6): 792-806.

Brandon, T. H. and T. Baker (1991). "The Smoking Consequences Questionnaire: The subjective expected utility of smoking in college students." <u>Psychological Assessment</u> **3**(3): 484.

Brodish, P. and G. Ross (1998). <u>The irreversible health effects of cigarette smoking</u>. New York, American Council on Science and Health.

Brug, J., M. Campbell, et al. (1999). "The application and impact of computer-generated personalized nutrition education: a review of the literature." <u>Patient Education and Counseling</u> **36**(2): 145-156.

Brug, J., I. Steenhuis, et al. (1996). "The impact of a computer-tailored nutrition intervention." <u>Prev Med</u> **25**(3): 236-42.

Brug, J. and P. van Assema (2000). "Differences in use and impact of computer-tailored dietary fat-feedback according to stage of change and education." <u>Appetite</u> **34**(3): 285-93.

Bull, F. C., M. W. Kreuter, et al. (1999). "Effects of tailored, personalized and general health messages on physical activity." <u>Patient Educ Couns</u> **36**(2): 181-92.

Bursey, M. and D. Craig (2000). "Attitudes, subjective norm, perceived behavioral control, and intentions related to adult smoking cessation after coronary artery bypass graft surgery." <u>Public Health Nurs</u> **17**(6): 460-7.

Campbell, M. K., B. M. DeVellis, et al. (1994). "Improving dietary behavior: the effectiveness of tailored messages in primary care settings." <u>Am J Public Health</u> **84**(5): 783-7.

Campbell, M. K., I. Tessaro, et al. (2002). "Effects of a tailored health promotion program for female blue-collar workers: health works for women." <u>Prev Med</u> **34**(3): 313-23.

Caraballo, R. S., G. A. Giovino, et al. (1998). "Racial and ethnic differences in serum cotinine levels of cigarette smokers: Third National Health and Nutrition Examination Survey, 1988-1991." <u>JAMA</u> **280**(2): 135-9.

Cassileth, B. R., E. J. Lusk, et al. (1985). "Psychosocial status of cancer patients and next of kin: Normative from the Profile of Mood States." <u>Journal of Psychosocial Oncology</u> **3**(3): 99-105.

Cast, A., J. Stets, et al. (1999). "Does the self conform to the views of others?" <u>Social psychology quarterly</u> **62**(1): 68.

CDC (2005). "Annual smoking-attributable mortality, years of potential life lost, and productivity losses--United States, 1997-2001." MMWR **54**(25): 625.

CDC (2005). "State-specific prevalence of cigarette smoking and quitting among adults--United States, 2004." MMWR **54**(44): 1124.

Champion, V., M. Maraj, et al. (2003). "Comparison of tailored interventions to increase mammography screening in nonadherent older women." Preventive Medicine **36**(2): 150.

Clark, M. A., F. J. Kviz, et al. (1995). "Readiness of older adults to stop smoking in a televised intervention." J Aging Health **7**(1): 119-38.

Cook, J. W., B. Spring, et al. (2004). "Influence of fluoxetine on positive and negative affect in a clinic-based smoking cessation trial." Psychopharmacology **173**(1-2): 153-9.

Copeland (1995). "The Smoking Consequences Questionnaire-Adult: Measurement of smoking outcome expectancies of experienced smokers." Psychological Assessment **7**(4): 484.

Copeland, A. L. and T. H. Brandon (2000). "Testing the causal role of expectancies in smoking motivation and behavior." Addictive Behaviors **25**(3): 445-449.

Critchley, J. and S. Capewell (2003). "Smoking cessation for the secondary prevention of coronary heart disease." Cochrane Database of Systematic Reviews(4): CD003041.

Crittenden, K. S., C. Manfredi, et al. (1998). "Measuring readiness and motivation to quit smoking among women in public health clinics: predictive validity." Addict Behav **23**(2): 191-9.

Cummings, M. (2004). "Tobacco risk perceptions and behavior: Implications for tobacco control." Nicotine and tobacco research **6**(Suppl3): 285.

Curry, S., Major JM (2000). Self-Help Materials, National Cancer Institute.

Curry, S., E. H. Wagner, et al. (1990). "Intrinsic and extrinsic motivation for smoking cessation." J Consult Clin Psychol **58**(3): 310-6.

Curry, S. J., L. Grothaus, et al. (1997). "Reasons for quitting: Intrinsic and extrinsic motivation for smoking cessation in a population-based sample of smokers." Addictive Behaviors **22**(6): 727-739.

Curry, S. J., C. McBride, et al. (1995). "A randomized trial of self-help materials, personalized feedback, and telephone counseling with nonvolunteer smokers." J Consult Clin Psychol **63**(6): 1005-14.

Daza, P., L. Cofta-Woerrel, et al. (2006). "Racial and ethnic differences in predictors of smoking cessation." Substance Use & Misuse **41**(3): 317-339.

Deci, E. L. and R. M. Ryan (1985). Intrinsic Motivation and Self-determination in Human Behavior. New York, Plenum.

Deci, E. L. and R. M. Ryan (2000). "The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behavior." Psychological Inquiry **11**(4): 227.

DeVellis, R. (2003). Scale development: Theory, and applications. Thousand Oaks, CA, Sage Publications, Inc.

DeVries, H., A. Mudde, et al. (1998). "Differential beliefs, perceived social influences, and self-efficacy expectations among smokers in various motivational phases." Preventive medicine **27**(5, Pt.1): 681.

Dijkstra, A. (2005). "Working mechanisms of computer-tailored health education: Evidence from smoking cessation." Health Education Research **20**(5): 527.

Dijkstra, A. and J. Brosschot (2003). "Worry about health in smoking behaviour change." Behaviour Research and Therapy **41**(9): 1081-1092.

Dijkstra, A. and H. De Vries (1999). "The development of computer-generated tailored interventions." Patient Education and Counseling **36**(2): 193-203.

Dijkstra, A. and H. De Vries (2001). "Do self-help interventions in health education lead to cognitive changes, and do cognitive changes lead to behavioural change?" British Journal of Health Psychology **6**(2): 121.

Dijkstra, A., H. De Vries, et al. (1998). "Tailoring Information to Enhance Quitting in Smokers With Low Motivation to Quit: Three Basic Efficacy Questions." Health Psychology **17**(6): 513-519.

Donohew, L., E. P. Lorch, et al. (1998). "Applications of a theoretic model of information exposure to health interventions." Human Communication Research **24**(3): 454-468.

Droomers, M., C. T. Schrijvers, et al. (2004). "Educational differences in the intention to stop smoking: explanations based on the Theory of Planned Behaviour." Eur J Public Health **14**(2): 194-8.

Dua, J. (1994). "Comparative predictive value of attributional style, negative affect and positive affect in predicting self-reported physical health and psychological health." Journal of Psychosomatic Research **38**(7): 669-680.

Emmons, K., C. McBride, et al. (2005). "Project PREVENT: a randomized trial to reduce multiple behavioral risk factors for colon cancer." Cancer Epidemiology Biomarkers & Prevention **14**(6): 1453.

Fagerstrom (2002). "The epidemiology of smoking: health consequences and benefits of cessation." Drugs **62**(2): 1.

Falba, T. (2005). "Health Events and the Smoking Cessation of Middle Aged Americans." Journal of Behavioral Medicine **28**(1): 21-33.

Finucane, M. L., P. Slovic, et al. (2000). "Gender, race, and perceived risk: the 'white male' effect." Health, Risk and Society **2**(2): 159-172.

Fiore, M. C., T. E. Novotny, et al. (1990). "Methods used to quit smoking in the United States. Do cessation programs help?" JAMA **263**(20): 2760-5.

Flay, B., S. McFall, et al. (1993). "Health behavior changes through television: The roles of de facto and motivated selection processes." Journal of Health & Social Behavior **34**(4): 322.

Folkman, S. and J. T. Moskowitz (2000). "Positive affect and the other side of coping." Am Psychol **55**(6): 647-54.

Foulds, J., S. MB, et al. (2006). "Developments in pharmacotherapy for tobacco dependence: past, present and future." Drug and Alcohol Review **25**(1): 59.

Fredrickson, B. and T. Joiner (2002). "Positive emotions trigger upward spirals toward emotional well-being." Psychol Sci **13**(2): 172-175.

Galloway, S. C. (1990). "Young adults' reactions to the death of a parent." Oncology Nursing Forum **17**(6): 899-904.

Gilbert, D., F. McClernon, et al. (1999). "EEG, physiology, and task-related mood fail to resolve across 31 days of smoking abstinence: relations to depressive traits, nicotine exposure, and dependence." Experimental and Clinical Psychopharmacology **7**(4): 427.

Glasgow, R., J. Hollis, et al. (1990). "Employee and organizational factors associated with participation in an incentive-based worksite smoking cessation program." Journal of Behavioral Medicine **13**(4): 403.

Griffin, K., R. Friend, et al. (1993). "Effects of environmental demands, stress, and mood on health practices." Journal of Behavioral Medicine **16**(6): 643-660.

Gritz, E. R., C. R. Carr, et al. (1991). "A smoking cessation intervention for head and neck cancer patients: trial design, patient accrual, and characteristics." Cancer Epidemiology, Biomarkers, and Prevention **1**(1): 67-73.

Haaga, D. A. F., F. P. Thorndike, et al. (2004). "Cognitive coping skills and depression vulnerability among cigarette smokers." Addictive Behaviors **29**(6): 1109-1122.

Hay, J., E. Shuk, et al. (2005). "Thinking Through Cancer Risk: Characterizing Smokers' Process of Risk Determination." Qualitative Health Research **15**(8): 1074-1085.

Heatherton, T. F., L. T. Kozlowski, et al. (1989). "Measuring the Heaviness of Smoking: using self-reported time to the first cigarette of the day and number of cigarettes smoked per day." British Journal of Addiction(84): 791-800.

Herzog, T. A., D. B. Abrams, et al. (1999). "Do Processes of Change Predict Smoking Stage Movements? A Prospective Analysis of the Transtheoretical Model." Health Psychology **18**(4): 369-375.

Hochbaum, G. M. (1958). Public Participation in Medical Screening Programs: A Sociophsychological Study. Washington, DC, Government Printing Office. **PHS Publication no. 572**.

Hymowitz, N., K. M. Cummings, et al. (1997). "Predictors of smoking cessation in a cohort of adult smokers followed for five years." Tobacco Control **6 Suppl 2**: S57-62.

Invernizzi, F., J. Falomir-Pichastor, et al. (2003). "Social Influence in Personally Relevant Contexts: The Respect Attributed to the Source as a Factor Increasing Smokers' Intention to Quit Smoking." Journal of Applied Social Psychology **33**(9): 1818.

Isen, A. M., K. A. Daubman, et al. (1987). "Positive affect facilitates creative problem solving." J Pers Soc Psychol **52**(6): 1122-31.

Janz, N. K. and M. H. Becker (1984). "The Health Belief Model: a decade later." Health Education Quarterly **11**(1): 1-47.

Janz, N. K., V. Champion, et al. (2002). The Health Belief Model. <u>Health Behavior and Health Education Theory, Research and Practices</u>. K. Glanz, B. K. Rimer and F. M. Lewis. San Francisco, Jossey_Bass**:** 45-66.

Jemal, A., T. Murray, et al. (2005). "Cancer statistics, 2005." <u>CA Cancer J Clin</u> **55**(1): 10-30.

Jerslid, A. (1952). <u>In search of self</u>. New York, Teachers College Press.

Kassel, J. D., L. R. Stroud, et al. (2003). "Smoking, Stress, and Negative Affect: Correlation, Causation, and Context Across Stages of Smoking." <u>Psychological Bulletin</u> **129**(2): 270-304.

Kaye, J. M. and E. J. Gracely (1993). "Psychological distress in cancer patients and their spouses." <u>Journal of Cancer Education</u> **8**(1): 47-52.

Kear, M. (2000). "A Concept Analysis of Self Efficacy." <u>Graduate Research in Nursing</u>(Nov).

Keller, P. A. and L. G. Block (1996). "Increasing the persuasiveness of fear appeals: The effect of arousal and elaboration." <u>Journal Of Consumer Research</u> **22**(4): 448-459.

Klein, W. and N. Weinstein (1997). Social comparison and unrealistic optimism about personal risk. <u>Health, coping and well-being: Perspectives from social comparison theory</u>. B. Buunk and F. Gibbons. Hillsdale, NJ, Lawrence Erlbaum**:** 25-61.

Klesges (1988). "Factors associated with participation, attrition, and outcome in a smoking cessation program at the workplace." <u>Health Psychology</u> **7**(6): 575.

Kreuter, M., D. Farrell, et al. (2000). <u>Tailoring Health Messages. Customizing Communication with Computer Technology</u>. Mahwah, NJ, Lawrence Erlbaum Associates.

Kreuter, M. W., D. L. Oswald, et al. (2000). "Are tailored health education materials always more effective than non-tailored materials?" <u>Health Educ Res</u> **15**(3): 305-15.

Kreuter, M. W., C. S. Skinner, et al. (2004). "Responses to Behaviorally vs. Culturally Tailored Cancer Communication Among African American Women." <u>American Journal of Health Behavior</u> **28**(3): 195-207.

Kreuter, M. W. and V. J. Strecher (1996). "Do tailored behavior change messages enhance the effectiveness of health risk appraisal? Results from a randomized trial." <u>Health Education Research</u> **11**(1): 97-105.

Kreuter, M. W., V. J. Strecher, et al. (1999). "One size does not fit all: the case for tailoring print materials." <u>Ann Behav Med</u> **21**(4): 276-83.

Kristjanson, L. J. and T. Ashcroft (1994). "The family's cancer journey: A literature review." <u>Cancer Nurs.</u> **17**: 1-17.

Lancaster, T. and L. F. Stead (2005). "Self-help interventions for smoking cessation." <u>Cochrane Database Syst Rev</u>(3): CD001118.

Lederberg, M. S., J. Jacobs, et al. (1998). Part XIII: Psychological issues for the family. <u>Psycho-Oncology</u>. M. Loscalzo. New York, Oxford University Press. **xxiv:** 1189.

Lerman (2002). "Mediating mechanisms for the impact of bupropion in smoking cessation treatment." <u>Drug and Alcohol Dependence</u> **67**(2): 219.

Lerman, C., J. Audrain, et al. (1996). "Investigation of mechanisms linking depressed mood to nicotine dependence." <u>Addict Behav</u> **21**(1): 9-19.

Lerman, C., R. T. Croyle, et al. (2002). "Genetic testing: psychological aspects and implications." <u>J Consult Clin Psychol</u> **70**(3): 784-97.

Lewis, F. M. (1986). "The impact of cancer on the family: A critical analysis of the research literature." <u>Patient Education and Counseling</u> **8**(3): 269-289.

Linville, P. W. (1987). "Self-complexity as a cognitive buffer against stress-related illness and depression." <u>Journal of Personality and Social Psychology</u> **52**(4): 663.

Lipkus, I. M., M. Kuchibhatla, et al. (2000). "Relationships among breast cancer perceived absolute risk, comparative risk, and worries." <u>Cancer Epidemiol Biomarkers Prev</u> **9**(9): 973-5.

Lipkus, I. M., P. R. Lyna, et al. (1999). "Using tailored interventions to enhance smoking cessation among African-Americans at a community health center." <u>Nicotine & Tobacco Research</u> **1**(1): 77-85.

Lyna, P., C. McBride, et al. (2002). "Exploring the association between perceived risks of smoking and benefits to quitting: Who does not see the link?" <u>Addictive Behaviors</u> **27**(2): 293-307.

Manfredi, C., L. P. Lacey, et al. (1998). "Sociopsychological correlates of motivation to quit smoking among low-SES African American women." <u>Health Educ Behav</u> **25**(3): 304-18.

Manne, S., A. Markowitz, et al. (2002). "Correlates of colorectal cancer screening compliance and stage of adoption among siblings of individuals with early onset colorectal cancer." Health Psychol **21**(1): 3-15.

Mantano, D. and D. Kasprzyk (2002). The Theory of Reasoned Action and the Theory of Planned Behavior. Health Behavior and Health Education Theory, Research and Practice. K. Glanz, B. K. Rimer and F. M. Lewis. San Francisco, Jossey-Bass**:** 67-98.

McBride (2004). "Prenatal and postpartum smoking abstinence a partner-assisted approach." American journal of preventive medicine **27**(3): 232.

McBride, C. M., K. M. Emmons, et al. (2003). "Understanding the potential of teachable moments: the case of smoking cessation." Health Education Research **18**(2): 156-70.

McBride, C. M., K. I. Pollak, et al. (2003). "Distress and motivation for smoking cessation among lung cancer patients' relatives who smoke." J Cancer Educ **18**(3): 150-6.

McBride, C. M., K. I. Pollak, et al. (2003). "Distress and motivation for smoking cessation among lung cancer patients' relatives who smoke." Journal of Cancer Education **18**: 150-156.

McCaul (1996). "What is the relationship between breast cancer risk and mammography screening? A meta-analytic review." Health Psychology **15**(6): 423.

McCaul, K. D., J. R. Hockemeyer, et al. (2006). "Motivation to quit using cigarettes: A review." Addictive Behaviors **31**(1): 42-56.

McGuire, W. J. (1984). "Public communication as a strategy for inducing health-promoting behavioral change." Prev Med **13**(3): 299-319.

McKee, S. A., P. K. Maciejewski, et al. (2003). "Sex differences in the effects of stressful life events on changes in smoking status." Addiction **98**(6): 847-855.

Miller, W. R. and S. Rollnick (1991). Motivational Interviewing. New York, NY, Guilford Press.

Nezami, E., S. Sussman, et al. (2003). "Motivation in Tobacco Use Cessation Research." Substance Use & Misuse **38**(1): 25.

Norman (1999). "The theory of planned behavior and smoking cessation." Health Psychology **18**(1): 89.

Orleans, C., H. Rotberg, et al. (1990). "A hospital quit-smoking consult service: clinical report and intervention guidelines." Preventive Medicine **19**(2): 198.

Orleans, C. T., N. R. Boyd, et al. (1998). "A self-help intervention for African American smokers: tailoring cancer information service counseling for a special population." Preventive Medicine **27**(5 Pt 2): S61-70.

Pettit, J., J. Kline, et al. (2001). "Are happier people healthier? The specific role of positive affect in predicting self-reported health symptoms." Journal of Research in Personality **35**: 521-536.

Petty, R. E., R. Goldman, et al. (1981). "Personal Involvement As A Determinant Of Argument-Based Persuasion." Journal Of Personality and Social Psychology **41**(5): 847-855.

Prochaska, J. O. and C. C. DiClemente (1983). "Stages and processes of self-change of smoking: Toward an integrative model of change." J Consult Clin Psychol **51**(3): 390-5.

Prochaska, J. O. and C. C. DiClemente (1983). "Stages and processes of self-change of smoking: Toward an intergrative model of change." J Consult Clin Psychol **51**(3): 390-5.

Prochaska, J. O., C. C. Diclemente, et al. (1993). "Standardized, Individualized, Interactive, And Personalized Self-Help Programs For Smoking Cessation." Health Psychology **12**(5): 399-405.

Prochaska, J. O., C. A. Redding, et al. (2002). The Transthoeritcal Model and Stages of Change. Health Behavior and Health Education Theory, Research and Practice. K. Glanz, B. K. Rimer and F. M. Lewis. San Francisco, Jossey-Bass.

Pulvers, K. M., D. Catley, et al. (2004). "Gender, smoking expectancies, and readiness to quit among urban African American smokers." Addictive Behaviors **29**(6): 1259-1263.

Rait, D. and M. Lederberg (1989). The family of the cancer patient. Handbook of Psychology: Psychological Care of the Patient with Cancer. J. C. Holland and J. H. Rowland. New York, Oxford University Press**:** 585-597.

Rees, G., A. Fry, et al. (2001). "A family history of breast cancer: women's experiences from a theoretical perspective." Soc Sci Med **52**(9): 1433-40.

Rimer, B. and M. Kreuter (2006). "Advancing Tailored Health Communications: A Persuasion and Message Effect Perspective." Journal of Communication **56**: 5184-5201.

Rimer, B. K., M. K. Keintz, et al. (1989). "Why women resist screening mammography: patient-related barriers." Radiology **172**(1): 243-6.

Rimer, B. K. and C. T. Orleans (1994). "Tailoring smoking cessation for older adults." Cancer **74**(7 Suppl): 2051-4.

Rogers, R. W. and S. Prentice-Dunn (1997). Protection Motivation Theory. Handbook of Health Behavior Research. D. S. Gochman. New York, Plenum. **1:** 113-132.

Romer, D. and P. Jamieson (2001). The role of perceived risk in starting and stopping smoking. Smoking: Risk, perception, & policy. P. Slovic. Thousand Oaks, CA, Sage Publications**:** 64-80.

Rose, J., L. Chassin, et al. (1996). "Prospective predictors of quit attempts and smoking cessation in young adults." Health Psychology **15**(4): 261.

Ryan, R. and E. Deci (2003). On assimilating identities to the self: A self-determination theory perspective on internalization and integrity within cultures. Handbook of Self and Identity. M. Leary and J. Tangney. New York, NY, Guildford Press**:** 253-272.

Sarna, L. (1995). "Smoking behaviors of women after diagnosis with lung cancer." Image J Nurs Sch **27**(1): 35-41.

Sarna, L. (1998). Lung Cancer. Psycho-Oncology. J. C. Holland. New York, Oxford University Press**:** 340-348.

Schilling, A., M. R. Conaway, et al. (1997). "Recruiting cancer patients to participate in motivating their relatives to quit smoking. A cancer control study of the Cancer and Leukemia Group B (CALGB 9072)." Cancer **79**(1): 152-60.

Services, U. D. o. H. a. H. (1990). The Health Benefits of Smoking Cessation: A Report of the Surgeon General. C. f. C. D. P. a. H. P. Centers for Disease Control, Office of Smoking and Health. Rockville, MD, US Department of Health and Human Services.

Shadel, W., M. Stein, et al. (2005). "Correlates of motivation to quit smoking in methadone-maintained smokers enrolled in a smoking cessation trial." Addictive Behaviors **30**(2): 295.

Shadel, W. G., R. Mermelstein, et al. (1996). "Self-concept changes over time in cognitive-behavioral treatment for smoking cessation." <u>Addictive Behaviors</u> **21**(5): 659-63.

Skinner, C. S., M. K. Campbell, et al. (1999). "How effective is tailored print communication?" <u>Annals of Behavioral Medicine</u> **21**(4): 290-8.

Skinner, C. S., V. J. Strecher, et al. (1994). "Physicians' recommendations for mammography: do tailored messages make a difference?" <u>Am J Public Health</u> **84**(1): 43-9.

Stefanek, M. E. and P. Wilcox (1991). "First degree relatives of breast cancer patients: screening practices and provision of risk information." <u>Cancer Detect Prev</u> **15**(5): 379-84.

Stets (2000). "Identity theory and social identity theory." <u>Social Psychology Quarterly</u> **63**(3): 224.

Strecher, V., A. Marcus, et al. (2005). "A randomized controlled trial of multiple tailored messages for smoking cessation among callers to the cancer information service." <u>J Health Commun</u> **10** (Suppl 1): 105-18.

Strecher, V. J. (1999). "Computer-tailored smoking cessation materials: a review and discussion." <u>Patient Education & Counseling</u> **36**(2): 107-17.

Strecher, V. J., M. Kreuter, et al. (1994). "The effects of computer-tailored smoking cessation messages in family practice settings." <u>J Fam Pract</u> **39**(3): 262-70.

Strecher, V. J., S. Shiffman, et al. (2005). "Randomized controlled trial of a web-based computer-tailored smoking cessation program as a supplement to nicotine patch therapy." <u>Addiction</u> **100**(5): 682-688.

Stryker, S. and P. Burke (2000). "The past, present, and future of an identity theory." <u>Social Psychology Quarterly</u> **63**(4): 284.

Sutton, S. (1998). "Does breast screening arouse anxiety?" <u>Psychology, Health & Medicine</u> **3**(1): 81.

Tallis, F. and M. Eysenck (1994). "Worry: Mechanisms and modulating influences." <u>Behavioural and Cognitive Psychotherapy</u> **22**(1): 37.

Townsend, A. L. and M. M. Franks (1995). "Binding ties: closeness and conflict in adult children's caregiving relationships." <u>Psychology & Aging</u> **10**(3): 343-51.

van den Putte, B., M. Yzer, et al. (2005). "Social influences on smoking cessation: a comparison of the effect of six social influence variables." Preventive Medicine **41**(1): 186.

Velicer, W. F., J. L. Fava, et al. (1995). "Distribution of smokers by stage in three representative samples." Preventive Medicine **24**(4): 401-11.

Vernon, S. W. (1999). "Risk perception and risk communication for cancer screening behaviors: a review." J Natl Cancer Inst Monogr(25): 101-19.

Watson, D., L. A. Clark, et al. (1988). "Development and validation of brief measures of positive and negative affect: the PANAS scales." Journal of Personality & Social Psychology **54**(6): 1063-70.

Webb, M. S., V. N. Simmons, et al. (2005). "Tailored interventions for motivating smoking cessation: using placebo tailoring to examine the influence of expectancies and personalization." Health Psychology **24**(2): 179-88.

Weinstein, N., P. Slovic, et al. (2004). "Public understanding of the illnesses caused by cigarette smoking." Nicotine Tobacco Research **6**(2): 349-55.

Weinstein, N. D. (1984). "Why it won't happen to me: Perceptions of risk factors and susceptibility." Health Psychology **3**: 431-57.

Weinstein, N. D. (1998). "Accuracy of Smokers' Risk Perceptions." Annals of Behavioral Medicine **20**(2): 135-140.

Weinstein, N. D. (2000). "Perceived probability, perceived severity, and health-protective behavior." Health Psychol **19**(1): 65-74.

Weinstein, N. D., S. E. Marcus, et al. (2005). "Smokers' unrealistic optimism about their risk." Tobacco Control **14**(1): 55-59.

Weinstein, N. D., P. Slovic, et al. (2004). "Accuracy and optimism in smokers' beliefs about quitting." Nicotine Tobacco Research **6 Suppl 3**: S375-80.

Weisman, A. D. and J. W. Worden (1976). "The existential plight in cancer: Significance of the first 100 days." International Journal of Psychiatry in Medicine **7**(1): 1-15.

Wenzel, L., K. Glanz, et al. (2002). Stress, Coping, and Health Behavior. Health Behavior and Health Education Theory, Research and Practice. K. Glanz, B. K. Rimer and F. M. Lewis. San Francisco, Jossey-Bass.

Wetter, D. W., S. L. Kenford, et al. (1999). "Gender Differences in Smoking Cessation." Journal of Consulting & Clinical Psychology **67**(4): 555-562.

Witte, K. (1994). "Fear Control and Danger Control: A Test of the Extended Parallel Process Model (EPPM)." Communication Monographs **61**: 113-134.

Wray, L. A., A. R. Herzog, et al. (1998). "The impact of education and heart attack on smoking cessation among middle-aged adults." J Health Social Behavior **39**(4): 271-94.

Yong, H., R. Borland, et al. (2005). "Quitting-related beliefs, intentions, and motivations of older smokers in four countries: findings from the International Tobacco Control Policy Evaluation Survey." Addictive Behaviors **30**(4): 777.