

Winter 2000

## Increasing Readiness to Change Among Smokers in a Primary Care Setting

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INCREASING READINESS TO CHANGE AMONG  
SMOKERS IN A PRIMARY CARE SETTING

by

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B.A. June 1991, St. Mary's College of Maryland

A Dissertation Submitted to the Faculties of

The College of William and Mary  
Eastern Virginia Medical School  
Norfolk State University  
Old Dominion University

In Partial Fulfillment of the Requirement for the Degree of

DOCTOR OF PSYCHOLOGY

CLINICAL PSYCHOLOGY

VIRGINIA CONSORTIUM PROGRAM IN CLINICAL PSYCHOLOGY  
December 2000

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## ABSTRACT

INCREASING READINESS TO CHANGE AMONG  
SMOKERS IN A PRIMARY CARE SETTING

Sheila F. Collicott  
Old Dominion University, 2000  
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This study compared the effectiveness of two brief interventions, direct advice and motivational interviewing, for increasing motivation to quit among male smokers in the pre-contemplation and contemplation stages of change who were primary care patients at an Eastern urban VA medical center. Contrary to expectations, participants receiving motivational interviews did not increase more in readiness to change, motivation, and actions to quit, than those receiving direct advice or a control conversation, nor did they smoke fewer cigarettes per day. As expected, contemplators reported more cutting down and quit attempts than pre-contemplators. Factors that may have limited the effectiveness of interventions are discussed.

**To Bud, my husband and best friend.**

## ACKNOWLEDGMENTS

I would like to express my appreciation to the many people who have contributed, each in his or her own way, to this project. Many thanks to Dr. Robin Lewis, who agreed to be my committee director and was particularly generous with her expertise and guidance during the design and analysis phases. She helped keep things on track and greatly facilitated the administrative parts of the process. Thanks, too, to Dr. Clint McSherry, who provided the initial idea for the study, abundant and invaluable feedback, enthusiasm for clinical research and a sense of perspective when they were most needed. Dr. Susan Garvey was immensely generous with her time, energy, professional knowledge, and even her home. I appreciate the hospitality she and Dave Potvin, extended when I was in Virginia Beach. I also want to thank Dr. Pete Mikulka and Dr. Delanyard Robinson for serving on my committee.

I am grateful to the many people at the Washington VA without whom I could never have completed the data-collection phase of this study. Chief among them is Dr. Neil Bien who kindly sponsored me and found time for paperwork whenever it was required. LaQuita Townes was ever-helpful in negotiating whatever challenges came up from day to day. James Edwards was enthusiastic, reliable, and unstinting in his support of the project and I greatly enjoyed working with him. Special thanks to all the participants for their cooperation. Their time and trust are deeply appreciated.

Ed Kenlon deserves special recognition for so cheerfully working his magic with PCs and Macs to create the graphs for the manuscript.

Thanks to family and friends whose support has meant so much to me. I appreciate early encouragement of my interest in learning by my parents, Roy and Marian

Fairleigh, and my grandmother, Faye Ewert. Thanks to Lisa Petrica for sharing the challenges and achievements of graduate school with me and for her continuing friendship. I'm enduringly grateful for Genece Warren and the many adventures we've shared. She and her husband, Bob, generously provided my home away from home during the graduate program, a time when her thoughtfulness, encouragement, and wonderful, creative dinners were even more appreciated than usual. Special thanks to Bob for his unfailing ability to find the humor in nearly any circumstance. Thanks to Sara Ebenreck for her steadfast focus on the soul in things and for being a delightful friend. My gratitude to Kim for his wisdom and example. And most of all, thanks from the bottom of my heart to Bud. His belief encouraged me to dream and his support has sustained my efforts. He truly is my anchor.

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## INTRODUCTION

Smoking is the main preventable cause of death and disease in the United States (U.S. Department of Health and Human Services [USDHHS], 1989). It accounts for more than 400,000 premature deaths each year (USDHHS, 1994), or 20% of all deaths (McGinnis & Foege, 1993). This exceeds the total deaths caused by alcohol, firearms, sexual behavior, motor vehicles, and illicit drugs combined. One-fourth of American adults (48 million people) smoke (Centers for Disease Control [CDC], 1994, 1996) and half of all those who do not quit will die of the effects of smoking (USDHHS, 1989).

Smoking also puts others at risk. Exposure to secondhand tobacco smoke accounts for about 53,000 deaths each year (Glantz & Parmley, 1991). Second-hand smoke has been causally linked to lung cancer (U.S. Environmental Protection Agency [EPA.] 1992) and to increased risk for cardiovascular disease (Wald & Ritchie, 1984; Wald et al., 1984; Glantz & Parmley, 1991, 1995.)

More than 70% of smokers say they want to quit, but few are actually able to do so (CDC, 1996). Each year about 35% are able to stop for at least one day (USDHHS, 1990), but less than 10% are able to maintain long-term abstinence (Fiore et al., 1990).

Traditional smoking cessation interventions target smokers who are committed to quitting soon (Prochaska, 1996). About 80% of smokers do not have immediate plans to quit, and traditional smoking cessation interventions are generally not helpful for them (Velicer, et al., 1995). Some interventions, such as those in which smokers feel

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The American Psychological Association Publication Manual was the model for this dissertation.

confronted, can actually decrease the likelihood of quitting (Miller, Benefield, & Tonegan, 1993; Stott & Pill, 1990).

Smokers tend to visit their physicians more often than do non-smokers (Ockene, 1987). Smoking cessation advice from a physician is associated with increased quitting (Gilpin, Pierce, Johnson & Bal, 1993; Law & Tang, 1995). Like other traditional interventions, physician advice is most helpful for smokers who are committed to quitting in the near future.

The process of changing smoking behavior is frequently seen as a continuum of increasing readiness to change that has been described as a series of five stages of change. Smokers' needs and interests vary with their stage of change (Prochaska, DiClemente, & Norcross, 1992). Motivational interviewing (MI) is a stage-matched intervention designed to increase motivation to change and is adaptable to a variety of settings, easily taught, inexpensive, and free of harmful effects (Miller & Rollnick, 1991). It was designed for use with drinkers (Miller, 1983, 1985) and has also been used with smokers (DiClemente, 1991; Rollnick, Butler, & Stott, 1997).

This study compared MI to direct advice (DA) and to a control conversation (CC) for male primary care patients at a Veteran's Administration (VA) medical center. It was hypothesized that, among smokers who were not motivated to quit, those who received MI would increase more in readiness to quit than those who received DA or CC.

Smoking cessation is currently being addressed with a great number and variety of interventions. Success rates for these interventions vary greatly. Much of the variation can be attributed to differences among the interventions, the facilitators, and the methods used in smoking cessation studies.

Major factors associated with higher rates of cessation success include smoking-related health concerns (Law & Tang, 1995), low nicotine dependence (Lam, Sze, Sacks, & Chalmers, 1987; USDHHS, 1988), receiving stop-smoking advice at the most recent physician visit (Gilpin et al., 1993; Manley, Epps, & Glynn, 1992; Tomar, Husten, & Manley, 1996), and being ready to quit, which includes high motivation to quit (Prochaska & DiClemente, 1983; Prochaska et al., 1992). Conversely, factors associated with failure to quit include not receiving advice at the most recent physician visit (Gilpin et al., 1993; Manley et al., 1992; Tomar et al., 1996), high nicotine dependence (Lam et al., 1987; USDHHS, 1988), and lack of readiness to quit (Prochaska et al., 1992). The quit rate in the general population of smokers, without intervention, has been estimated to be about 2% (Orleans, 1985).

Advice to quit, pharmacological interventions, and behavioral treatment are the most frequently used clinical interventions for smoking cessation. Each of these will be reviewed.

#### Advice to Quit

Advice to quit is direct, inexpensive, and one of the most frequently used smoking cessation interventions. Physicians are among the most frequent providers of such advice because they have ongoing contact with their patients who smoke. More than 70% of smokers report visiting a physician each year, but, unfortunately, only about half of them receive advice to quit from their physicians (Gilpin et al., 1993; Ockene, 1987; Tomar et al., 1996).

Physician advice is defined a single instance of a physician instructing a patient who smokes to quit. It is often provided during a visit for routine care and typically involves

telling the patient about the dangers of smoking and advising him or her to quit (Ockene et al., 1991). It may also include a description of techniques for quitting (Law and Tang, 1995). The DA intervention in this study was designed to be similar to physician advice.

Studies of the effectiveness of physician advice indicate that it produces small but stable quit rates. Law and Tang (1995) found that patients who had been advised by their physicians to quit did so at a rate that was about 2% (1% to 3%) greater than the quit rate in control groups. They reviewed 188 controlled trials of physician advice with six-month or longer follow-up measurements. Seventeen of the studies evaluated brief advice and encouragement delivered in single sessions by physicians to a total of 14,438 subjects. The interventions normally took less than five minutes. Some included setting a quit date. Smoking status was validated bio-chemically in six of the studies, which confirmed the overall results.

Many people quit smoking each year as a result of smoking cessation advice from their physicians. However, because they represent such a small percentage of smokers counseled, providing advice to quit can seem unrewarding to physicians and inhibit their motivation to intervene (Manley et al, 1992).

Physician advice is highly individual. Gilpin et al. (1993) found that only 43.2% of their sample received advice to quit at their last visit, while 72.1% reported being advised to quit at some time other than their last visit. Only advice at the most recent office visit was associated with making a quit attempt in the past year. When physicians are both trained in brief interventions and reminded to intervene with each patient, quit rates among their patients have increased as much as 15% (Manley et al, 1992).

Some smokers are more likely to be advised than others. Poor perceived health status

(Hymowitz, Jackson, Carter, & Eckholdt, 1996), being over 45 years old, or smoking more than 25 cigarettes per day (Tomar et al., 1996) are associated with receiving advice to quit. The relationship between race/ethnicity and physician advice is mixed. Hymowitz et al. (1996) report that race is a stronger predictor of receiving advice than either age or perceived health status and that whites are advised more frequently than African-Americans. Tomar et al. (1996) found no significant difference between whites and African-Americans in the frequency with which they were advised. However, both whites and African-Americans were significantly more likely to receive advice to quit than Hispanic smokers. It is noteworthy that racial differences occurred whether advice was given in the past year (Tomar et al., 1996) or any time in the past (Hymowitz et al., 1996).

Providing advice does not ensure that it will be heeded. Physician advice often elicits negative reactions because it is perceived as directive or confrontational, especially by people who have not decided to change their behavior (Stott & Pill, 1990).

In summary, DA from physicians is associated with large numbers of people being able to quit smoking, even though only a small percentage of those who receive advice are able to quit. The effectiveness of physician advice is limited when it is not delivered frequently or consistently enough and when the form and/or content are not appropriate for the individual patient being advised.

### Pharmacological Interventions

The two most widely used pharmacological interventions are bupropion and nicotine replacement therapy (NRT). Bupropion is newer than NRT and is only available by prescription. Though it has been shown to be effective (Hilleman et al, 1992) and is increasingly used for smoking cessation intervention, its mechanism of action is

not well understood. NRT is the most readily available and widely used smoking cessation intervention, other than advice. Clinical Guidelines by the Agency for Health Care Policy and Research (AHCPR) recommend that physicians offer NRT to nearly all their patients who smoke (Fiore et al., 1996).

Nicotine gum (NG) and transdermal nicotine patches (TN) are available without prescription. Nicotine inhalers and nasal spray are newer forms of NRT that require a prescription and are not as widely used as NG and TN. In all its forms, NRT acts pharmacologically to suppress many of the physical withdrawal symptoms associated with smoking cessation (USDHHS, 1988).

Because NRT was designed for use with behavioral treatment (BT), there are few studies assessing the effectiveness of NRT alone (Klesges, Ward, & DeBon, 1996). In combination with BT, NRT has consistently been shown to be more effective than either placebo (PL) or no-NRT control (Fiore, Jorenby, Baker, & Kenford, 1992; Hjalmarson, Nilsson, Sjöström, & Wiklund, 1997; Silagy, Mant, Fowler, & Lodge, 1994). A meta-analysis by Silagy et al. of 53 randomized trials evaluating TN, nasal spray, and nicotine inhalers found that abstinence rates were 18.67% vs. 10.6% for PL at six months or longer. Abstinence rates for TN ranged from 22% to 42% vs. 2% to 28% for PL at six months in the comprehensive review of smoking cessation studies by Fiore et al. Abstinence rates for inhalers were 28% vs. 18% for PL at 12 months in a clinical trial by Hjalmarson et al.

Data about the various types of NRT indicate that it is most effective for smokers who are motivated to quit (Lam et al., 1987). Matching the amount of nicotine delivered to the smoker's level of nicotine dependence also increases effectiveness, especially with

NG (Cepeda-Benito, 1993; Hjalmarson, et al., 1997; Hughes, 1993; Klesges et al., 1996; Silagy et al., 1994).

When BT and NRT are used together, they act in concert insofar as NRT affects mostly physical aspects of nicotine dependence while BT addresses the cognitive and behavioral elements of smoking (Cepeda-Benito, 1993; Fiore et al., 1994; Hjalmarson et al., 1997; Lam et al., 1987; Orleans, 1985; Schwartz, 1987; Silagy et al., 1994). Their primary effects are sequential: NRT acts on the withdrawal symptoms that predominate in early abstinence; then BT provides cognitive and behavioral skills for maintaining abstinence.

NRT has many strong points, including convenience, availability, usefulness for smokers who are highly nicotine-dependent, and relatively high cost-effectiveness. Its disadvantages include its cost, narrow focus on physical dependence, and high relapse rate (Cepeda-Benito, 1993; Schwartz, 1987; Silagy et al., 1994).

In summary, NRT is widely and effectively used to control the physical symptoms of withdrawal during the early stages of smoking cessation. Its effectiveness is enhanced when it is used for smokers who are highly motivated to quit, when it is used in combination with BT, and when nicotine dosage is matched to the smoker's level of addiction.

### Behavioral Treatment

BT is often useful for smokers who want or need more assistance than they receive from minimal interventions such as advice to quit or NRT. Usually offered through formal smoking cessation programs, BT addresses behavioral, psychological, social, and

physical components of smoking (Brown & Emmons, 1991; Lichtenstein & Glasgow, 1992; Orleans, 1985; Schwartz, 1987).

Behavioral techniques target smoking behaviors and physical dependence by creating tangible costs for smoking and rewards for abstinence, breaking up conditioned smoking behaviors, or diminishing physical dependence on nicotine. Cognitive components of BT teach coping skills, problem solving, and self-management and often help smokers prevent relapse. The facilitator and/or other group members are sources of encouragement and social support (Lando, 1993).

The most effective BT programs produce long-term quit rates as high as 40% (Glasgow & Lichtenstein, 1987; Schwartz, 1987). Factors associated with effectiveness include multiple treatment components in the intervention (Klesges et al., 1996) and high intensity (e.g., length of sessions and duration of treatment). The Smoking Cessation Clinical Practice Guideline by the Agency for Health Care Policy and Research suggests a minimum of four meetings, each lasting at least 20 minutes, spanning at least two weeks, with eight weeks or more being preferable (Fiore et al., 1996).

Setting a quit date and addressing motivation to quit and/or confidence in ability to quit are also associated with positive outcomes (Brown & Emmons, 1991; Klesges et al., 1996; Schwartz, 1987; USDHHS, 1988). Formal BT programs are generally most helpful for smokers who are highly motivated to quit and are not heavily dependent on nicotine (Fiore et al., 1996).

BT's strengths include comprehensiveness and flexibility. Some programs offer a menu of treatment options from which each smoker can choose a combination of interventions that meets his or her needs (Best, Owen, & Trentadue, 1978; Lando, 1984;

Lando, McGovern, & Sipfle, 1989). Others match program components to smokers' stage in the quitting process (Brown & Emmons, 1991).

Program complexity, low utilization and poor cost-effectiveness are drawbacks of BT. Multi-component BT programs pose special problems for evaluators because they vary greatly in the combinations of techniques they employ, making it difficult to compare studies meaningfully or to evaluate the relative effectiveness of component interventions. Only 15% of smokers who quit participate in behavioral smoking cessation programs (Fiore et al., 1990). Convenient, affordable BT programs can be difficult to locate and, when available, their timing may not coincide with a smoker's needs (Fiore et al., 1990; Hughes, 1995). In addition, most programs target smokers who are ready to quit, so they are inappropriate for smokers who are not yet at that level of readiness (Brown & Emmons, 1991; Prochaska et al., 1992).

In summary, BT addresses the cognitive and behavioral aspects of smoking and can be used for individuals or groups. It is most effective for smokers who are motivated to quit and when it is combined with pharmacological treatments and presented in several sessions over several weeks. BT is more expensive than physician advice, but it meets needs of many smokers that are not addressed by physician advice or other smoking cessation interventions.

Physician advice, NRT, and BT interventions all share a common limitation: they are most effective for smokers who are motivated to quit. Providing an intervention that is helpful for those smokers who are not yet ready to quit and/or finding a way to increase the number of smokers who are ready to quit could dramatically improve smoking cessation outcomes from a public health perspective. In either case, it is important to

understand the differences between smokers who are ready to quit and those who are not. One approach is Prochaska and DiClemente's (1983) stages of change (SOC) model.

### Stages of Change

The (SOC) model (Prochaska & DiClemente, 1983; Prochaska et al., 1992) provides a means of understanding the evolving needs of people who are in the process of changing their behavior. It has frequently been applied to smoking cessation (DiClemente, 1991; Glynn, Boyd, & Gruman, 1990; Prochaska & DiClemente, 1983; Prochaska & DiClemente, 1986; USDHHS, 1988). The model has been shown to be both reliable and valid (DiClemente et al., 1991). While it is most often associated with changing addictive behaviors, the SOC model can be applied more generally. It describes all kinds of human behavior change, including both self-change and change occurring in therapeutic settings (Prochaska & DiClemente, 1983; Prochaska et al., 1992).

The benefits of matching interventions to stage of change are widely recognized (Prochaska & DiClemente, 1992; Rollnick, Kinersley, & Stott, 1993; Velicer et al., 1995). In smoking cessation interventions, matching to stage of change can increase the probability of successful quitting. For example, progressing to the next greater stage of readiness early in smoking cessation treatment has doubled the probability that a smoker, regardless of beginning stage, will ultimately quit (Prochaska et al., 1992).

In the SOC model, the person who is changing his or her behavior is seen as moving from being unaware or unconcerned about the problem through considering change, deciding to act, taking action, and, finally, maintaining the change. Each of the preceding levels of commitment to change is considered a stage. Prochaska et al. (1992) describe the five stages, pre-contemplation (PC), contemplation (C), preparation (PA), action (A), and

maintenance (M), in more detail. The stages are based on intention to change, immediacy of any plans to change, and actions taken.

In PC, people do not intend to change their behavior in the near future. They may be unaware that the behavior is a problem or they may want to change sometime, but not in the next six months.

Those in the C stage recognize that their behavior is a problem. They are seriously thinking of changing it within the next six months, but have not yet committed to taking action to quit. People in the C stage are ambivalent as they weigh the advantages and costs of change versus continuing the behavior (Prochaska et al., 1992).

People in the preparation stage have decided to change within the next month and have tried, but failed, to change within the past year. They may be making preparatory changes in their behavior such as smoking only at set times (Prochaska et al., 1992).

In the action stage, people take definite steps to change their behavior. This stage lasts from one day to six months and may involve altering the environment to support the behavioral changes they are making. For example, they may avoid people and situations they associate with smoking.

People in the maintenance stage have been free of the behavior for at least six months. They may still be making changes in their environment and behavior to prevent relapse (Prochaska et al., 1992).

Relapse, while not a stage in this model, is a critical part of the process of change. Most people who successfully quit addictive behaviors, for example, have made between one and four unsuccessful quit attempts (Ahijevych & Wewers, 1992). It is helpful for people attempting change to prepare for relapse. When seen as a failure, a relapse can

inhibit interest in changing, causing some to return to an early stage (e.g., PC or C) where they may remain for long periods of time. Those who understand that it is a common part of the process they are experiencing are more likely to return to the C or preparation stages. Approximately 85% of people who relapse do, in fact, return to the C or preparation stages (Prochaska & DiClemente, 1984, 1986). This tendency has led Prochaska et al. (1992) to liken the progression through the stages to a spiral in which people move through the stages from PC to action, then recycle to either the C or preparation stage from which they make another quit attempt.

Interventions that are matched to stage offer the smoker who is trying to quit multiple opportunities for success before achieving abstinence. Encouraging people attempting behavior change to see relapse as one setback among many successes differentiates stage-matched treatments for addiction from treatments based on all-or-none concepts of behavior change. The successes achieved in stage-matched treatment can be highly reinforcing for both the smoker and the provider of smoking cessation interventions.

In addition to providing opportunities for reinforcement, stage-matched interventions foster motivation because they seldom provoke resistance (Rollnick et al., 1993). Providing information that is not matched to stage has been shown to be counter-productive for those who are unmotivated to change (Ockene et al., 1991). Describing quitting techniques, for example, which is an appropriate intervention for people who have already decided to quit, may alienate pre-contemplators and contemplators. On the other hand, Prochaska, Norcross, & DiClemente (1994) found that pre-contemplators responded positively to stage-matched interventions that increased their awareness of

smoking as a problem for them or that relieved their concerns about smoking by encouraging greater readiness to change.

Stage-matched interventions are consistent with patient-centered care, which Ockene, Ockene & Kristeller (1988) found to be especially effective for smoking cessation. Stage-matched smoking cessation interventions are characterized by identification of smokers' needs, attempts to meet those needs, and a central role for the smokers' participation, which creates a more egalitarian relationship than between advice-givers and advice-receivers. In addition, change is recognized as a process that takes time (Goldberg et al., 1994).

In their study of the stage distributions of smokers in three populations, Velicer et al. (1995) argue that matching can increase recruitment to smoking cessation programs, enabling them to have a greater impact. Impact is defined as the effectiveness of an intervention multiplied by its recruitment rate. The authors note that neither clinical nor public health approaches currently have a high impact on smoking because clinical interventions, while effective, reach relatively few people, and public health interventions target entire populations but are not very effective.

One way for clinical interventions to reach more people is for them to meet the needs of smokers who have not yet committed to quitting. Crittenden and colleagues (1994; 1998) studied smokers who were unmotivated to change. They found that smokers in the PC stage may be differentiated by attitudes and behaviors into three subgroups, which they have labeled PC1, PC2, and PC3. Those in PC1 are not planning to quit or cut down; those in PC2 are not planning to quit, but are seriously planning to cut down on the amount they smoke; and those in PC3 are seriously thinking of quitting or are planning to

quit, but not within the next month. The authors have designed a measure that can be used to assess the effects of interventions among smokers who are not motivated to quit. It is brief, sensitive to changes in readiness within the PC stage, and written to accommodate limited reading skills.

In summary, the SOC model describes behavior change in general and is often applied to changing addictive behaviors. Interventions that are matched to SOC are effective for smoking cessation. Progressing to the next stage has been shown to double the likelihood that a smoker will quit successfully, and stage progression is reinforcing for both smokers and providers. Stage-matched interventions can increase the impact of smoking cessation interventions because they elicit little resistance from pre-contemplators and contemplators, and can potentially increase the number of smokers who participate in smoking cessation programs. Stage-matched interventions targeting smokers who are not ready to quit may increase the impact of smoking cessation efforts. Changes in readiness among smokers in the PC stage may be measured using the elaborated stages of change model (Crittenden et al., 1994).

### Motivational Interviewing

MI is stage-matched, client-centered, and has been used widely and effectively with alcohol abusers in early stages of behavior change (Miller & Rollnick, 1991). It has also been used effectively for smoking cessation (DiClemente, 1991). MI is especially useful for people in the early stages of behavior change (PC and C stages) because of its non-confrontational nature and its emphasis on the smoker's ambivalent feelings about his or her smoking (Miller & Rollnick, 1991).

It may be that ambivalence accounts, at least in part, for the minimal effect

traditional smoking interventions have on smokers in the C stage. These smokers tend to vacillate between thinking about continuing to smoke or trying to quit. Miller and Rollnick (1991) point out that smokers who are ambivalent assert their autonomy in the face of admonitions to quit by arguing (often to themselves) in favor of the status quo. This increases their investment in continuing to smoke, thus lessening the likelihood that they will decide to quit. Miller and Rollnick contend that people experiencing ambivalence about changing their behavior are particularly vulnerable to the effects of making the argument for one side or the other of their dilemma. Their tendency to see one side and then switch to the other may appear to be resistance, but it is a normal response to their situation. It is not a reaction limited to people who engage in addictive behaviors, but is characteristic of anyone facing such a dilemma.

In MI, the therapist works with ambivalence and the need for autonomy by encouraging the client to explore his or her ambivalence and move toward behavior change at his or her own pace (Rollnick, Heather, & Bell, 1992). Once the ambivalence is resolved, some individuals change on their own and others need further support to make and maintain behavior change (Miller & Rollnick, 1991).

There are several ways to conceptualize early stage behavior change and the role of the therapist. For example, the PC and C stages may be seen as a continuum of increasing awareness in which ambivalence grows as awareness of the pros and cons of both continuing the behavior and giving it up increases (Miller & Rollnick, 1991). In this view, the therapist's role is to tilt the decisional balance toward behavior change by drawing out the client's reasons for behavior change and perceptions of the disadvantages of continuing the behavior (Miller, 1983).

Miller (1983; 1985) suggests that the social psychological theory of cognitive dissonance provides another way to describe early-stage behavior change. Cognitive dissonance theory proposes that awareness of their inconsistencies compels people to change in ways that reduce the inconsistencies. Thus, as smokers' awareness of the incompatibility of their smoking with their beliefs, attitudes, or feelings increases, they are motivated to resolve the inconsistency. Resolution can come through changing either their behavior (e.g., quitting) or their beliefs, attitudes, or feelings (e.g., embracing smoking as an acceptable behavior). The role of the therapist is to increase the dissonance and then direct it so the person chooses behavior change, as opposed to continuing the self-defeating behavior. This is done by eliciting self-motivational statements, providing personalized feedback, and, for some contemplators, assisting the client with goal-setting (Miller, 1983, 1985; Rollnick et al., 1992).

Positive interpersonal influences on motivation grow out of empathic strategies such as minimizing directiveness and providing choice. Negative interpersonal effects have been found to result from more directive approaches. In a family therapy study, therapist and client behaviors affected each other so that clients' non-compliant behaviors elicited more teaching and confronting behaviors from the therapist and vice-versa (Patterson & Forgatch, 1995). These findings suggest that providers may improve smoking cessation interventions by using empathic techniques and avoiding directive techniques such as teaching, and confronting.

Miller et al. (1993) provided further evidence of the importance of therapist attitude and responses to client concerns in MI. They conducted a randomized study of the effects of counselor style on outcomes of a motivational intervention with problem drinkers. In

both directive-confrontive and client-centered counseling conditions, confrontive behaviors by the therapist predicted more drinking at one-year follow-up. The outcome was not attributable to client variables. Therapist confrontation, which occurred eight times more frequently in the directive condition, was the main discriminant between the two groups.

The poor outcomes following therapist confrontation found by Miller et al. (1993) may result from the natural tendency of people to resist being told what to do, as described earlier. Therapist awareness of, and respect for, the client's values and feelings can prevent this polarization from developing (Miller & Rollnick, 1991).

For clients who smoke, the therapist using MI creates a warm, supportive environment, elicits and reinforces the client's own perceptions of the pros and cons of both the behavior and change, and provides assessment and feedback. If the client appears receptive, the therapist also provides information about the risks of smoking, which can increase awareness, ambivalence, and cognitive dissonance. The therapist also avoids confrontation by using reflection in ways that acknowledge and redirect the client's statement so exploration can continue (Miller & Rollnick, 1991) and emphasizes the client's responsibility for making any changes (Miller, 1983). No further intervention is appropriate for most pre-contemplators because it is likely to exceed their readiness to change.

For contemplators, the therapist may also offer the opportunity to begin discussing quitting techniques such as alternative behaviors, change strategies, and possible goals. The client chooses goals and means to achieve them (Rollnick et al., 1992; Miller, 1983).

Rollnick and associates (Rollnick & Bell, 1991; Rollnick, Butler, & Stott, 1997;

Rollnick et al., 1992) have developed a model of MI for use in medical settings. It was designed to help health care providers address behavior change sensitively, briefly, and effectively with patients in all stages of readiness. A menu of stage-matched questions and strategies (See Appendix A) provides structure while allowing the interviewer flexibility to adapt to specific needs expressed by each patient. This simplified model uses the basic concepts and elements of MI: Change is recognized as a process, and the goal of the intervention is for the patient to progress in readiness to change. Intervention strategies are matched to the patient's stage of readiness to change. The interviewer empathetically elicits and supports the patient's concerns about the behavior and reasons for wanting to change, attends to resistance, and does not direct or confront the patient.

There are several differences between the Rollnick et al. (1992) model and MI as previously described. The Rollnick et al. model has a more structured format and strategies are emphasized more than intervention skills. Consequently, it can be taught relatively quickly to health care providers who are not trained as counselors.

In summary, MI is a client-centered, stage-matched, behavior change intervention that addresses the ambivalence of people in the early stages of change. Empathic reinforcement and avoidance of confrontation significantly decrease the likelihood of defensiveness that often arises in response to more directive interventions. MI may be a particularly effective smoking cessation intervention. Increases in motivation to change, the goal of MI, have been shown to predict later quit attempts among smokers (Prochaska et al., 1992). Finally, a model of MI has been developed for use in medical settings, where a large proportion of smokers are seen each year.

### The Current Study

This study was a clinical comparison of the effectiveness of MI, DA, and CC in increasing readiness to quit among male smokers in a VA primary care setting. Smokers were randomly assigned by baseline stage of change into the three groups using a guideline that ensured that the treatment groups contained approximately equal numbers. Participants' subsequent stage of change, motivation to quit smoking, and actions taken toward quitting were assessed at baseline and again one and three months later. Demographic information, smoking history, perceived health status, and nicotine dependence level were also assessed.

### Hypotheses

1. It was expected that the MI group would exhibit a greater shift in the positive direction in readiness to change, measured as contemplation ladder (CL) scores, than either the DA or CC groups. This shift was expected to occur between baseline and each follow-up assessment (i.e., time one to time two and time one to time three).
  2. It was expected that the MI group would report more motivation to change than either the DA or CC groups at time two and time three.
  3. It was expected that the MI group would report more actions to quit than either the DA or CC groups at time two and time three.
- In addition, the following hypotheses were to be examined if there were enough data:
4. It was expected that the MI group would report greater reductions in the number of cigarettes smoked per day (cpd) than either the DA or CC groups at time two and time three.
  5. It was expected that more smokers in the C than in the PC stage, across treatment

groups, would report cutting down the number of cigarettes they smoked or making a 24-hour quit attempt at time two and time three.

## METHOD

### Participants

Because human subjects were used in this study, an application for approval of the study was filed with the Human Subjects Institutional Review Board at Old Dominion University. Approval had already been received from the Institutional Review Board at the Baltimore VA Hospital, the University of Maryland Medical Center, and the Washington VA Medical Center.

Participants were recruited from primary care patients at a VA medical center. They were either waiting to see their physicians or were at the hospital for outpatient services other than primary care on the day they were interviewed. Participants were 157 adult (at least 26 years of age), male, current smokers (5 or more cigarettes per day), and in either the PC or C stage of change. In all, 1,963 people were approached to take part in the study, 388 were identified as smokers, 201 agreed to participate, and 157 provided usable data.

The participants ranged in age from 26 to 79 years ( $M = 51.7$ ,  $SD = 9.9$ ) and had completed from 3 to 18 years of education ( $M = 12.7$ ;  $SD = 2.1$ ). Their self-perceived health status was good ( $M = 3.2$ ,  $SD = 1.0$ ) on a five-point scale ranging from poor (1 point) to excellent (5 points). Their lifetime cigarette consumption was estimated in pack years, a frequently used gauge of smoking history. Pack years are calculated by subtracting the smoker's age at onset of smoking from his or her present age to find the number of years of smoking, then multiplying that figure by the average number of packs smoked per day. Participants reported smoking an average of 32.3 pack years (range = 3 to 94;  $SD = 18.0$ ) and were currently averaging 18.4 cpd (range = 5 to 60;  $SD = 10.6$ ).

A majority of all participants (59%) reported that their doctor talked with them about smoking. Nearly the same proportion (56%) of the participants reported that their doctor advised them to quit. A much smaller proportion (39%) of the participants said their doctor offered them help in quitting. Most of the participants indicated they were very happy with their physician's smoking-related interventions, with over 87% endorsing the highest two of seven possible levels of satisfaction.

Participants indicated the same high degree of satisfaction with the interviews for the present study. Eighty-eight percent endorsed the highest two of seven satisfaction levels.

### Measures

Smoking Survey. The Smoking Survey (Appendix B) was created for this study by expanding the elaborated stages-of-readiness measure created by Crittenden and colleagues (1994), which is based on the SOC model of Prochaska et al. (1992). Crittenden et al. found that smokers falling within the PC stage of Prochaska et al. can be meaningfully separated into three subdivisions. The subdivisions differentiate between smokers who never plan to quit, those who are interested in cutting down, and those who plan to quit sometime, but not within the next six months. All other stages of change (C, preparation, action, and maintenance) are the same as defined by Prochaska and colleagues.

The elaborated SOC measure (Crittenden et al., 1994) has been shown to have adequate internal reliability, stability, and predictive validity. In their 1994 study involving 495 women at four public health clinics, Crittenden et al. found support for the reliability of the motivation and confidence scales. The motivation scale had a Cronbach's alpha of .81; the confidence scale had an alpha of .67, thus demonstrating adequate

internal reliability for both scales. For this study, alphas for motivation were .91 and .92; for confidence, they ranged from .75 to .90.

Crittenden et al. (1994) compared their elaborated SOC measure to the CL (Biener & Abrams, 1991), an alternative instrument for measuring readiness to change. Of the two, they found that the elaborated SOC measure was more strongly related to changes in motivation, confidence, and action.

The Smoking Survey requires minimal literacy. It provides the following information (item numbers shown in parentheses): demographic information and name of primary care provider; current smoking status (1); smoking history (2, 3, 4); stage of readiness to change (6, 11, 12, 15, 16); motivation to cut down or quit (7, 9, 13, 17); confidence in ability to cut down or quit (8, 14); actions taken in the past year to cut down or quit (5, 10, 11); and perceived health status (18 and 19). Questions added to the elaborated SOC measure (Crittenden et al., 1994) for this study are those pertaining to smoking history and perceived health status. Questions 2, 3, and 4 are used to calculate an estimate of pack years.

Two items were designed to indicate perceived health status. The first item (18) is a checklist of 13 of the most common smoking-related illnesses, plus a fill-in space for any other illness the participant may be experiencing that he believes is smoking related. This item is scored by summing the number of endorsed illnesses. The second item (19) asks for a global estimate of health status. Participants rate their health by checking one of five responses ranging from poor (5) to excellent (1). The remaining items are taken directly from the Crittenden et al. (1994) measure and were used to determine SOC by algorithm.

Stage of Change. Questions used to assess SOC ask about intent to cut down,

actually cutting down, 24-hour quit, intent to quit, and immediacy of that intent. SOC is determined by algorithm, based on behaviors endorsed on the five stage-relevant items (see Table 1). Four of the five items used to determine SOC are dichotomous (Yes/No), and the fifth offers four ranges of time from which participants select one. While three items on the questionnaire ask about behavior “one year ago” or “in the past year” (5, cpd one year ago; 10, cutting down in the last year; and 11, quitting for 24 hours in the last year), the wording was changed at follow-up assessments to ask about “at or since the last interview”.

**Motivation.** The four items that assess motivation to cut down and/or to quit ask about desire to cut down, desire to quit or stay quit, determination to cut down, and determination to quit or stay quit. Items used to measure motivation are all four-point scales from which the participant selects one ("Not at all," "A little," "Somewhat," or "Very"). Items are scored from not at all (1) to very (4). Possible total scores for Motivation range from 4 to 16.

**Confidence.** Two questions measure confidence in ability to cut down or quit. Items used to measure confidence, like those for motivation, are all four-point scales from which the participant selects one ("Not at all," "A little," "Somewhat," or "Very"). Items are scored from not at all (1) to very (4). Possible total scores for Confidence range from 2 to 8.

**Action.** There is one question for each of three actions taken in the past year (or since the last interview) to cut down or quit: intentionally quitting for 24 hours, cutting down during the past year, and smoking fewer cpd than at this time last year or at the last interview (calculated by subtracting cpd reported previously from current cpd).

Table 1

Stages of Readiness to Change Smoking Behavior, Including Smoking Survey Items  
Endorsed by Participants in Each Stage.

STAGE	DESCRIPTION	ITEMS ENDORSED
PC1	Not contemplating quitting AND no intent to cut down	12 Not thinking of quitting AND
		15 Not planning to quit AND
		6 Not thinking of cutting down
PC2	Not contemplating quitting BUT intending to cut down	12 Not thinking of quitting AND
		15 Not planning to quit, BUT
		6 Thinking of cutting down
PC3	Contemplating quitting BUT not within 6 months	12 Seriously thinking of quitting OR
		15 Planning to quit, BUT
		16 Not within 6 months
C	Contemplating quitting within 6 months	12 Seriously thinking of quitting AND
		15 Planning to quit
		16 Within 6 months BUT EITHER
		16 No plan to quit within 1 month OR
		11 No 24-hour quit attempt

---

		12 Seriously thinking of quitting AND
PA	Preparation <i>for</i> Action	15 Planning to quit AND
		16 Within 1 month AND
		11 Made a 24-hour quit attempt

---

Note. PC1 to PC3 refer to pre-contemplation stages 1 through 3; C refers to the contemplation stage, and PA refers to the preparation stage. From “Measuring Readiness and Motivation to Quit Smoking Among Women in public Health Clinics,” by K.S. Crittenden, C. Manfredi, L. Lacey, R. Warnecke, and J. Parsons, 1994, Addictive Behaviors, 19 (5), P. 500. Copyright 1994 by Elsevier Science Ltd. Adapted with permission.

Each question counts as one point for a total possible score of three. A fourth action, quitting, is possible at follow-up. Participants who quit received an action score of four.

The Contemplation Ladder. The CL (Biener & Abrams, 1991, Appendix C) is a continuous measure of readiness to quit. It is a visual analog scale in the form of a ladder on which smokers are asked to mark the rung that most nearly corresponds to their readiness to change. The ten numbered rungs represent a continuum of readiness to change. The five labeled rungs are: no thought of quitting (0); think I need to consider quitting someday (2); think I should quit but not quite ready (5); starting to think about how to change my smoking patterns (8); and taking action to quit (e.g., cutting down, enrolling in a program) (10).

The CL is a more useful measure for smokers in the early stages of change than for those in later stages. Biener and Abrams (1991) found that the CL predicted readiness to contemplate quitting, but not long-term cessation. Crittenden et al. (1994) found in their study of smokers in the early stages of change (pre-contemplation and Contemplation) that the CL was positively related to motivation to change as measured by their questionnaire. They found that CL was positively related to confidence, action, and stage of change when rungs one through three were contrasted with rungs four and five.

Fagerström Test of Nicotine Dependence (FTND). The FTND (Heatherton et al., 1991, Appendix D) is a six-item measure of nicotine dependence. Four items are dichotomous (yes/no) and are scored either 0 or 1. The remaining two items have four possible responses which are scored from 0 to 3. For all items, higher scores indicate greater dependence. Total scores of seven or greater indicate high nicotine dependence. The FTND has been shown to have adequate internal consistency and concurrent validity

in studies using biochemical measures of nicotine in both a non-clinical sample (Heatherton, et al., 1991) and a clinical sample (Payne, Smith, McCracken, McSherry, and Antony 1994).

Feedback Form. The feedback form (Appendix E) was created for this study. It asks whether the participant's physician discussed smoking with him, advised him to quit, or assisted him with quitting. It also includes two questions addressing the participant's satisfaction with both physician and experimenter interventions.

### Procedures

Male primary care patients at an Eastern urban VA Medical Center were queried about their current smoking status. Current smokers who agreed to participate in the study were asked to complete a consent form (Appendix F), including agreement to participate in follow-up interviews and complete a Smoking Survey, the CL (Biener & Abrams, 1991), and the FTND (Heatherton et al, 1991). Participants were then assigned by SOC to one of three experimental interventions: MI, DA, or CC.

Smokers were randomized to treatment by assigning individuals from each SOC to treatment in a pre-determined order. Interventions occurred before physician visits to the extent possible. After their study intervention, participants completed the feedback form (Appendix E), and received a preliminary debriefing form (Appendix G) and wallet-size copy of the CL. Each intervention involved approximately 15 minutes of contact with the experimenter.

Follow-up interviews for each subject were conducted one month and three months after the intervention. Participants were re-administered the Smoking Survey, the CL (Biener & Abrams, 1991), and the FTND (Heatherton et al, 1991) either by telephone or

in person. Each follow-up contact lasted approximately ten minutes.

Audio recordings were made of all interventions for which participants consented to be recorded. The recordings were evaluated by objective raters using checklists of the major defining criteria for each intervention (Appendix H). The raters, who were graduate students in clinical psychology, were naive to the purpose of the study. This manipulation check was performed to ensure treatment adherence and consistency because one experimenter administered all three interventions.

MI interventions were conducted using stage-matched strategies from the menu shown in Appendix A. This menu was adapted from menus created by Rollnick and colleagues (Rollnick & Bell, 1991; Rollnick, Butler, & Stott, 1997; Rollnick, Heather, & Bell, 1992). The list of strategies is ordered by level of readiness to change. Strategies at the top of the list are appropriate for most smokers, regardless of stage. Each subsequent set of strategies is for smokers who endorse greater readiness to change, with the last set being appropriate for smokers in the C stage.

In the DA intervention, participants were instructed about the health risks of smoking, the benefits of quitting, and techniques for smoking cessation. Participants were told about the health consequences that they might experience if they continued to smoke and were firmly advised to quit. Those who minimized the relevance of the advice, or argued against it, were authoritatively reminded of the risks associated with continuing to smoke and advised that they should quit as soon as possible. The DA intervention was designed to be an analogue for advice participants are likely to encounter in a primary care setting (Ockene et al., 1991).

CC was a discussion of lifestyle/health-related behaviors, which was conversational

in tone and did not address topics the participant indicated he associated with smoking such as smoking-related illnesses endorsed on the Smoking Survey. When such topics arose, they were acknowledged and the conversation was re-directed to a subject that was not related to smoking.

## RESULTS

### Preliminary Analyses

Stage of change and Contemplation Ladder. Two measures of readiness to change were used in this study: Crittenden's elaborated SOC model (1994) and the CL (Biener & Abrams, 1991). Dividing pre-contemplators into the three stages of the elaborated SOC model and then into three intervention groups resulted in numbers of participants in PC1 and PC2 that were smaller than in PC3 and C. All but one of the resulting PC1 and PC2 groups had less than ten participants, which made them too small for meaningful analysis (see Table 2). Combining the PC1 and PC2 groups resulted in numbers that were large enough to be analyzed and similar in size to the PC3 and C stages. The resulting stages are designated PC1/PC2, PC3, and C.

Assigning participants to SOC presented difficulties in some cases. Several participants gave responses that prevented them from being classified according to the algorithm. In addition, the continuous data provided by the CL were judged to be preferable for analytic purposes compared to the ordinal data of the SOC model.

To investigate whether the CL could be used as the dependent variable (DV), preliminary analyses were conducted to assess the degree to which the CL and SOC were related. A one-way General Linear Model (GLM) analysis was done for three levels of SOC with CL scores as the DV. A main effect of SOC on CL scores was found at time 1,  $F(2, 154) = 46.06, p < .001$ ; time 2,  $F(2, 108) = 39.38, p < .001$ ; and time 3,  $F(2, 99) = 36.129, p < .001$ . In each case, a Scheffe post hoc test revealed that PC1/PC2 had lower CL scores than PC3, which had scores lower than C. Mean CL scores by SOC are shown in Table 3.

Table 2

Number of Participants in Each Stage of Change And Intervention.

Intervention	Stage Of Change				TOTAL
	1	2	3	4	
Direct Advice	9	8	21	14	52
Motivational Interviewing	9	9	18	18	54
Control Conversation	11	8	17	15	51

Table 3

Mean Contemplation Ladder Scores by Stage of Change

Stage	Time 1		Time 2		Time 3	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
PC1/PC2	2.96	2.39	2.20	2.57	2.48	2.68
PC3	6.27	2.68	6.19	2.68	6.00	3.00
C	7.53	2.39	7.74	2.26	8.24	2.35
TOTAL	5.51	3.14	5.89	3.26	6.20	3.45

Note. PC1/PC2 refers to combined pre-contemplation groups 1 and 2. PC-3 refers to the pre-contemplation 3 group. C refers to the contemplation group.

Attrition and completion groups. Of 201 participants who completed at least part of the consent form and initial questionnaires, 28 were eliminated. The reasons for elimination from the study included: refusal to continue in the study (4), and disqualification because they did not meet the inclusion criteria (21) or ineligibility because their data were collected during the pilot stage of the study (3). Of the remaining 173 participants considered for the study, 157 had valid data for one or more interviews. Of the 16 participants whose data were invalid, one was in the preparation stage of change (e.g., SOC = 5), 12 smoked less than five cpd, and three could not be assigned to a stage. The stage and intervention distribution of the 157 participants whose data were used in the study can be seen in Table 2.

Not all participants participated in all three interviews. They were assigned to attrition groups based on the number of interviews they had completed. Attrition groups were then compared to determine what, if any, differences existed among groups completing different combinations of interviews with respect to variables such as initial stage of change, age, and current smoking level. The first group consisted of 99 responders to all three interviews. The second group consisted of 20 responders to the initial and one-month follow-up interviews. The third group consisted of 27 responders to the initial interview only. The 11 participants who completed interviews at times 1 and 3 only were excluded from the attrition group analyses.

No significant differences were found among the attrition groups for initial SOC,  $\chi^2(4, n = 139) = 1.51, p = .83$ , or quitting,  $\chi^2(2, n = 146) = 1.12, p = .57$ . These data are presented in Table 4.

A one-way (attrition group) MANOVA, between subjects, was done with motivation,

Table 4

Stage of Change Distribution and Reported Quit Attempts by Attrition Group

Stage	Group 1	Group 2	Group 3	Total
PC1/PC2 ( <u>n</u> = 44)	30% ( <u>n</u> =29)	41% ( <u>n</u> =7)	31% ( <u>n</u> =8)	32%
PC3 (n=54)	39% ( <u>n</u> =37)	41% ( <u>n</u> =7)	39% ( <u>n</u> =10)	39%
C (n=41)	31% ( <u>n</u> =30)	18% ( <u>n</u> =3)	31% ( <u>n</u> =8)	29%
Total ( <u>N</u> =139)	100% ( <u>n</u> =96)	100% ( <u>n</u> =17)	100% ( <u>n</u> =26)	100%
24-hr Quit Attempt (n=74)	51% ( <u>n</u> =50)	60% ( <u>n</u> =12)	44% ( <u>n</u> =12)	51%
No Quit Attempt (n=72)	49% ( <u>n</u> =49)	40% ( <u>n</u> =8)	56% ( <u>n</u> =15)	49%
Total ( <u>N</u> =146)	100% ( <u>n</u> =99)	100% ( <u>n</u> =20)	100% ( <u>n</u> =27)	100%

Note. Group 1 completed all three interviews. Group 2 completed interviews 1 and 2. Group 3 completed interview 1 only. PC1/PC2 refers to combined pre-contemplation groups 1 and 2. PC-3 refers to the pre-contemplation 3 group. C refers to the contemplation group.

current smoking level, confidence, age, FTND, and perceived health as DVs. There was no significant effect of attrition group, multivariate  $F(12, 274) = 1.21, p = .28$  (see Table 5).

In order to examine the issue of attrition further, those who completed all three interviews (i.e., completers) were compared to those who did not complete all three interviews (i.e., noncompleters). Using the same variables as those described in the analyses for attrition groups, there were no significant differences between completers and noncompleters. In summary, there were no significant differences among the attrition or completion groups on the variables analyzed.

Manipulation Check. One investigator conducted all interventions, as well as the one-month and three-month follow-up interviews. To evaluate the interviews, two raters, who were unaware of the purpose of the study, scored 24 tapes, eight from each intervention. DA and MI were each represented by three descriptors, and the CC by one (see Appendix H). The raters were given oral instructions before evaluating the tapes (see Appendix I). Their scoring was in agreement for 96% of the taped interviews. They both correctly endorsed 23 of 24 descriptive statements for both DA and MI, and all eight descriptors for the CC. They both also endorsed a descriptor for MI (“listens, reflects back, and summarizes what the smoker has said”) for all CC interviews and for seven and eight DA interviews, respectively.

### Main Analyses

The first hypothesis predicted participants in the MI group would show greater increases in readiness to change from baseline to each follow-up assessment than subjects in either the DA or CC conditions. A 3 (intervention) x 3 (time) mixed design

Table 5

Mean Dependent Variable Scores by Attrition Group

	Group 1 n = 99		Group 2 n = 20		Group 3 n = 26		Total N=145	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Motivation	11.72	3.96	12.12	4.23	11.35	4.70	11.70	4.11
Current Cigs/Day	18.52	10.36	19.05	11.80	20.69	11.01	18.98	10.64
Confidence	5.34	2.20	5.15	2.23	5.81	2.00	5.40	2.16
Age	52.15	10.11	50.30	9.96	53.50	9.99	52.14	10.04
FTND	4.61	2.47	4.60	2.26	5.50	2.20	4.77	2.41
Perceived Health	3.30	0.98	2.80	1.15	3.42	0.95	3.26	1.01

Note. Group 1 completed all three interviews. Group 2 completed interviews 1 and 2.

Group 3 completed the initial interview only.

GLM was done using CL scores as the DV. There was no main effect of intervention,  $F(2, 96) = .70, p > .05$ . There was a main effect of time,  $F(2, 192) = 4.86, p < .01$ , indicating significant differences in readiness to change (CL scores) over time (see Table 6).

The second hypothesis predicted all participants in the MI group would report more motivation to change than subjects in either the DA or CC conditions at each follow-up assessment. A 3 (intervention) x 3 (time) between-within GLM was done using motivation as the DV. There was no effect of intervention,  $F(2, 92) = 1.25, p = .29$ . There was a significant time-by-intervention interaction,  $F(4, 184) = 2.76, p < .05$  as well as a significant main effect for time,  $F(2, 184) = 6.07, p < .01$ .

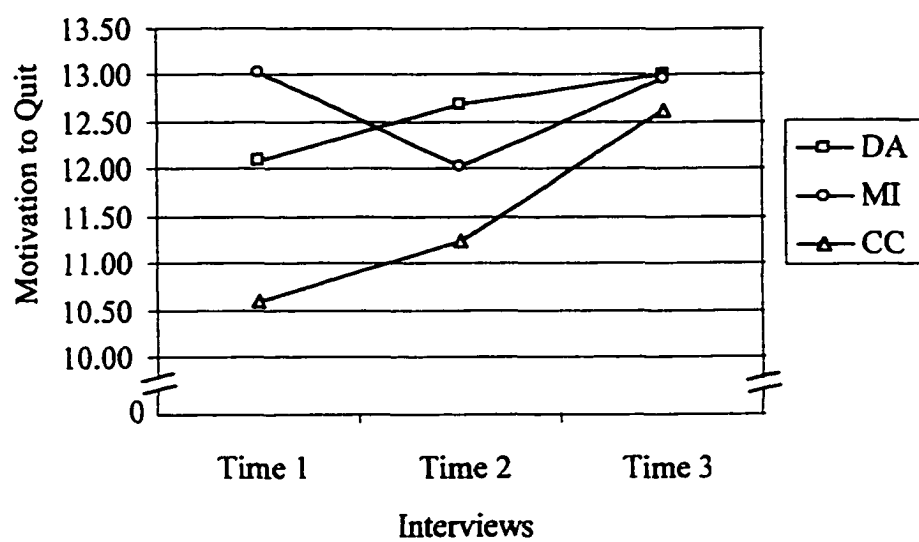
A simple effects analysis was used to examine motivation changes over time for each intervention condition. A Bonferroni correction was done to adjust error for the three analyses. The alpha used was .017. This indicated that those in the MI group and the DA group did not change significantly over time,  $F(2, 60) = 3.64, p = .03$ ,  $F(2, 56) = 1.22, p = .30$ , respectively. The CC group did change significantly over time,  $F(2, 68) = 6.90, p = .002$ , indicating that changes in the CC group accounted for both the main effect of time and the intervention-by-time interaction (see Figure 1).

The third hypothesis predicted that all participants in the MI group would report more actions to quit from baseline to each follow-up assessment than subjects in either the DA or CC conditions. A 3 (intervention) x 2 (time) between-within GLM was done using action as the DV. There was no main effect of intervention,  $F(2, 71) = .24, p = .78$ , nor of time,  $F(1, 71) = .96, p = .33$ . Neither was there a time-by-intervention interaction,  $F(2, 71) = .73, p = .49$ .

Table 6

Mean Contemplation Ladder Scores by Intervention and Time

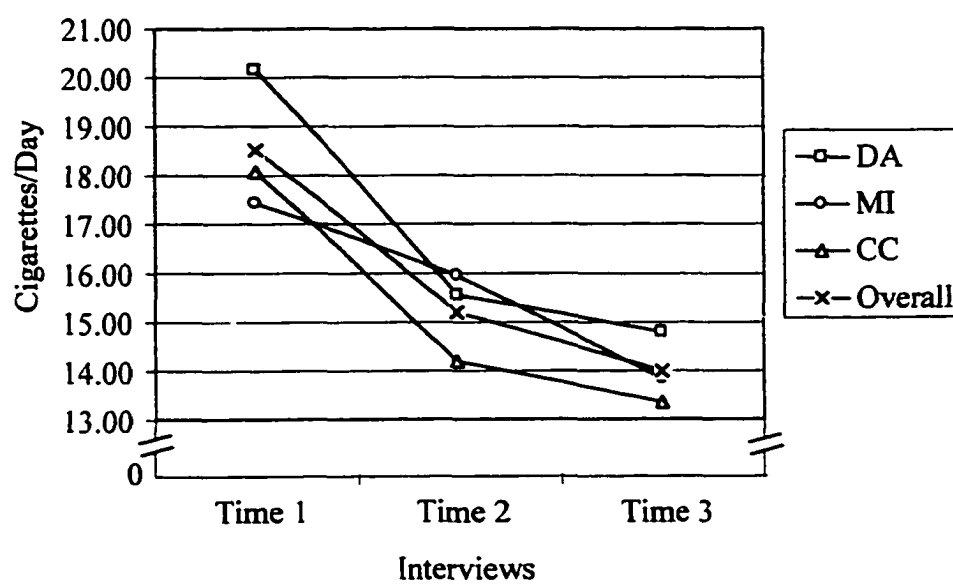
<u>Intervention</u>	<u>Interview</u>							
	<u>Time 1</u>		<u>Time 2</u>		<u>Time 3</u>		<u>Overall</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Motivational Interview <u>n</u> =33	6.21	3.03	6.00	3.30	6.88	3.52	6.36	3.28
Direct Advice <u>n</u> =31	5.68	2.93	6.77	2.69	6.39	3.28	6.28	2.97
Control Conversation <u>n</u> =35	4.77	3.49	5.97	3.64	6.17	3.53	5.64	3.55
Total <u>N</u> =99	5.54	3.20	6.23	3.24	6.47	3.43	6.08	3.29



**Figure 1.** Motivation scores by intervention at three assessment times.

The fourth hypothesis predicted that all participants in the MI group would report greater reductions in cpd from baseline to each follow-up assessment than subjects in either the DA or CC conditions. A 3 (intervention) x 3 (time) GLM was done using cpd as the DV. There was no main effect of intervention,  $F(2, 96) = .26, p = .77$ , nor was there a time-by-intervention interaction,  $F(4, 192) = .739, p = .57$ . There was a main effect of time,  $F(2, 192) = 18.00, p < .001$ , indicating that smokers in all intervention groups smoked less over time. The decrease in mean cpd for each intervention group is shown in Figure 2.

The fifth hypothesis predicted that, at each follow-up assessment, more contemplators than pre-contemplators would report cutting down or quitting for twenty-four hours. Two chi-square tests were done for each follow-up assessment (time two and time three, making four tests in all), using contemplation group (pre-contemplator or contemplator) and either cutting down or quitting as the variables. Results for cutting down and quitting were mixed. Contemplators were significantly more likely than pre-contemplators to cut down at time three,  $\chi^2(1, n = 110) = 5.08, p < .05$ , but not at time two,  $\chi^2(1, n = 119) = 2.21, p = .137$ . Contemplators reported significantly more quit attempts at time three,  $\chi^2(1, n = 110) = 9.71, p < .05$ . There was also a trend for contemplators to make more quit attempts than pre-contemplators at time two,  $\chi^2(1, n = 119) = 3.73, p = .053$  (see Table 7).



**Figure 2.** Cigarettes per day by intervention at three assessment times

Table 7

**Proportion of Smokers Cutting Down and Quitting at Interviews Two and Three**

Group	Cut Down				Quit			
	Interview 2		Interview 3		Interview 2		Interview 3	
	Y	N	Y	N	Y	N	Y	N
PC	57.8%	42/2%	60.5%	39.5%	24.1%	75.9%	32.9%	67.1%
	<u>n</u> = 48	<u>n</u> = 35	<u>n</u> = 46	<u>n</u> = 30	<u>n</u> = 20	<u>n</u> = 63	<u>n</u> = 25	<u>n</u> = 51
C	72.2%	27.8%	82.4%	17.6%	41.7%	58.3%	64.7%	35.3%
	<u>n</u> = 26	<u>n</u> = 10	<u>n</u> = 28	<u>n</u> = 6	<u>n</u> = 15	<u>n</u> = 21	<u>n</u> = 22	<u>n</u> = 12

Note. PC refers to participants in the pre-contemplation stage of change. C refers to participants in the contemplation stage of change.

## DISCUSSION

This was a preliminary study comparing MI to DA and CC for increasing readiness to quit among smokers who were not considering quitting in the near future. Participants were male primary care patients at a VA medical center. It was predicted that, following intervention, smokers receiving MI would increase more than other participants in readiness to quit, motivation to quit, and actions to quit, and that they would smoke fewer cpd. Hypotheses also predicted that participants who were most ready to change (contemplators) would report more cutting down and attempts to quit for 24 hours or longer than those who were less ready to change (pre-contemplators). None of the hypotheses predicting that MI would be superior to DA or CC were supported. Results partially supported the hypothesis that more contemplators than pre-contemplators would report cutting down and making 24-hour quit attempts at each follow-up interview. Contemplators reported significantly more cutting down and quitting than pre-contemplators only at time three. Over the course of the study smokers in all intervention conditions decreased their smoking behavior. They increased in readiness to change their smoking behavior and they decreased in cpd. This discussion describes possible reasons for these results.

The first hypothesis predicted that participants in the MI group would increase more in readiness to change than participants in the DA or CC groups. The second hypothesis suggested that smokers receiving MI would increase more in motivation to quit than smokers in other treatments. Contrary to both hypotheses, results revealed no effect for intervention. Participants in all interventions combined increased over time in readiness to change. Those in the CC group increased significantly in motivation to

change. Several possible factors that may have contributed to these findings will be reviewed later in a separate section on study limitations.

The third, fourth and fifth hypotheses examined different aspects of the actions-to-quit score. The actions-to-quit score is a composite of cpd, reported cutting down, and reported 24-hour quit attempts. The four positive actions to quit are smoking fewer cpd than at the last assessment, reporting at least one instance of cutting down, reporting at least one 24-hour quit attempt, and quitting.

Hypothesis three predicted that actions to quit would be higher for those in the MI group than for those in either DA or CC conditions. Contrary to the hypothesis, intervention was not related to actions to quit. The actions-to-quit score did not change significantly over time for the participants as a whole, either. Change in cpd was in the positive direction at each assessment time, but it was offset by negative change in reported cutting down and reported quitting (i.e., cpd was lower, but frequency of reported cutting down and quitting were also lower). The result was that there were no significant differences in the actions-to-quit scores at any assessment time.

Contrary to the prediction of hypothesis four, there was no effect of intervention on cpd. Participants in all intervention conditions decreased in cpd over time. Mean cpd dropped from 18.52 at time one to 15.21 at time two, and 13.98 at time three. The overall decrease in cpd may have been in response to physician counseling during the study or to combined focus on smoking by the experimenter and participants' physicians. Physician counseling will be discussed more fully later in this section. Other possibilities include a demand effect from knowing that the study was about smoking cessation, and environmental effects, such as increasing cost. Very high ratings for satisfaction with the

intervention interviews ( $M = 6.26$  out of 7) and a bias toward framing them in a positive light (“gave me food for thought” rather than “told me what to do” or “neither”) provide support for the possibility of a demand effect. Many participants mentioned increasing cost as a reason for smoking less.

As predicted in hypothesis five, more contemplators than pre-contemplators reported cutting down and making quit attempts at time three (82% vs. 61%, respectively). According to Prochaska and DiClemente’s (1983) definition, contemplators are thinking of quitting within six months and are considering the advantages and disadvantages of quitting, while pre-contemplators are not thinking of quitting. Contemplators’ higher reported rates of cutting down and attempted quitting are consistent with the study of DiClemente et al. (1991) in which 24% of contemplators reported a quit attempt during the previous month, versus 8% of pre-contemplators.

The findings for hypothesis five are consistent with the SOC model (Prochaska & DiClemente, 1983; Prochaska, et al., 1992) in that contemplators reported more cutting down and quit attempts than pre-contemplators. However, the rates of reported cutting down and quit attempts in the current study are much higher than reported elsewhere for smokers in the PC and C stages (DiClemente et al., 1991). It is possible that participation in a study about smoking or providing information in a medical setting led participants to overestimate their rates of cutting down or quitting.

No studies evaluating both MI and DA were known to the experimenter prior to implementing this preliminary study. Therefore, there were no studies to which outcomes of hypotheses one through four could be directly compared. The existing smoking cessation literature did suggest, however, that MI would be more effective than DA

(Ockene et al., 1991; Patterson & Forgatch, 1985; Prochaska, 1996). Outcomes for hypotheses one through four did not support the superiority of MI for increasing motivation to quit for this population in this setting.

#### Limitations of the Present Study

Some difficulties in carrying out this study were anticipated and attempts were made to overcome them. For example, to ensure equal numbers of subjects in each condition, a system was devised for assigning participants to intervention by stage of change. The possible effects of having one person provide all the treatments were addressed by developing guidelines and a menu of stage-matched questions and strategies to standardize the interventions as much as possible. In addition, recorded interviews were evaluated for treatment compliance by naive raters, who were graduate students in clinical psychology.

Despite efforts to anticipate difficulties and mitigate their effects, some were likely to have had adverse effects on the outcome. Factors that may have contributed to the lack of an effect for intervention include physician contact, participant characteristics, demand characteristics, the limited dose and intensity of the intervention, having one experimenter deliver all three interventions, factors affecting treatment delivery, and lower-than-expected statistical power. Each of these factors will be discussed below.

Participants are likely to have been influenced by counseling from their physicians. After the study was planned, it was learned that a nationwide VA initiative to increase assessment of smoking status in VA primary care had been implemented prior to the beginning of the study. Criteria for the initiative during fiscal year 1999 (October, 1999 through September, 2000) included screening all primary care patients for smoking status

and counseling each smoker at least one time per year. Counseling included either referral to a smoking cessation clinic or advice to quit. This urban VA medical center had a high rate of compliance with the initiative (C. McSherry, personal communication, August 14, 2000).

Smokers in this study indicated a very high level of satisfaction with their physician's interventions. The emphasis on smoking interventions in primary care, along with the participants' high level of acceptance of their physicians' advice, may have diluted any observable effects of interventions in this study. Because the primary care initiative was unanticipated, no data were collected about participants' contact with their physicians during the study.

Health concerns or veteran status may have had a stronger effect on overall outcomes than any of the interventions, or they may have caused participants to respond more positively to the CC and DA interventions than to MI. The mean age of the participants was 51.7 years and the mean number of smoking-related illnesses they reported was 1.33. While this number appears to be low, the illnesses endorsed were chronic conditions, including several affecting the cardio-vascular system, as well as cancer and diabetes (see Appendix B). Heightened health concerns have been found to be positively associated with increased quit rates (Law & Tang, 1995). They have also been cited as one possible cause of higher quit rates among older smokers than for those who are younger (Ruchlin, 1999). Six of the eight participants in this study who quit smoking reported that they were motivated by adverse health events, primarily "strokes." The other two who quit cited family or environmental influences. It may be that the CC condition with its non-threatening focus on health concerns increased the salience of such concerns

for the smokers. DA was also strongly health-focused, while motivational interviews were supportive of health-enhancing accomplishments, but centered more on the role of smoking in the participant's daily life along with associated feelings and conflicts identified by the participant. Health concerns were sometimes discussed in this context, but were not the intended focus of the interview.

Demand characteristics may have been created for some participants by the medical center setting or by their knowledge that the study pertained to smoking cessation. If such was the case, their responses may have reflected a bias toward indicating greater readiness to quit or quitting-related behavior than was actually the case.

Tailored interventions such as MI have been shown to be superior to treatments such as DA (Miller, et al., 1993; Ockene, et al., 1991). Previous research has revealed that DA is less personalized and more likely to be perceived as confrontational because people tend to resist being told what to do (Rollnick, et al., 1993). However, DA may not have elicited such resistance among participants in this study. All participants were trained to respond to direct or implied commands as part of their military training and experience. In addition, many of the participants were enrolled in long-term outpatient programs at a VA hospital for post-traumatic stress disorder (PTSD) or for substance abuse. There may be an effect from participation in such long-term programs that increases the comfort of their members with directly discussing their smoking habits. If so, they might be less likely to respond negatively to DA. Some support for this possibility came from the many participants in both long-term programs and this study who related quitting smoking to quitting other substances, often with the aid of 12-step programs. Their descriptions of the techniques that had been helpful for them were more similar to DA than to MI. In

addition, PTSD and abuse of other substances in addition to tobacco are both associated with heavy smoking among veterans (Beckham, 1999; Beckham, et al., 1997). Heavy smoking is often associated with difficulty in quitting (Lam, et al., 1987; USDHHS, 1988). Participants' history of heavy smoking may have limited the effect of the interventions. The mean number of pack years for this sample was 32.26 and their mean cpd at time one was 18.12.

Interviews for this study were brief, averaging about seven minutes. While physician interventions for smoking have been found to be much shorter than seven minutes (Fiore, et al., 1996; Humair & Ward, 1998; USPHS, 2000), optimal smoking cessation interventions involve more time and intensity and include pharmacological agents such as nicotine patches or Zyban (USDHHS, 2000). One short interview was likely not intense enough to produce a significant impact on the smoking habits of the participants in this study, who were mostly long-term smokers.

Delivery of all three interventions by one experimenter was a major limitation of this study, despite efforts made through planning, training, and practice to prevent experimenter bias or drift. Scenarios for all three interventions were planned in advance. For example, DA interviews included feedback regarding any health problems the participant endorsed, information about other smoking-related illnesses experienced by long-term smokers, admonitions to quit as soon as possible to prevent further smoking-related health problems, information about quitting techniques, and additional advice to quit. Motivational interviews followed the menu of stage-matched questions and strategies shown in Appendix A. The CC condition focused on participants' current practices regarding diet, exercise, stress management, and sleep.

The experimenter, who was trained in clinical psychology, completed specialized training in motivational interviewing. She practiced the direct advice scenario with volunteer interviewees in advance of implementing the study. She also prepared guidelines for structuring each of the three interviews. Nonetheless, objective raters, who otherwise identified all the interventions accurately, endorsed a characteristic of MI, “listens, reinforces, and summarizes,” for all but two of the taped DA and CC interviews. This indicates that elements of the experimenter’s clinical style such as empathy and reinforcement may have further diluted any differences that occurred among the three interventions. For example, in the DA condition, “reinforcement” and “support,” both of which were found by Patterson & Forgatch (1995) to enhance compliance, may have counteracted the effects of “teaching” and “confronting” that elicited non-compliance in the Patterson and Forgatch study.

The interventions probably would have been more effective if space and time had allowed for them to be conducted in an office as a part of patients’ health care visits. They might also have carried more impact if conducted by participants’ regular health care providers. Conditions under which the interventions were delivered were very different from those one would expect for delivery of services in a health care setting. Office space was usually unavailable, leaving many interviews to be conducted in waiting areas of primary care clinics where privacy was limited. Assessment and interviews were conducted during patients’ waiting time, which was typically unpredictable in terms of duration and number of interruptions. Other interviews were conducted in designated smoking areas where many smokers congregated. Privacy was less problematic during most of those interviews, but distractions may have diminished their effectiveness.

Treatment delivery conditions may also have resulted in a less representative sample than could have been obtained if interventions had been integrated into patients' regular care. Approaching patients in public areas resulted in numerous refusals to participate, particularly by patients who had seen an interview being tape-recorded. Of 1,963 people who were approached to take part in the study, 388 (19.8%) acknowledged being smokers, and 201 agreed to participate.

Statistical power was lower than expected because actual effect size and variance differed from original estimates. The preliminary nature of this study necessitated estimating effect size and variance to determine the number of subjects required for the study to have adequate statistical power. Actual effect size was smaller and variance much greater than expected, which lowered statistical power.

#### Suggestions for Future Research

In spite of discouraging results for the present study, these findings should not lead to the conclusion that MI is not effective for helping smokers who have low motivation for change. Only a small effect was anticipated for MI in this study because of its low dose and intensity. Any effect that occurred is likely to have been offset by other limiting factors as discussed above, including physician counseling during the study, participant characteristics, demand effects, experimenter effects, non-standard treatment delivery conditions, and lower-than-expected statistical power. One contribution of this study may be uncovering these limiting factors and their possible impacts.

In future research, interventions should be delivered as an integral part of participants' primary care visits. More information should be gathered to track physician advising during the study and to further explore participants' health concerns. Several

experimenters should deliver the interventions. Optimal dosage could be explored by comparing one-time interventions in primary care with similar interventions to which self-help booklets or telephone follow-up are added. Effect size and variance data from this study may enhance the accuracy of power analyses for similar studies in the future.

## SUMMARY AND CONCLUSIONS

Results of the present study did not support MI as a more effective intervention compared to DA and CC for male smokers in the PC and C stages of change who were primary care patients at an urban VA medical center. However, other factors such as physician advising, participant characteristics, limited dose and intensity of the intervention, experimenter effects, environmental factors affecting treatment delivery, and lower-than-expected statistical power may have counteracted intervention effects.

Results of the study did indicate, however, that contemplators reported more cutting down and 24-hour quit attempts than pre-contemplators at three month follow up. Greater quitting-related activity among contemplators than among pre-contemplators supports the SOC theory of Prochaska & DiClemente (1983).

Because MI has been shown to be effective in other circumstances (Miller & Rollnick, 1991; Prochaska, et al., 1992), determining its usefulness for veterans who are unmotivated to quit smoking remains a worthwhile objective. Veterans are more likely than non-veterans to smoke, and, for those who do smoke, to smoke more heavily (Feigelman, 1994). The health costs of their smoking behavior are high, as are the health benefits of quitting for smokers of all ages (USDHHS, 1988;1989). Primary care providers at VA hospitals are making smoking cessation counseling a priority. Further research incorporating methodological and procedural lessons from this preliminary study could help determine whether MI might increase the effectiveness of their counseling for smokers in the early stages of change.

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**APPENDIX A**  
**MENU OF STAGE-MATCHED QUESTIONS AND STRATEGIES**

## MENU OF STAGE-MATCHED QUESTIONS AND STRATEGIES

### *Part I: Develop Rapport and Elicit General Information.*

#### 1. A typical day.

-- "Where does smoking fit in?"

#### 2. Health and smoking.

-- "How do you believe smoking affects your health?"

### *Part II: Help Smoker Identify Problems and Solutions.*

#### 3. Elicit self-motivational statements.

##### A. For smokers with low Motivation scores:\*

-- "Why did you indicate that you [want to quit smoking] \_\_\_\_ (level indicated) rather than \_\_\_\_ (a lower level)?"

(Response provides smoker's reasons for quitting.)

-- "What would need to happen for you to go from (level indicated) to \_\_\_\_ (a higher level):"

(Response identifies solutions that are relevant to the smoker.)

##### B. All others:

-- "Why did you indicate that you are \_\_\_\_ (level indicated) sure rather than \_\_\_\_ (a lower level) sure that you could [quit]?"

(Response highlights smokers skills for cutting down/quitting.)

-- "What would need to happen for you to go from \_\_\_\_ (level indicated)

to \_\_\_\_ (a higher level):"

(Response identifies solutions that are relevant to the smoker.)

#### 4. Strategies

##### A. For smokers with low Motivation scores:

- "What are the good things about smoking?" What are the less good things?" "Where does that leave you?"
- "Would information about the risks involved help you in your decision about smoking?"

**B. For smokers who are concerned about smoking:**

- "How would you like the future to be different from the present?"
- "What concerns do you have about your smoking?"
- "What are some things you can do?"
- "What will you do?"

***Part III. Reinforce Gains Or Leave Topic Open For Further Consideration.***

***Skills to be Used With All Questions and Strategies.***

1. Open-ended questions
2. Reflective listening
3. Summarizing
4. Affirmation

**\*Questions and strategies for smokers with low Motivation scores (A) may be used with most smokers; those for others (B) are generally suitable for smokers who are at least entertaining the possibility of quitting.**

**APPENDIX B**  
**SMOKING SURVEY**

## SMOKING SURVEY

Name: \_\_\_\_\_

SS#: \_\_\_\_\_

Home Phone: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

Best time to call: \_\_\_\_\_ AM PM

Your Primary Care Provider's name: \_\_\_\_\_

Highest year of school completed \_\_\_\_\_

1. Do you smoke now, or have you smoked in the last month?  
\_\_\_\_ Yes  
\_\_\_\_ No
2. Approximately how many cigarettes per day do you usually smoke?  
\_\_\_\_\_
3. At what age did you begin smoking? \_\_\_\_\_
4. How old are you now? \_\_\_\_\_
5. Approximately how many cigarettes per day did you usually smoke one year ago? \_\_\_\_\_
6. Are you *seriously* thinking of cutting down the number of cigarettes you smoke?  
\_\_\_\_ Yes  
\_\_\_\_ No
7. At present, *how much* do you want to cut down the number of cigarettes you smoke?  
\_\_\_\_ Not at all  
\_\_\_\_ A little  
\_\_\_\_ Some  
\_\_\_\_ Very much
8. If you *wanted* to cut down now, *how sure* are you that you would be able to do it?  
\_\_\_\_ Not at all sure  
\_\_\_\_ A little sure  
\_\_\_\_ Somewhat sure  
\_\_\_\_ Very sure

9. How *determined* are you to cut down?  
\_\_\_ Not at all determined  
\_\_\_ A little determined  
\_\_\_ Somewhat determined  
\_\_\_ Very determined
10. In the last year, did you ever *on purpose* cut down the number of cigarettes you smoked?  
\_\_\_ Yes  
\_\_\_ No
11. In the last year, did you ever *on purpose* quit smoking for at least 24 hours?  
\_\_\_ Yes  
\_\_\_ No
12. Are you *seriously* thinking about quitting smoking?  
\_\_\_ Yes  
\_\_\_ No
13. How *much* do you want to quit smoking?  
\_\_\_ Not at all  
\_\_\_ A little  
\_\_\_ Some  
\_\_\_ Very much
14. If you decided to quit smoking completely, how *sure* are you that you would be able to do it?  
\_\_\_ Not at all sure  
\_\_\_ A little sure  
\_\_\_ Somewhat sure  
\_\_\_ Very sure
15. Do you plan to quit smoking?  
\_\_\_ Yes  
\_\_\_ No
16. If you plan to quit smoking, *by when* do you plan to quit?  
\_\_\_ 1 month  
\_\_\_ 3 months  
\_\_\_ 6 months  
\_\_\_ More than 6 months

17. If you plan to quit smoking, *how determined* are you to quit?

- ☐ Not at all determined  
☐ A little determined  
☐ Somewhat determined  
☐ Very determined

18. Please check off any of the following diseases that you have, or think you might have.

- ☐ Emphysema (a lung disease)  
☐ Chronic Obstructive Pulmonary Disease (COPD; a lung disease)  
☐ Chronic bronchitis (a lung disease)  
☐ Asthma (a lung disease)  
☐ Congestive Heart Failure (CHF; a heart disease)  
☐ Heart Attack  
☐ Angina (Heart Pain)  
☐ Hypertension (High Blood Pressure)  
☐ Stroke  
☐ Coronary Heart Disease (CHD)  
☐ Peripheral Vascular Disease (PVD; "bad circulation")  
☐ Cancer (Any type)  
☐ Diabetes ("bad" blood sugar)  
☐ Other \_\_\_\_\_

Do not write below this line (for office use only)

MD \_\_\_\_\_

FTND \_\_\_\_\_

PYRS \_\_\_\_\_

STAGE \_\_\_\_\_

MOTI \_\_\_\_\_

CONF \_\_\_\_\_

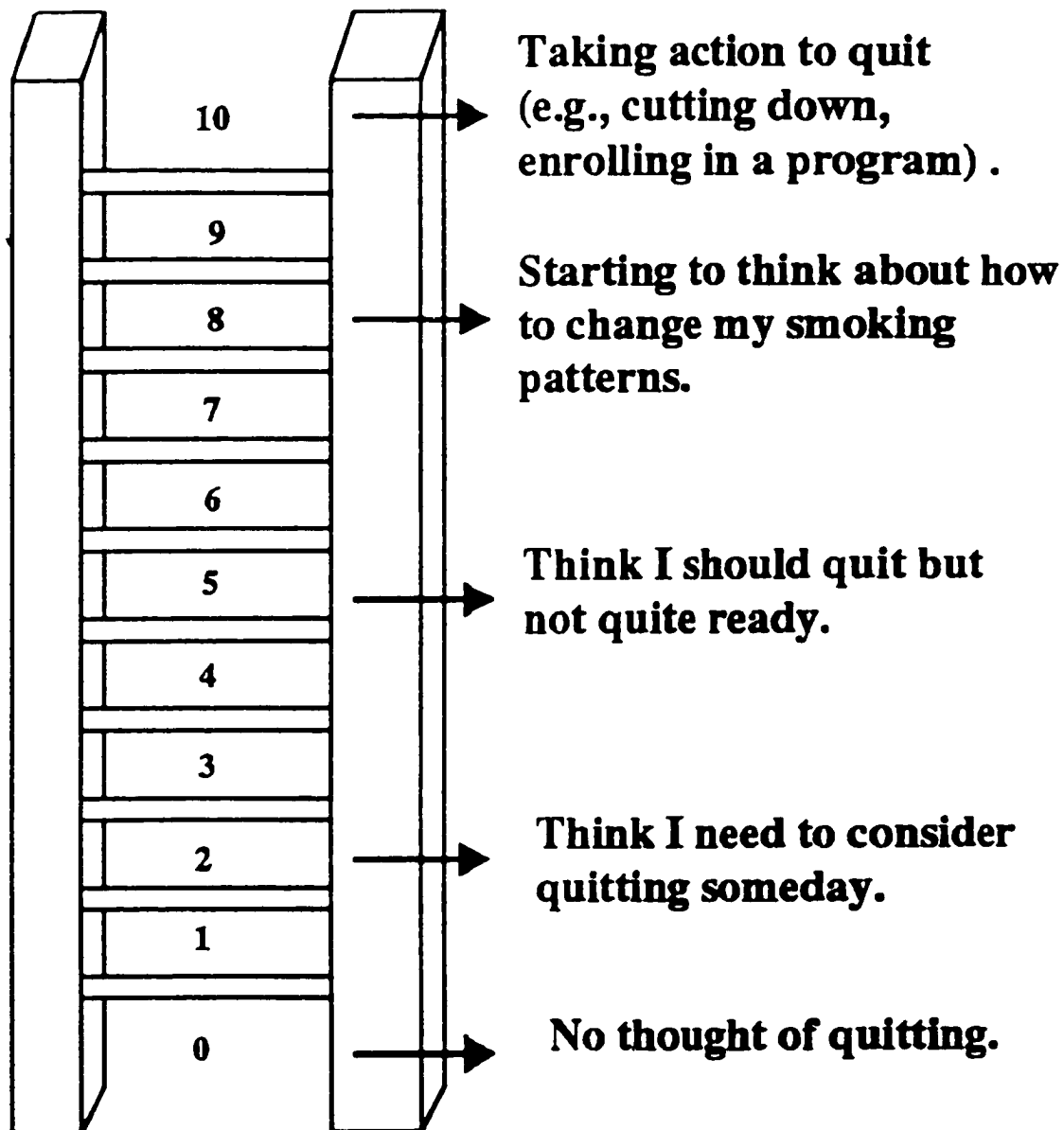
ACD \_\_\_\_\_ CD \_\_\_\_\_

AQ \_\_\_\_\_

APPENDIX C  
CONTEMPLATION LADDER

## CONTEMPLATION LADDER

**Each rung on this ladder represents where various smokers are in their thinking about quitting. Circle the number that indicates where you are now.**



## APPENDIX D

### FTND

## FTND

Please circle the one answer that best describes your smoking.  
There are no right or wrong answers, so just answer as honestly as possible.

- |    |  |   |
|----|--|---|
| 1. | How soon after you wake up do you smoke your first cigarette?  | Within 5 minutes<br>6-30 minutes<br>31-60 minutes<br>After 60 minutes |
| 2. | Do you find it difficult to refrain from smoking in places where it is forbidden, for example, in church, at the library, in the cinema, etc.? | Yes<br>No   |
| 3. | Which cigarette would you hate most to give up?  | The first one in the morning<br>All the others                        |
| 4. | How many cigarettes per day do you smoke?  | 10 or less<br>11-20<br>21-30<br>31 or more                            |
| 5. | Do you smoke more frequently during the first hours after waking than during the rest of the day?  | Yes<br>No   |
| 6. | Do you smoke if you are so ill that you are in bed most of the day?  | Yes<br>No   |

**APPENDIX E**  
**FEEDBACK FORM FOR SMOKERS**

### FEEDBACK FORM FOR SMOKERS

Did your doctor talk with you about smoking?     ☐ Yes    ☐ No

Did your doctor advise you to quit smoking?     ☐ Yes    ☐ No

Did your doctor offer help with quitting? (Some examples of help are booklets about how to quit smoking, information about groups for smokers who want to quit, and prescriptions for nicotine patches or gum or Zyban.)     ☐ Yes    ☐ No

How satisfied are you with what your doctor said about smoking? Please circle one number.

1	2	3	4	5	6	7
Not at all			Completely			
satisfied			satisfied			

How satisfied are you with your talk with Ms. Collicott? Please circle one number.

1	2	3	4	5	6	7
Not at all			Completely			
satisfied			satisfied			

During your meeting with Ms. Collicott, did you feel that she directly told you what to do about your smoking or just gave you some "food for thought"? (Choose one.)

- ☐ Told me what to do
- ☐ Gave me "food for thought"
- ☐ Neither

**APPENDIX F**  
**VA RESEARCH CONSENT FORM**

## VA RESEARCH CONSENT FORM

Subject name: \_\_\_\_\_

Date: \_\_\_\_\_

Title of Study: Treating Smokers in Primary Care Settings

Principal Investigator: Neil Bien, Ph.D.

I, \_\_\_\_\_, a patient with \_\_\_\_\_  
 Have been asked by Ms. Collicott to take part in this research project.

**PURPOSE OF STUDY**

The purpose of this study is to help health care providers learn what smokers think About smoking and how health care providers can best help them.

**PROCEDURES**

This is a research study in which I will be asked to fill out three short questionnaires about smoking and to talk briefly with Ms. Collicott. This will take approximately 25 minutes while I am waiting to see my doctor. (I will NOT lose my turn to be seen by my doctor.) I will also be asked to complete one brief form after seeing my doctor. During the next year, I may or may not receive up to five telephone calls asking me to answer approximately 20 brief questions from the questionnaires I complete today. If I receive calls, they will be approximately one, three, six, and 12 months from today. Each phone call should take approximately five minutes. After the last phone call, Ms. Collicott will send me a letter telling me more about the purpose of this study, how it was performed, and what results are expected from it.

**DISCOMFORT OR INCONVENIENCE**

No discomfort is expected from taking part in this study. Any inconvenience is expected to be minor.

**POSSIBLE RISKS**

No risks are expected from taking part in this study.

**POSSIBLE BENEFITS**

My participation may help health care providers learn what smokers think about smoking and how health care providers can help them, whether or not the smokers want to quit.

**COSTS/COMPENSATION**

The only cost of participating will be the time I spend answering questions and taking part in the interview. I will not be paid for taking part in this study.

Subject's Initials \_\_\_\_\_

**CONFIDENTIALITY**

All information I provide will be kept confidential. It will only be used for this study and will not be given to anyone else. My name will not be used in any reports or publications resulting from the study. My information will be kept in a locked file and destroyed when the study is complete.

**SPECIAL CIRCUMSTANCES**

If my doctor feels that it is in my best interest to withdraw me from the study, he/she will do so immediately. I will be told of any findings from the study which may cause me to change my mind about staying in the study. In case there are medical problems or questions, I have been told I can call Ms. Collicott at (410) 642-2411, extension 5390.

**RESEARCH SUBJECTS' RIGHTS**

I have read or have had read to me all of the above. Ms. Collicott has explained the study to me and answered all of my questions. I have been told of the risks or discomforts and possible benefits of the study.

I understand that I do not have to take part in this study, and my refusal to participate will involve no penalty or loss of my rights to which I am entitled. I may withdraw from this study at any time without penalty or loss of VA or other benefits to which I am entitled.

I understand that any information about me taken for this study will be kept strictly confidential. I do understand that my records may be subpoenaed by court order or may be inspected by federal regulatory authorities.

I understand my rights as a research participant, and I voluntarily consent to participate in this study. I understand what the study is about and how and why it is being done. I will receive a signed copy of this consent form.

If I have any questions regarding my rights as a patient in this study, I may contact Dr. Richard Levine, the Chief of Research at this hospital at (202) 745-8478.

Signature \_\_\_\_\_ Date \_\_\_\_\_  
 Witness \_\_\_\_\_ Witness (Print) \_\_\_\_\_

My initials here show that I have received a copy of this consent form \_\_\_\_\_

I, Sheila Collicott, certify that I have explained to the above subject the nature and purpose of the study, and potential benefits and possible risks associated with participation in this study. I have answered any questions that have been raised and have witnessed the above signature. I have explained the above to the subject on the date stated on this consent form.

Signature \_\_\_\_\_ Date \_\_\_\_\_  
Washington VA Medical Center

**APPENDIX G**  
**DEBRIEFING FORM**

### DEBRIEFING FORM

Thank you for taking part in this study. Your participation helps us learn more about what smokers think about smoking and how health care providers can be helpful to them.

You may receive several brief telephone calls from us within the next year. We would greatly appreciate your continued participation because, without it, our efforts to learn how to better help smokers will be impaired.

If you would like to receive the results of this study, please write your name and address in the space below and return that part of this page to the experimenter. It may be one to two years before results are available, so please be patient. Again, thank you for your participation.

Please send results of this study to:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**APPENDIX H**  
**INTERVIEW RATING FORM**

## INTERVIEW RATING FORM

Please listen to the taped interviews and check the characteristics that best describe what the interviewer does.

1.

- A. Tells the smoker directly that he should quit smoking \_\_\_\_\_
- B. Asks the smoker to describe what smoking is like for him \_\_\_\_\_
- C. Focuses the conversation on health related topics other than smoking \_\_\_\_\_
- D. Describes the health consequences of smoking \_\_\_\_\_
- E. Asks the smoker what he thinks would help him be more motivated/confident/ready to quit \_\_\_\_\_
- F. Describes quitting techniques \_\_\_\_\_
- G. Listens, reflects back, and summarizes what the smoker has said \_\_\_\_\_

**APPENDIX I**  
**RATER INSTRUCTIONS**

## **RATER INSTRUCTIONS**

**Check all the characteristics that are most descriptive of the interviewer's actions in each interview.**

**Check A if the interviewer tells the smoker directly to quit.**

**Check B if she asks about his personal experience of smoking, including the part it plays in his life and what he thinks or feels about his smoking.**

**Check C if the conversation is about health behaviors, but not smoking.**

**Check D if the interviewer provides the smoker with information about how smoking affects health, either his or others.**

**Check E if she asks the smoker about factors affecting his motivation, confidence, and readiness to quit and how he might increase his motivation, confidence, and/or readiness.**

**Check F if she describes techniques the smoker could use to quit.**

**Check G if she listens, re-states what the smoker tells her, and summarizes each part of the interview before moving on to the next.**

## VITA

Sheila Collicott was born in Scott City Kansas in March, 1950. She graduated from the Gemological Institute of America in 1976 and was employed as a gemologist in California, Colorado, and Virginia. After volunteer work with Sierra II, a wilderness-based alternative probation program for adolescents in Virginia Beach, Virginia, she earned a B.A. in psychology, graduating Summa Cum Laude from St. Mary's College of Maryland in 1991. In 1992 she entered the Virginia Consortium Program in Clinical Psychology, 287 Independence Boulevard, Suite 301, Virginia Beach, Virginia 23462. During the program, she gained clinical experience at a variety of sites, including Eastern Virginia State Hospital and the Counseling Center at The College of William and Mary. Her area of concentration was brief therapy. She completed her clinical internship at Perry Point VA Medical Center, Perry Point, MD, where she focused on geriatrics and behavioral medicine.