MAINTENANCE OF NONSMOKING FOLLOWING SELF-INITIATED CESSATION

SUSAN J. GOLDSTEIN
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Abstract
The process of trying to maintain abstinence from cigarettes was assessed in a longitudinal, descriptive study of self-initiated quitters. Participants completed: (1) a preliminary questionnaire; (2) six follow-up questionnaire packets mailed to them monthly; and (3) a final questionnaire sent with the sixth follow-up packet.

Abstainers and relapers differed in the following ways: (1) Relapers more often indicated cessation goals which left open the possibility of future smoking; (2) Although both groups began their participation with relatively high levels of commitment to quit, abstainers' levels were slightly higher than relapers'. At the conclusion of their participation, relapers' commitment to quit had dropped significantly; (3) Both groups began with relatively high success expectations, although abstainers' expectations were slightly higher. At the conclusion of their participation, relapers' expectations for success at remaining abstinent had dropped significantly; (4) Although they did not differ at the start of the investigation, at the conclusion abstainers' difficulty expectations had dropped significantly, whereas relapers' expected difficulty abstaining had increased significantly; (5) Relapers reported a significantly higher percentage of smokers in their combined home, work and social environments; (6) Overall, abstainers reported feeling significantly more in control of themselves during and after temptations or smoking episodes than did relapers.

Most temptations occurred at home or at work and they were primarily precipitated by intrapersonal negative emotional states or social pressure. Most smoking episodes occurred at home or in public places and they were also primarily precipitated by intrapersonal negative emotional states or social pressure.

Factors which emerged as important to examine for a more in-depth understanding of long term abstinence and for intervention for relapse prevention were: (1) Individuals' confidence in their ability to remain nonsmokers (self-efficacy); (2) Expectations about the effects or consequences of smoking a cigarette following abstinence; (3) Strategies used for coping with temptations to smoke; (4) The influence of significant others who smoke on relapse; (5) The influence of sociocultural factors on relapse.

Keywords
Psychology, Clinical

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MAINTENANCE OF NONSMOKING FOLLOWING
SELF-INITIATED CESSATION

BY

Susan J. Goldstein
B.A., University of Massachusetts, 1976
M.A., University of New Hampshire, 1979

DISSERTATION

Submitted to the University of New Hampshire
in Partial Fulfillment of
the Requirements for the Degree of

Doctor of Philosophy
in
Psychology

September, 1981
This dissertation has been examined and approved.

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Arnold S. Linsky,
Professor of Sociology

Date 26, 1981
This dissertation is dedicated to my grandfather, Harry M. Schwartz at whose sleeve I learned to love the quest for knowledge and the value of dedication in its pursuit.
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ABSTRACT

MAINTENANCE OF NONSMOKING FOLLOWING SLEF-INITIATED CESSATION

by

SUSAN J. GOLDSMITH

University of New Hampshire, September, 1981

The process of trying to maintain abstinence from cigarettes was assessed in a longitudinal, descriptive study of self-initiated quitters. Participants completed: (1) a preliminary questionnaire at the start of their participation; (2) six follow-up questionnaire packets (which consisted of two questionnaires) mailed to them monthly; and (3) a final questionnaire sent with the sixth follow-up packet.

Abstainers and relapers differed on the following aspects of their experience: (1) More relapers than abstainers indicated cessation goals which left open the possibility of future smoking; (2) Although both groups began their participation with relatively high levels of commitment to quit, abstainers' levels were slightly higher than relapers'. At the conclusion of their participation, abstainers still had high levels of commitment to quit; whereas relapers' commitment had dropped significantly; (3) Both groups began with relatively high success expectations; although abstainers' expectations were slightly higher. At the conclusion of their participation, abstainers still had high success expectations,
whereas relapers' expectations for success at remaining abstinent had dropped significantly; (4) Although they did not differ at the start of the investigation, at the conclusion abstainers' difficulty expectations had dropped significantly, whereas relapers' expected difficulty abstaining had increased significantly; (5) Relapers reported a significantly higher percentage of smokers in their combined home, work and social environments; (6) Overall, abstainers reported feeling significantly more in control of themselves during and after temptations or smoking episodes than did relapers.

Most temptations occurred at home or at work and they were primarily precipitated by intrapersonal negative emotional states or social pressure. Most smoking episodes occurred at home or in public places and they were also primarily precipitated by intrapersonal negative emotional states or social pressure.

On the basis of this investigation, the factors which emerged as important to examine for a more in-depth understanding of long term abstinence and for intervention for relapse prevention were: (1) Individuals' confidence in their ability to remain nonsmokers (self-efficacy); (2) Expectations about the effects or consequences of smoking a cigarette following abstinence; (3) Strategies used for coping with the temptation to smoke; (4) The influence of significant others who smoke on relapse; (5) The influence of sociocultural factors on relapse.
INTRODUCTION

Since the turn of the century, the percentage of deaths in this country from chronic, lifestyle related health problems has been increasing (Stachnik, 1980; Bercanovik, 1976). For example, of approximately two million deaths annually in this country, over two thirds are from heart disease, stroke and cancer. Some of the particular lifestyle patterns that these illnesses have been related to are: cigarette smoking, eating patterns, low physical activity and poor stress management. Psychologists have recognized these factors as behavioral as well as medical problems. They have been bringing their expertise to these behavior patterns in an effort to help individuals extend and improve the quality of their lives. This increasing concern with health and medical problems by psychologists is evidenced by the establishment, in 1978, of a Division of Health Psychology in the American Psychological Association (Mattarazo, 1980).

One of the lifestyle patterns to receive a great deal of attention in recent years by psychologists is cigarette smoking. Over the last several years, the body of knowledge regarding the ill effects of tobacco use has been rapidly expanding. It is now known, for example, that in the United States, cigarette smoking is the largest preventable cause of premature death, illness and disability (Richmond, 1978). An estimated 300,000 individuals per year die prematurely from smoking related illnesses. In addition to the loss of human life, smoking has been estimated to add $8 billion a year to
health costs; the aggregate cost of productivity, wages and property lost due to smoking amounts to $41.5 billion a year (Luce and Schweitzer, 1977).

Public awareness of and response to this health problem is evidenced in a growing percentage of current smokers who wish to or who have tried to quit smoking. In 1974, 84% of current smokers were thinking about quitting compared to 56% in 1964. Of this percentage desiring to quit, more smokers have been trying to quit and actually quitting in the years from 1964 to 1975. Approximately 95% of all individuals quitting during this time did so on their own; about 2% of smokers wanting to quit attended formal cessation programs (Office of Cancer Communications, 1977). Unfortunately, the increase in the number of individuals able to quit smoking--either on their own or via cessation programs--has not been accompanied by an increase in the number of people able to stay off cigarettes. The recidivism rate has remained between 50 and 70 percent (Horn, 1978).

There is a considerable amount of research on smoking cessation which provides the basis for recognizing that long term maintenance of nonsmoking does not follow directly from short term cessation (e.g., Schwartz and Rider, 1978). The existing state of knowledge regarding the nonsmoking experience and relapse prevention has been described as "primitive" (Pomerleau, 1978). In a paper concerning the future needs and directions in smoking research, Lichtenstein (1978) emphasized how little is known about the process involved in relapse, even though such information is crucial in preventing its occurrence.
Thus, the task at hand is for psychologists to work towards a more complete understanding of the experiences of individuals who are trying to remain abstinent from cigarettes. Recidivism or maintenance failure is one possible aspect of this experience which merits examination. The successful maintenance experience is equally important. By comparing the characteristics of cessation experiences which result in relapse with those that do not, we could hope for insights which lead to the development of intervention strategies for long term abstinence.

The research conducted for this dissertation was developed with several goals in mind. In as much as this investigation was conceived of as a "foot in the door" for the author's career in the general area of addiction and substance abuse, the goals which guided its development were both personal and empirical.

On the personal level, the investigation was designed to give the author the opportunity to manage a research project involving longitudinal data collection and recruitment of participants from the general public. The willingness of individuals from the general public to volunteer to participate in a longitudinal research project as well as the attrition rate for investigations of this type was not known from the outset. Thus, the investigation was designed to allow for exploration of variables relevant to the process of maintaining nonsmoking from a potentially small sample of individuals. As a career-development project this investigation was also designed to provide a data base for future research projects and to provide the opportunity for theory construction. For these reasons, the content
of the data collection instruments remained flexible for the duration of the research and not all of the data collected were analyzed and summarized for this dissertation.

The principal empirical goal was to describe the experiences of individuals who had quit smoking on their own. Based on current theory and research, the author decided to place particular focus on: (1) the occurrence of temptations to smoke and/or smoking experiences while trying to abstain; (2) strategies for coping with temptation used by successful abstainers; and (3) the presence or absence of social support systems for individuals working towards long term abstinence.

The goals of this study, then, were to: (1) explore several aspects of the nonsmoking experience at a descriptive level in order to contribute to a working understanding of the complex processes of smoking cessation, successful abstinence and relapse; and (2) provide the author with the opportunity to develop her skills as an applied investigator in the general area of addiction. It should be understood at the outset that the attainment of both goals was sometimes at the expense of the scope and definitiveness of this investigation's findings. However, the author was willing to accept this limitation in return for the potential to identify variables for use in later, more systematic investigations.
CHAPTER I

REVIEW OF THE LITERATURE

There is a paucity of published research on relapse following smoking cessation. Most of psychologists' efforts have been focused on short term cessation. In their review of smoking cessation treatment and research, Schwartz and Rider (1978) concluded that recognition of smoking as a drug addiction may provide insights to the relapse process. This implies that when a smoker breaks his/her habit (i.e., through short term cessation) s/he still has to contend with the effects of his/her former addiction. The individual must also deal with a myriad of forces which can operate to influence a return to smoking. This includes environmental, social and internal factors such as mass media, peers' smoking and stress.

The following review of the literature will discuss psychological theories on cigarette smoking as an addiction and recent research on the influence of individual, social and environmental factors on smoking. In addition, current theory and research on the relapse process will be discussed.

Cigarette Smoking as an Addiction

Although organizations such as the National Institute on Drug Abuse and the American Cancer Society have been pushing for classification of cigarette smoking as an addiction, there is a history of reluctance on the part of various health organizations and diagnostic systems to include cigarette smoking in a definition of
addiction (Jaffe, 1977). This is in some ways surprising since a number of general theories and definitions of addiction appear to encompass the characteristics of cigarette use.

According to Jaffe (1975), addiction is characterized by:

1. preoccupation with the use and procurement of a substance;
2. physical and/or psychological dependence on the substance;
3. a tendency to relapse following withdrawal. This definition can certainly apply to cigarette smoking. The application of this definition of addiction to cigarette smoking is useful for demonstrating similarities across substance addictions. It also highlights the importance of the issue of relapse following withdrawal. Given that it is a definition as opposed to a theory of addiction, it does not provide insight to the possible causes of addiction or to potentially effective interventive strategies for treating addictions.

For a long time the medical or disease model has been a major theoretical framework in psychology in general and with specific regard to addiction. A great deal of research has been devoted to the identification of nicotine as the physiologically addicting agent in tobacco smoke. Research on nicotine titration is illustrative of this research (cf., Gritz, 1980; Jarvik, 1977; Rosencrans, 1979). Results from this line of research are inconclusive (Schachter, 1979). Effective interventive strategies for short term cessation and/or long term maintenance generally have not resulted from this approach. This is not to say that the pharmacological agents in cigarette smoke and their physiological and psychological effects are unimportant with regard to the establishment, maintenance and cessation of smoking.
Rather, the implication from this line of research is that other variables interact with and are important for understanding smoking.

A psychological model which has the potential both for the identification of some of these other variables and an understanding of the dynamics underlying the process of addiction to or habitual use of cigarettes is social learning theory (cf., Marlatt and Rose, 1980). As conceptualized by Bandura (1973), social learning posits that behaviors can be learned either directly through the processes of operant or classical conditioning or indirectly through the process of observational learning, the internalization of cultural norms, etc. Reinforcement, or an increase in the probability of a learned behavior being exhibited and/or repeated can be direct or vicarious. In a discussion of current approaches to smoking, Lichtenstein (1977) offered the following definition of social learning:

Social learning is a 'liberalized' version of behavior modification which emphasizes the importance of cognitive processes in operant, classical and observational learning. The term also highlights the importance of the social-interpersonal environment in the acquisition and maintenance of behavior (p. 351).

Within a social learning paradigm, smoking (and addiction in general) can be viewed as a learned behavior. Of importance for learning this behavior would be the individual's beliefs about the consequences of smoking, his/her exposure to smoking models, and social supports for smoking. One key theoretical and empirical question that emerges from this conceptualization is "what are the reinforcing consequences associated with cigarette smoking which result in continued smoking?" With regard to the cessation and maintenance issues, one might assume that identification of these
consequences or variables could lead to the development of effective interventive strategies.

Russell (1979) explored the hypothesis that nicotine is the reinforcing agent in the maintenance of smoking behavior. Among his conclusions were: "(1) pharmacological reinforcement is not an essential feature of addictive behavior; (2) simply because nicotine has many pharmacological effects in smoking doses, it does not follow that these effects are reinforcing rather than aversive (p. 119)."

Negative reinforcement has been implicated as the process underlying the maintenance of smoking behavior. Solomon and Corbitt (1973) present an opponent process theory of acquired motivation which can be applied to addiction in general and to cigarette smoking specifically. Within this model, the psychological or affective effects of smoking are viewed as biphasic. Smoking is seen as initially resulting in an affective state which can be described as positive (the A state). The onset of this positive "A state" automatically results in the activation of a slave, opponent-process mechanism--the "B state." This state is affectively opposite to the A state; its onset is sluggish and it persists following the termination of the A state. Thus, according to this model, smoking a cigarette will immediately feel pleasurable, but with the completion of the cigarette, this pleasurable state will terminate and a displeasurable state will then become salient. The model further proposes that with repeated smoking over time, the A state will become shorter in duration and less intense and the B state becomes longer and more intense. Cigarette addiction, then, is the vicious cycle of trying to remove
the displeasurable B state and return to the pleasurable A state by repeated smoking.

Harrup (1978) also discusses cigarette smoking as being maintained by the relief and avoidance of the discomfort associated with not smoking. Her formulation of the addictive processes in tobacco use builds upon the work of Lindesmith (1968) and Reinert (1970). Harrup emphasizes that without the craving for cigarettes, the act of smoking or the gratification obtained by smoking is meaningless. In other words, smoking continues to be pleasurable after the craving for a cigarette has been gratified because the smoker can anticipate a subsequent building up of the desire for a cigarette which can then be gratified again, and so on.

Both of these formulations point to the control of affect or emotions as the reinforcing consequences associated with cigarette smoking which results in continued smoking. In Solomon and Corbitt's model the smoker is able to control the displeasurable feeling resulting from the continuation of the B state following cessation of the A state. Harrup's conceptualization includes both the enhancement of positive feelings and the removal of negative ones. Even investigators who focus on the pharmacological effects of smoking as underlying cigarette addiction have implicated affect as a primary motivator for seeking the pharmacological effects (cf., Dunn, 1973).

The relationship of smoking to the experience of positive and negative affect has been empirically explored by Ikard and Tomkins (1973). Their findings in two studies that smoking is related to
the experience of source affect (emotions in response to an external stimulus as opposed to those in response specifically to cigarette deprivation) and their conclusion that negative affect plays a central role in the development and maintenance of smoking behavior support the theorized importance of affect control as a reinforcer for smoking.

There are, of course, other factors associated with smoking that could contribute to its maintenance and to difficulty in cessation. While the above conceptualizations provide insights as to possible intraindividual factors, they do not discuss the other class of variables included in a social learning paradigm—social and interpersonal factors. In their discussion of smoking as an addictive disorder, Jaffe and Kanzler (1979) propose that although a number of factors are associated with smoking and probably act interactively (e.g., pharmacological, personality, cognitive, interpersonal), it is possible to assume that different factors could be most influential at different stages of the disorder. Thus, investigators could examine the salience of various factors during the onset, continuation and cessation of cigarette smoking.

Interpersonal and social factors have received a great deal of focus with regard to the onset of smoking during adolescence. The importance of parental smoking behavior and peer pressure have been discussed and demonstrated many times (e.g., McAllister, 1979; Evans, 1976; Horn, 1979; Reeder, 1977).
The relative importance of interpersonal/social factors for cessation and maintenance of nonsmoking has received considerably less focus theoretically and empirically. The primary focus in this area has been on individual factors related to severity and type of withdrawal symptoms (e.g., Myrsten et al, 1977; Elgerot, 1978; Shiffman and Jarvik, 1976; Zeidenberg, 1977; Schwartz and Dubitsky, 1968). There are, however, a couple of studies which assessed and discussed the importance of social or interpersonal factors for long term cessation. Daughton, et al (1980) found that Berle's index of psychosocial assets significantly discriminated those able to stop smoking among a sample of individuals with chronic obstructive pulmonary disease. Eisinger (1971) examined a number of factors in an effort to ascertain the effect of individuals' social environment on recidivism. He found two environmental factors which related significantly to successful abstinence: the presence of young children (under 12) in the household; and the smoking behavior of twenty people whom the respondent claimed to know best.

Another source of evidence of the acknowledged importance of social and interpersonal factors for successful cessation and maintenance is in an examination of the components of various cessation programs. The establishment of buddy systems in group cessation programs (e.g., Bates, 1978), asking significant others for verification of the attempted quitter's smoking status (e.g., Stachnik, 1979); and the establishment of post-cessation support groups (e.g., Saunders, 1971) are all examples of the attempted use of interpersonal and social factors to facilitate cessation and maintenance of nonsmoking.
The above provides support for Mair's (1970) contention that the presence of a supportive nonsmoking environment is important for success in stopping smoking. Shor et al (1980) developed this point further with their premise that it is important to focus primary attention on the Social Support System of Smoking in order to understand and control smoking behavior. They defined this system as:

...an interwoven fabric of social definitions, beliefs, attitudes, customs, norms and laws that define smoking as normal, expected, appropriate, attractive, socially acceptable, socially respectable and an implicit fundamental right (p. 139).

These authors believe that the difficulties smokers experience in smoking cessation are at least in part due to the social support system which reinforces smoking and thus works against longterm abstinence. Their concept of the Social Support System of Smoking refers to a system at the sociocultural=institutional=sociological level of analysis and, hence, is very different than the concept of social support groups of significant others at the psychological=small, face-to-face primary group level of analysis.

In this examination of the dynamics underlying the process of cigarette addiction from a social learning perspective we have seen how an understanding of individual and social factors is important with regard to the onset of smoking, continued smoking, cessation and long term abstinence. Since this research is focusing specifically on the maintenance of nonsmoking following cessation, I will turn now to a review of existing literature on this specific issue.
Theory and Research on Recidivism

The conclusion of virtually every investigator reviewing the literature on the issue of smoking cessation is that more research is needed on the issue of relapse or recidivism following short term cessation. Some of these investigators have been referred to earlier (Lichtenstein, 1977; Schwartz and Rider, 1978; Pomerleau, 1978); others include: Levenberg and Wagner, 1976; Raw, 1975; Bernstein, 1970; Gritz, 1980; and Mair, 1970.

While some of these authors simply highlight the need for more extensive research on the issue of maintenance or relapse, others offer suggestions for the kinds of questions which investigators could pursue. Pomerleau (1978) suggested that more basic research is needed on the physiological and learning mechanisms by which smoking is perpetuated and made resistant to change. Thus, he recommended continued focus on the smoking process with the hope that more extensive knowledge on the continuation of smoking will contribute to more effective strategies for maintenance following cessation.

An alternative approach to examining the smoking process more closely is examining the nonsmoking process. Mair (1970) points to a need for more information regarding the patterns of stopping or relapse. One question he proposes is whether smokers start smoking again in circumstances which are particularly central to their needs. In addition, Mair believes that more detailed attention could be paid to the times, places and social contexts associated with individuals' smoking. Thus, Mair offers suggestions for research which focus on both intrapersonal and social or situational
variables. Gritz (1980) also offers suggestions for examining individual and social variables and relapse. At the individual level, she suggests looking at relapse symptomatology with particular reference to quitters' expectations about the severity of withdrawal, the relationship between expected withdrawal, actual withdrawal experiences and length of abstinence. With regard to social or situational factors, Gritz discusses the potential value of more thorough investigation of high risk to relapse situations.

Lichtenstein (1977) poses a number of specific questions which researchers could focus on in a discussion of future needs and directions in smoking cessation. With regard to maintenance and relapse, he says:

...we should study relapse processes and episodes and try to learn what processes within persons, situations, and their interactions are involved...the temporal course of relapse also needs to be charted. There are specific questions which can be posed...what role does abstinence violation play in leading to relapse...is relapse triggered by stress and anxiety...(p. 388).

Despite emphasis on the need for a better understanding of recidivism as far back as a decade ago, the current literature includes little research specifically addressing this issue. However, there are a few papers which address some of the research questions mentioned above. The focus of these papers has been either on the identification of subject characteristics predictive of maintenance or relapse, or on the analysis of the characteristics of relapse situations.
As Gritz pointed out (1980), one subject characteristic which would clearly be related to relapse is withdrawal symptomatology. Shiffman (1979) addresses this issue in his comprehensive discussion of the Tobacco Withdrawal Syndrome. He identifies craving, anxiety and weight gain as characteristics of cigarette withdrawal which play a role in relapse. This approach becomes circular, however (e.g., withdrawal is characterized by craving, and craving is a major cause of relapse) unless more specific factors are identified which affect these withdrawal characteristics. Shiffman presents evidence that the time of day, length of abstinence, and method of withdrawal may affect craving and anxiety factors. Unfortunately, his data were obtained only during the first two weeks of abstinence and relapse can occur well beyond that point.

Pomerleau (1978) and Lehrer (1979) present prospective analyses of subject characteristics related to outcome and recidivism in cessation programs. Lehrer found that assumed responsibility for quitting was predictive of long term cessation. Individuals who transferred responsibility for their cessation to program professionals were more likely to have relapsed at a 2 year follow up point. Lehrer discusses these findings in the context of Role Theory with specific reference to the sick-role concept. While it is encouraging to see a study which attempts to explain relapse within a theoretical framework, his analysis has little generalizability to the vast majority of smokers who quit on their own and subsequently relapse.
Pomerleau found that compliance with treatment instructions and no perceived weight problem were factors predictive of cessation at the end of treatment, but were not predictive of relapse. Dysphoric smoking (smoking primarily in negative affect states) was predictive of relapse one year after completing a multicomponent behavioral treatment program, but it was not predictive of treatment outcome. These findings are interesting from two perspectives. First, the findings highlight the distinction between the two stages of abstinence—short term cessation and long term abstinence. Second, they are consistent with the theoretical framework discussed earlier which hypothesizes that control of negative affect may be one factor related to difficulty with long term cessation.

Three of the four authors cited above for their specific recommendations concerning research on relapse point to the desirability of investigating the circumstances under which relapse occurs. Recent work by Shiffman (1979a) and Marlatt and Gordon (1979) focuses on this issue.

Shiffman (1979a) established a telephone hotline ('Stay Quit Line') as a channel of communication with ex-smokers at risk for relapse. This hotline was made available to smokers who had recently quit through a number of smoking cessation clinics. They were encouraged to call the hotline if and when they experienced a relapse. Using a staff of trained hotline interviewers, Shiffman was able to obtain data on 32 relapse episodes. The data suggest that there may be two primary types of relapse episodes. One is precipitated by negative affect without the presence of smoking-specific stimuli; the other is precipitated by smoking-specific stimuli along with
positive affect. The consumption of food, alcohol or drugs was an important antecedent of relapse. These data were reported as part of a preliminary report outside of any particular theoretical context.

Marlatt and Gordon (1979) obtained detailed information on 137 relapse episodes from individuals who had participated in abstinence oriented treatment programs for either smoking, alcoholism or heroin addiction. The descriptions were then coded into two major categories and several subdivisions. The major categories were: (a) intrapersonal/environmental determinants of relapse (e.g., coping with intrapersonal emotional states, giving into "internal" urges, response to nonpersonal environmental events—accidents, financial losses, etc.) and (b) interpersonal determinants (e.g., coping with interpersonal conflict, social pressure, etc.).

A comparative evaluation of their data indicated a similar pattern of relapse among smokers, alcoholics and heroin addicts. Analysis of the relapse data indicated that 76% of all relapses occurred in relation to three subcategories of coping behavior: (a) coping with intrapersonal negative emotional states; (b) coping with interpersonal conflict; and (c) coping with social pressure. For smokers, nearly half of the relapses were in response to negative emotional states (43%), one quarter from social pressure (25%) and twelve percent (12%) were in response to interpersonal conflict.

The investigators also found that for smokers a single slip or relapse episode was usually followed by a full-blown relapse, i.e., the individual quickly returned to their pre-treatment smoking level. This was not typically the case with alcohol or heroin addiction.
On the basis of this data, Marlatt and Gordon present a cognitive behavioral model of the relapse process which can be applied across various addictive behaviors. Because of the applicability of their model to this research, it will be described in some detail. A diagrammatic representation of their model is presented in Figure 1.

According to this model, when an individual is maintaining abstinence, he or she experiences a perceived sense of control over their smoking behavior. This feeling of control will continue until the individual encounters a high risk situation (point A, Figure 1). The occurrence of a relapse in the high risk situation is dependent upon the capacity of the individual to engage in an adequate coping response. If the individual is effective at coping with one high risk situation, this can lead to the expectation of being able to successfully cope with the next challenge (i.e., increased self-efficacy) and a decreased probability of relapse.

There are certain factors, however, which can lead to an increased probability of relapse. An individual might not engage in an adequate coping response in the high risk situation, either because of a lack of knowledge of necessary coping skills or because the coping response has been inhibited by fear or anxiety. In addition, the individual may have positive expectancies about the effects of tobacco smoking. This lack of an effective coping response coupled with the anticipation of only positive effects when faced with the
Figure 1
Marlatt and Gordon's Cognitive Behavioral Model
of the Relapse Process

HIGH-RISK SITUATION

NO COPING RESPONSE

DECREASED SELF-EFFICACY + POSITIVE OUTCOME EXPECTANCIES (FOR SUBSTANCE EFFECTS)

INITIAL USE OF SUBSTANCE

ABSTINENCE VIOLATION EFFECT + PERCEIVED EFFECTS OF SUBSTANCE

INCREASED PROBABILITY OF RELAPSE

DECREASED COPING INCREASED 
4 PROBABILITY RESPONSE -------— ► SELF-EFFICACY OF RELAPSE
opportunity to indulge can lead to the "single slip" or initial smoking of cigarettes.

Once a slip has occurred, the focus is on the individual's cognitive reaction to the initial slip. Marlatt and Gordon label this reaction the Abstinence Violation Effect or AVE. The investigators posit two primary components of the AVE. The first is a cognitive dissonance component where the initial use of the substance is in direct conflict with the individual's self-image as an abstainer. Second, is a personal attribution effect where the user attributes the "cause" of the transgression to internal weakness or personal failure. In addition, tobacco produces an initial state of physiological arousal which may be subjectively experienced by the user as an increase in energy or power and thus may reinforce the use of tobacco to counter the individual's feelings of lack of control. Thus, the AVE along with the reinforcing subjective experience of tobacco can lead to an increased probability of a full blown relapse.

Summary

The psychological literature concerning cigarette smoking has been reviewed from two perspectives. First, a general analysis of the dynamics underlying the process of cigarette addiction was presented within a social learning theoretical framework. Following this, a specific review of the empirical and theoretical literature on recidivism following smoking cessation was presented.
Several variables emerged as relevant to an understanding of relapse from the examination of the process of cigarette addiction. These include: (a) the experience and control of affect, particularly negative emotional states; (b) the severity of withdrawal symptomatology; and (c) the social supports and smoking or nonsmoking environment of the individual trying to maintain abstinence.

Research on the relapse process itself provides evidence for the salience of the above-mentioned variables. The findings of Pomerleau (1978), Shiffman (1979a) and Marlatt and Gordon (1979) support the view that affect control plays an important role in relapse. The importance of interpersonal and social variables is highlighted by Marlatt and Gordon's findings that nearly 40% of reported smoking relapses were in response to social pressure or interpersonal conflict.

The theoretical model proposed by Marlatt and Gordon is quite promising as it appears to take into account many of the variables discussed above. At the intrapersonal level, it recognizes the importance of individuals' beliefs about the effects of smoking, their perceived ability to not smoke, the availability of skills to cope with tempting situations and the reaction of the individual to an initial slip. Interpersonal and social variables are relevant in assessing the probability of encountering high risk situations (i.e., one could assume that the more smokers there are in the individual's immediate social environment, the more likely the individual will be to encounter high risk situations) and in defining or describing the precipitators of relapse or high risk to relapse situations.
While it is promising to find some research which focuses on the problem of maintaining nonsmoking following cessation, it is clear that the view expressed by many investigators is still accurate—there is much we need to know. In all of the studies discussed above, information on factors relevant to recidivism were collected at one point in time following cessation. This approach precludes analysis of patterns in the nonsmoking experience of individuals relevant to relapse. Relapse data have been obtained exclusively from individuals who quit smoking through participation in formal cessation programs. The generalizability of this data to individuals quitting on their own who subsequently relapse has not been examined. Successful abstainers also have not yet been assessed with regard to difficulties (high risk situations) they have encountered and the ways that they have successfully coped with these difficulties. In summary, what was found lacking in the literature is a comprehensive study, over an extended period of time, of the nonsmoking experiences of individuals with specific reference to intrapersonal (affective experience, withdrawal symptomatology) and interpersonal (social support systems, smoking or nonsmoking environment) variables.

The present study was undertaken in an effort to begin filling some of these gaps. Because of the embryonic state of research in this area, it was decided to include replication as well as extension of the existing literature. The following chapter details the methodology developed for this purpose.
CHAPTER II

METHODOLOGY

This research was undertaken as a longitudinal, descriptive study of the intra and interpersonal aspects of the nonsmoking experiences of individuals who had quit smoking on their own. The research program was conducted in two phases. The first phase involved subject recruitment; the second phase involved collection of information on the nonsmoking experience. Detailed descriptions of each of these phases will be provided following a general description of the questionnaires utilized in the research.

Instrumentation

To provide the opportunity for replication as well as extension of current research on relapse following smoking cessation, all of the questionnaires utilized in this research were adapted from existing questionnaires. Four separate instruments were employed: one preliminary questionnaire; two follow up questionnaires; and one final questionnaire.

Preliminary questionnaire. This questionnaire was adapted from one utilized by Marlatt (1979) for screening potential participants in smoking cessation programs. The following general categories of data were obtained from this questionnaire: (a) demographic, (b) smoking history, (c) lifestyle information, (d) health information, (e) reasons for quitting smoking, (f) motivation and commitment to quit smoking, (g) social factors relevant to
maintaining abstinence, and (h) plans and strategies for maintaining abstinence. The complete questionnaire can be found in Appendix A.

Follow-up questionnaires. Two questionnaires were utilized to assess the experiences of participants over time relative to their smoking or nonsmoking. A questionnaire was adopted from Shiffman and Jarvik's (1976) work on withdrawal following smoking cessation. In the first part of the questionnaire participants responded on a 1 to 7 point scale to a list of fourteen smoking related "withdrawal symptoms" (e.g., fluttery feelings in their chest, hunger, irritability). Responses were coded such that a high rating indicated greater amounts of reported symptomatology. Participants were given composite scores consisting of the average overall rating. In the second part of the questionnaire, participants were presented with a list of 27 mood adjectives and they were asked to circle any adjective which described a mood they had felt during the previous week. An overall mood index was calculated by subtracting the number of negative mood states circled from the number of positive mood states circled.

The second follow-up questionnaire was adapted from the research of Marlatt and Gordon (1979) in order to assess participants' abstinence or smoking experience. This questionnaire had three sections. The first part assessed the participant's smoking status. This section was amended in follow-ups to participants who had relapsed during a previous follow-up to obtain additional information on: (a) subsequent cessation attempts, (b) reasons for continued smoking, and (c) whether the individual considered him/herself to be a controlled smoker.
The second section was completed by individuals who were abstaining. Information was obtained on: (a) degree of difficulty in abstaining, (b) descriptions of tempting situations, and (c) lifestyle patterns or changes which might be conducive to continued abstinence.

The third section was completed by individuals who had not completely relapsed during prior follow-ups and who had smoked between the previous and present follow-up. A description of the initial smoking episode and subsequent smoking experience was requested in this section. Both follow-up questionnaires can be found in Appendix B.

Marlatt and Gordon's (1979) Categories for Classification of Relapse Episodes was used in order to identify precipitators of temptations and smoking episodes. Although this system was developed for classifying relapse episodes, it was easily adapted for classifying tempting situations as well. Using this system, descriptions were first coded into two main categories—intrapersonal and interpersonal—then further classifications were made in each. A copy of the coding system is attached as Appendix C.

**Final questionnaire.** A final questionnaire was developed to obtain pre and post follow-up data on certain variables as well as additional information which emerged as relevant during the course of the research. Preliminary questionnaire variable categories on which final data were also obtained included: (a) motivation and commitment to quit smoking, (b) social factors relevant to relapse or abstinence, (c) plans and strategies for maintaining abstinence, and (d) lifestyle information. Additional questions concerning (e) medication, (f) cigarette brand, and (g) perceptions of a difference between
"thinking about smoking" and "being tempted to smoke" were included. This questionnaire can be found in Appendix D.

**Phase I: Subject Recruitment**

Participants in this research were recruited from the general public by way of ads placed in local newspapers. These ads were run in two separate papers on two different days during April, 1980. The content of the ads was changed from the first day to the second in order to provide a greater inducement for potential participants. The format and content of both ads is presented in Figure 2.

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Insert Figure 2 About Here

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Names and telephone numbers of individuals responding to the ads were obtained. These individuals were then contacted by the investigator. During the initial contact, the purpose and requirements of participation were presented. This contact served to eliminate individuals who had not yet quit smoking and who were looking for a cessation program as distinct from a maintenance program. People who were currently smoking, but who planned to quit on their own were informed that they could participate in the research if they abstained for a minimum of 24 hours prior to formally beginning their participation. A face-to-face meeting with the investigator was arranged for all individuals who expressed a desire to participate following this initial telephone conversation.
Figure 2

Newspaper Advertisements for Recruitment of Participants

**HAVE YOU RECENTLY QUIT SMOKING?**

**ARE YOU PLANNING TO QUIT SOON?**

If so, you can be eligible to participate in an interesting research program on why people find it hard to stay off cigarettes once they have decided to quit. It is being conducted in the psychology dept. at The University of New Hampshire.

For Further Information Call

**Ms. Suzanne Dimmit**

**862-2369**

8:30-12, 1-4:30 Mon.-Fri.

---

**HAVE YOU RECENTLY QUIT SMOKING?**

If so, you can be eligible to participate in an interesting research program which could help you stay off cigarettes.

The study deals with the difficulties encountered by people once they have quit smoking, and what you can do about them.

It is being conducted in the Psychology Dept. at The University of New Hampshire.

**PLEASE CALL: 862-2369**

8:30-12, 1-4:30 Mon.-Fri.
At the meeting, potential participants were apprised of the following: (1) the general purpose of the research program was to follow individuals who had quit smoking on their own to find out about their experience relative to maintaining abstinence; (2) participation in the research would involve agreeing to fill out and mail back a set of questionnaires (of which they were shown samples) sent to them once a month over a six month period; (3) their continued participation was desirable even if they returned to smoking during the course of the research; (4) an optional part of participating included keeping a journal of their experiences relative to trying to maintain nonsmoking for the duration of their participation.

Following a description of the goals and requirements of participation in the research program, interested participants were asked to read and sign an informed consent agreement and fill out the preliminary questionnaire described above. A copy of the informed consent agreement can be found in Appendix E. Notebooks and a suggested format for the journals were given to all participants. Information in the journals will not be formally analyzed; they are intended to be a source for planning future research programs.

Thirty-nine individuals responded to the newspaper ads. Of this number, 26 signed informed consent agreements and began participation in the research. An additional five individuals were recruited through personal contact with the investigator.
Phase II: Follow-Up

Approximately three weeks following the onset of participation, each participant was sent her/his first follow-up questionnaire packet. Postage paid return envelopes were included with each set. Subsequent packets were sent only when the prior packet was returned and they were mailed approximately four weeks after receipt of the previous follow-up. Cover letters were sent with each packet, thanking individuals for their continued participation and reiterating the investigator's offer to serve as a resource for any questions or concerns participants may have had about their abstinence or smoking.

When at least ten days had passed since participants were sent their follow-up packets and they had not been returned, a follow-up letter was sent which gently reminded them to fill out and return their questionnaires. When another seven working days transpired and the participant was still delinquent, the investigator attempted to reach the participant by telephone for an additional polite reminder.

Until the third follow-up, participants who failed to respond to the telephone request were considered inactive and no further attempt to collect data from them was made until the conclusion of the data collection phase of the study when they were simply mailed a final questionnaire. Beyond the third month, a second follow-up letter was sent following the telephone call. In other words, every effort was made to maintain participation from individuals who remained active for the initial three follow-ups.
In addition to the initial meeting with the investigator, active participants were given the option of a second personal meeting at the third month follow-up. The purpose of this was to maintain a salient relationship with participants in order to minimize attrition.

At the conclusion of the data collection, 23 of the original 31, or approximately 74% of the participants had completed all of the follow-ups and the final questionnaire. An additional three individuals returned a final questionnaire which was mailed to those who had stopped returning follow-ups during the course of the study.

**Contributions of Methodology to Existing Research**

The methodology outlined on the preceding pages differs from existing methods of studying the nonsmoking experience and relapse in the following ways. First, the experience of individuals was assessed longitudinally rather than at one point. Thus, the consistency or stability of the nonsmoking experience may be viewed over time.

As stated in the review of the literature, the trend in research on the relapse process has been to study individuals who have completed formal cessation programs. In light of the statistic given in the introduction that only about 2% of those people who quit smoking do so through a formal cessation program, this is a fairly "specialized" population. This research began to examine the nonsmoking and smoking experiences of people who committed themselves to stop smoking on their own. Thus, another contribution of this methodology is its extension into the more general community of ex-smokers.
Finally, the most detailed descriptive information on the nonsmoking experience focuses on situations in which smoking or relapse has occurred. In this study, information from successful abstainers regarding their degree of difficulty abstaining, temptations encountered and strategies used for coping with the temptations was also obtained. This lays the groundwork for a more complete description of the nonsmoking experience.
CHAPTER III

RESULTS

This investigation constitutes an exploratory descriptive study. It was conceived as an early-stage "variable searching and screening" rather than as a later-stage "hypothesis testing" investigation. Thus, a large amount of data was obtained from a small sample of imperfectly representative individuals in hopes that potentially fruitful relevant variables would emerge for use in later, more complete systematic investigations. In light of this, inferential statistical analyses were used merely to explore promising leads and patterns rather than to demonstrate definitive effects. Given the small sample size it is likely that salient but subtle effects would not emerge as statistically significant, but would nonetheless show up enough to provide guidance for future development. In any case, trends can be noted.

The general purpose of all of the analyses was to look for differences between the information provided by participants who were classified as abstainers with those who were classified as relapsers at the conclusion of the investigation. Abstainers were individuals who were not smoking regularly at the conclusion of their participation and who had not reported more than three smoking episodes during the six month follow-up. Relapsers were individuals who were smoking regularly at the conclusion of their participation and/or who had reported more than three smoking
episodes during the six month follow-up. Unless otherwise indicated, all comparisons between abstainers and relapsers were computed on the basis of 26 participants (16 abstainers and 10 relapsers) who provided pre and post data.

The results are summarized in three sections. Data obtained at the start of individuals' participation will be presented first. Information obtained in the final questionnaire which was also assessed in the preliminary questionnaire will also be summarized in this first section. The second section will describe information obtained from participants over the six month follow-up period. This section includes data on physical and emotional states as well as descriptions of temptation and smoking episodes. Information obtained only in the final questionnaire will be presented in the third section.

Section 1: Preliminary and Pre-Post Data

At the start of the investigation, participants provided general demographic as well as specific information related to smoking cessation. Some of this information was asked for again at the conclusion of the investigation. These data were used to:

a) characterize the sample; and b) look for pre-post differences.

Sample characteristics. Of the 31 participants at the beginning of the research, 17 were female and 14 were male, with an average age of 43 years. The participants' ages ranged from 26 to 69. Twenty-nine participants were high school graduates and 13 of the high school graduates had earned college degrees. Twenty-four participants were either married or living with a primary partner.
At the conclusion of the research, 23 participants had provided data monthly throughout the six month follow-up. Three participants provided incomplete monthly data but returned the final questionnaire sent at the conclusion of the investigation. Of these 26 participants, 16 were classified as abstainers and 10 as relapsers. Six of the relapsers were female and four were male. When the sex of abstainers and relapsers was compared using a chi-square analysis, a significant difference was not found ($\chi^2(1) = .25$, $p \leq .90$).

Smoking history. General smoking history data are summarized in Table 1.

The F ratios in Table 1 summarize one-way ANOVAs which were computed on each measure to look for differences between the smoking histories of abstainers and relapsers. The results indicated no significant differences between abstainers and relapsers in terms of when they began smoking, how many years they smoked regularly, how many cigarettes they smoked per day, the average number of prior attempts to quit smoking and their longest time off cigarettes during previous attempts.

On the average, participants began smoking in their middle to late teens and continued smoking regularly for a minimum of several years. Participants smoked an average of a pack and a half of cigarettes per day. There was a considerable range of time off cigarettes at the start of the study (from one day to a year and a quarter); however, the average time off for the majority of participants was three to
Table 1  
Means, Standard Deviations and Univariate F's on Six Smoking History Measures Summarized for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Measures</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age when began smoking</td>
<td>18</td>
<td>18</td>
<td>17</td>
<td>0.68</td>
<td>.42</td>
</tr>
<tr>
<td>Years of continuous smoking</td>
<td>26.61</td>
<td>20.69</td>
<td>25.59</td>
<td>0.54</td>
<td>.47</td>
</tr>
<tr>
<td>Average number of cigarettes smoked per day</td>
<td>33.19</td>
<td>32.81</td>
<td>33.40</td>
<td>0.01</td>
<td>.93</td>
</tr>
<tr>
<td>Average number of days off cigarettes at the start of study</td>
<td>95.21</td>
<td>106.81</td>
<td>58.33</td>
<td>1.42</td>
<td>.25</td>
</tr>
<tr>
<td>Average number of previous attempts to quit smoking</td>
<td>7.46</td>
<td>4.00</td>
<td>17.86</td>
<td>2.19</td>
<td>.15</td>
</tr>
<tr>
<td>Longest number of days without smoking during prior attempts to quit</td>
<td>585.85</td>
<td>628.73</td>
<td>708.88</td>
<td>0.04</td>
<td>.85</td>
</tr>
</tbody>
</table>
four months. For participants who had previously attempted to quit, the average number of prior attempts was eight and the longest period of abstinence during prior attempts ranged from two days to 10 years. Nine participants reported past participation in a formal cessation program. Seven of these nine individuals completed their participation in this investigation; four abstainers and three relapsers. However, all of the participants had currently stopped smoking without a formal program.

**Definition of smoking.** At the start of the investigation, participants were asked whether they would define their cigarette smoking as a physical addiction, a psychological habit or both. Ten participants (eight abstainers and two relapsers) defined their smoking as a psychological habit, compared with nine (six abstainers and three relapsers) who felt their smoking was a physical addiction. Four participants (two abstainers and two relapsers) believed their smoking was both a physical addiction and a psychological habit. The remaining three participants (all relapsers) were undecided.

**Lifestyle information.** Several questions on the preliminary and final questionnaires asked for information related to general lifestyle activities or plans. A summary of the questions and responses can be found in Table 2.
Table 2

Frequencies of Responses to Four Lifestyle Questions
for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Measure</th>
<th>Preliminary Questionnaire</th>
<th>Final Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Part.</td>
<td>Abs.</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Planning other behavior changes</td>
<td>23  8</td>
<td>12  4</td>
</tr>
<tr>
<td>Exercise program</td>
<td>14  17</td>
<td>7  9</td>
</tr>
<tr>
<td>Relaxation procedures</td>
<td>5  26</td>
<td>3  13</td>
</tr>
<tr>
<td>Hobbies</td>
<td>11  20</td>
<td>3  13</td>
</tr>
</tbody>
</table>
The small frequencies of responses from abstainers and relapers precluded comparisons of their responses with a chi-square analysis. Examination of the responses on both preliminary and final questionnaires for abstainers and relapers did not suggest strong relationships between relaxation programs or hobbies and successful maintenance of nonsmoking. On the final questionnaire, a larger percentage of abstainers (50%) than relapers (25%) reported engaging in a regular program of exercise, suggesting a possible relationship between exercising regularly and maintaining nonsmoking. As shown in the table, 74% of the participants were planning to change other habits in their life at the same time as quitting smoking. On the preliminary questionnaire, the two most commonly stated changes were going on a diet (mentioned by 12 participants) and/or beginning an exercise program (mentioned by 11 participants).

**Reasons for participating.** Participants were given a list of five possible reasons for participating in the research and they were asked to indicate the three most important reasons why they volunteered. The results are summarized in Table 3.

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Insert Table 3 About Here

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Examination of the frequencies for abstainers' and relapers' first, second and third choices from the reasons for participating do not suggest any differences between their motivations. The most prominent reason given by individuals was their desire to contribute to research on smoking cessation, so that they might help other people to quit successfully. This was chosen as the first, second or third
Table 3
Frequencies of First, Second, and Third Choices of Reasons for Participating in the Investigation for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Reason</th>
<th>First Choice</th>
<th></th>
<th>Second Choice</th>
<th></th>
<th>Third Choice</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Want help quitting</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Want to contribute to research that may help others</td>
<td>16</td>
<td>9</td>
<td>4</td>
<td>9</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Know investigator personally or through friend, want to help her</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Generally interested in, curious about psychological research</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>10</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Other person convinced me to participate</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
most important reason by 26 of the participants. The next most commonly indicated reason for participating was that the individual was generally interested in or curious about participating in psychological research (first, second or third choice for 20 participants). This was followed by participants indicating a desire to receive some help in successfully quitting smoking (first, second or third choice for 19 participants).

Reasons for quitting. Participants' reasons for quitting were assessed on the preliminary questionnaire by their responses to an open-ended question and by their rank orderings of seven possible reasons presented to them.

Responses to the open-ended question were coded into one of the following six categories: (1) health; (2) example to others; (3) aesthetics; (4) mastery; (5) economics; (6) external pressure. In order to reflect participants' primary motivation for quitting, if more than one reason was given, the first reason listed or the reason indicated by the participant as most salient was coded. When all of the reasons were coded, they reflected only four of the seven categories: health; example to others; aesthetics; and mastery. Comparisons of the frequencies of abstainers' and relapers' primary reasons for quitting, as coded into these four categories did not suggest differences in their primary motivation for quitting. Twenty-three participants (14 abstainers and nine relapers) indicated health concerns as the primary motivation for quitting. One abstainer's reason was coded as mastery. This means that the participant stated he was quitting because he did not want to be a slave to cigarettes
or he did not want to be an "addict." This person said that an article in Reader's Digest which pointed out that drug addicts can quit taking heroin easier than they can quit smoking cigarettes was his primary motivator. He expressed dismay at continuing to use a substance which was "more addicting than heroin." One relapser indicated "example to others" as the primary reason for quitting. In this case, the others were young children living in the household. The remaining reason was classified as "aesthetics." This means that the participant (a relapser) referred to a desire to give up something messy, smelly, ugly, etc.

The average rank order of the seven reasons for quitting given by the participants, in the forced-choice format, at the start of the study is summarized in Table 4.

Insert Table 4 About Here

Multivariate comparisons of the average rankings of abstainers and relapsers using Hotelling's $T^2$ indicated no significant differences between the overall ranks of each set, $F_n(6,17)=2.01, p > .12$. However, univariate differences were found between abstainers' and relapsers' rankings of two reasons: a) important others want me to quit, and b) I don't enjoy smoking as much as I used to. In general, abstainers ranked important others' desire for them to quit as more important on the average than smokers. Conversely, abstainers ranked not enjoying smoking as less important on the average than relapsers. Considering that the multivariate level analysis was not significant, these univariate findings must be viewed as highly tentative.
Table 4
Means, Standard Deviations, and F's for the Average Rank of Importance for Seven Reasons for Quitting for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Reasons for Quitting</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking is having a harmful effect on my current physical well-being</td>
<td>2.3 1.8</td>
<td>3.1 2.2</td>
<td>1.7 1.2</td>
<td>3.13</td>
<td>.09</td>
</tr>
<tr>
<td>Smoking will probably be harmful to my health in the long run</td>
<td>2.5 1.4</td>
<td>2.1 1.4</td>
<td>2.7 1.4</td>
<td>0.96</td>
<td>.34</td>
</tr>
<tr>
<td>Important others want me to quit</td>
<td>3.9 1.6</td>
<td>3.4 1.3</td>
<td>4.6 1.6</td>
<td>4.16</td>
<td>.05</td>
</tr>
<tr>
<td>I want freedom from my dependency on smoking</td>
<td>3.1 1.8</td>
<td>2.9 1.6</td>
<td>3.8 1.9</td>
<td>1.74</td>
<td>.20</td>
</tr>
<tr>
<td>Smoking is expensive</td>
<td>5.4 1.2</td>
<td>5.8 1.0</td>
<td>5.6 1.2</td>
<td>0.18</td>
<td>.68</td>
</tr>
<tr>
<td>I don't like my public image as a smoker</td>
<td>5.6 1.4</td>
<td>5.4 1.4</td>
<td>5.8 1.6</td>
<td>2.53</td>
<td>.47</td>
</tr>
<tr>
<td>I don't enjoy smoking as much as I used to</td>
<td>4.8 1.8</td>
<td>5.4 1.4</td>
<td>3.8 1.7</td>
<td>6.25</td>
<td>.02</td>
</tr>
</tbody>
</table>

aTwo abstainers provided incomplete data and were omitted from the analyses
The average rankings overall are consistent with the classifications of the most important reason for quitting summarized above. That is, health reasons were seen as the most important motivation for quitting, followed by mastery and wanting to quit for important others.

**Abstinence or cessation goal.** Participants' goals with regard to quitting smoking were assessed by their choice from a list of six possible goals. A summary of participants' goals is presented in Table 5.

Examination of the frequencies for each goal shows that six of the seven participants who indicated that they might smoke in the future (by choosing the second or third goal) were relapsers. The one participant whose goal was total abstinence for a specific time and then re-evaluation of the decision to quit, indicated two months as the initial period of abstinence. Given that the recruitment ads asked for volunteers who had recently "quit" smoking, it is not surprising that none of the participants in this investigation wanted to become controlled smokers.

**Motivation and commitment to quit smoking.** In order to compare the average commitment and expectation ratings for abstainers and relapsers at the start and conclusion of the investigation, separate split plot ANOVAs on the average strength of commitment, expectations for success and expected difficulty abstaining were done using a
<table>
<thead>
<tr>
<th>Goal</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total abstinence, never smoke again</td>
<td>19</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Ex-smoker, with occasional slip</td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Break habit, occasional cigarette when really want one</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Controlled smoker</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total abstinence, certain time, then new decision</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>No fixed goal in mind</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
2 (Smoking Status) by 2 (Time of Assessment) design and the 26 participants who completed both the preliminary and final questionnaires. The results of this analysis are summarized in Table 6.

---

Insert Table 6 About Here

---

Significant differences between the ratings given by abstainers and relapsers, between the pre and post ratings, and a significant interaction between smoking status and pre and post ratings were found for both strength of commitment to quit and expectations for success in quitting. A significant interaction between smoking status and pre and post expected difficulty ratings was also found.

Separate univariate comparisons of abstainers' and relapsers' preliminary and final questionnaire ratings were performed using t-tests adjusted according to Fisher's LSD to explore specific differences between the two groups of participants. The results are summarized, along with the mean ratings on both questionnaires, in Table 7.

---

Insert Table 7 About Here

---

As indicated in the table, abstainers' commitment and expected success ratings were greater than relapsers' on both the preliminary and final questionnaires. However, the average commitment and expected success ratings reported by all participants on the preliminary questionnaire were greater than 85 out of 100, which was considerably high. The average expected difficulty ratings for all participants
Table 6
Summary of Split Plot ANOVA for Participants' Average Commitment to Quit, Expected Success and Expected Difficulty at Abstaining Ratings As a Function of Smoking Status and Time of Assessment

Commitment to Quit

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking Status</td>
<td>12944.40</td>
<td>1</td>
<td>12944.40</td>
<td>66.93***</td>
</tr>
<tr>
<td>Error</td>
<td>4448.28</td>
<td>24</td>
<td>193.40</td>
<td></td>
</tr>
<tr>
<td>Time of Assessment</td>
<td>5446.97</td>
<td>1</td>
<td>5446.97</td>
<td>34.07***</td>
</tr>
<tr>
<td>Time x Smoking Status</td>
<td>5446.97</td>
<td>1</td>
<td>5446.97</td>
<td>34.07***</td>
</tr>
<tr>
<td>Error</td>
<td>3676.75</td>
<td>24</td>
<td>159.86</td>
<td></td>
</tr>
</tbody>
</table>

Expected Success at Quitting

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking Status</td>
<td>13552.94</td>
<td>1</td>
<td>13552.94</td>
<td>34.16***</td>
</tr>
<tr>
<td>Error</td>
<td>9125.06</td>
<td>24</td>
<td>396.74</td>
<td></td>
</tr>
<tr>
<td>Time of Assessment</td>
<td>6259.20</td>
<td>1</td>
<td>6259.20</td>
<td>27.35***</td>
</tr>
<tr>
<td>Time x Smoking Status</td>
<td>5515.20</td>
<td>1</td>
<td>5515.20</td>
<td>24.10***</td>
</tr>
<tr>
<td>Error</td>
<td>5263.12</td>
<td>24</td>
<td>228.83</td>
<td></td>
</tr>
</tbody>
</table>

Expected Difficulty Abstaining

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking Status</td>
<td>4694.13</td>
<td>1</td>
<td>4694.13</td>
<td>4.01</td>
</tr>
<tr>
<td>Error</td>
<td>28472.87</td>
<td>24</td>
<td>1237.95</td>
<td></td>
</tr>
<tr>
<td>Time of Assessment</td>
<td>394.56</td>
<td>1</td>
<td>394.56</td>
<td>0.47</td>
</tr>
<tr>
<td>Time x Smoking Status</td>
<td>5620.16</td>
<td>1</td>
<td>5620.16</td>
<td>6.64**</td>
</tr>
<tr>
<td>Error</td>
<td>19472.52</td>
<td>24</td>
<td>846.63</td>
<td></td>
</tr>
</tbody>
</table>

** p ≤ .05
*** p ≤ .001
Table 7
Means and Standard Deviations for Commitment to Quit, Expected Success and Expected Difficulty Abstaining Ratings on Preliminary and Final Questionnaires for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Measure</th>
<th>Preliminary Questionnaire</th>
<th>Final Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Part.</td>
<td>Abs.</td>
</tr>
<tr>
<td>Commitment to Quit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>91.45</td>
<td>97.18a</td>
</tr>
<tr>
<td>s</td>
<td>16.12</td>
<td>4.60</td>
</tr>
<tr>
<td>Expected Success</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abstaining</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>83.29</td>
<td>91.53c</td>
</tr>
<tr>
<td>s</td>
<td>34.10</td>
<td>13.20</td>
</tr>
<tr>
<td>Expected Difficulty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abstaining</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>46.19</td>
<td>45.12</td>
</tr>
<tr>
<td>s</td>
<td>34.35</td>
<td>38.60</td>
</tr>
</tbody>
</table>

*Means with the same subscript are significantly different at $p \leq .05$ by Fisher's LSD.

Response scale was "1" (least commitment, success expectations, difficulty expectations) to "100" (highest commitment, success expectations, difficulty expectations).
at the start of the study were around 45 out of 100, indicating that they expected moderate difficulty remaining abstinent.

Examination of the mean ratings in Table 7 shows that abstainers' strength of commitment to quit and expected success ratings are virtually unchanged from the preliminary assessment to the final assessment. However, relapers' strength of commitment and success expectations ratings each decreased over 40 points from the preliminary to the final questionnaire. The average ratings for expected difficulty remaining abstinent changed for both groups of individuals. Compared to their preliminary questionnaire ratings, abstainers expectations of difficulty dropped nearly 20 points whereas relapers' ratings increased by nearly 30 points. The pattern of similarity and/or change in these three measures may reflect the experience of individuals over the course of their participation.

Plans and strategies for maintaining abstinence. Participants were asked to describe: a) any specific techniques or strategies, and b) any specific incentives they were using to help them resist the temptation to resume smoking. Separate chi-square analyses on the number of abstainers and relapers who indicated they were using specific strategies or incentives indicated no differences (strategies: \( \chi^2(1) = 2.66, p \leq 0.20 \); incentives: \( \chi^2(1) = 0.44, p \leq 0.51 \)).

Twenty-three of the original 31 participants described techniques or strategies which they planned to use to resist the temptation to smoke. Some participants listed more than one strategy. The most commonly mentioned strategies were: (1) trying not to think about smoking/waiting out the temptation (listed by six participants);
(2) substituting eating, drinking or gum chewing for cigarettes (listed by five participants); (3) thinking negative things about cigarettes (listed by five participants); (4) exercising (listed by three participants); and (5) thinking about how good it feels to not smoke (listed by two participants).

Most of the participants (23) were not using any specific incentives to help them resist the temptation to resume smoking. Generally those using incentives were rewarding themselves for maintaining abstinence by buying something special (e.g., a massage, expensive clothing, etc.).

A third open-ended question asked whether participants could imagine at least one situation in which they would be extremely tempted to resume smoking. Fourteen abstainers and nine relapers indicated that they could imagine at least one situation in which they were likely to be extremely tempted to resume smoking. Many of the potential "relapse" situations described were tragedies such as the death of a loved one.

**Expected reaction to future smoking.** Fourteen participants (nine abstainers and five relapers) felt that if they were to voluntarily smoke one cigarette they would probably return to their old smoking pattern again. Eight participants (five abstainers and three relapers) believed that they could "slip" without resuming their former habit again, i.e., they believed they could have one or two cigarettes and be able to stop again without much difficulty. Two participants (one abstainer and one relaper) said that neither of the previous two reasons applied to them because they would never smoke another cigarette.
Situation ratings. Participants were presented with a list of twenty-one situations or events they might encounter after having quit smoking. They were asked to indicate how difficult they believed it would be to resist the temptation of having a cigarette in each situation. Difficult situations were defined as those with an overall average rating of three or more. Tables 8 and 9 list the difficult situations for all participants and comparisons of the mean ratings of abstainers and relapsers for both preliminary and final questionnaire data.

The situations which were defined as difficult on the preliminary questionnaire also emerged as difficult situations on the final questionnaire. Only one additional situation—working at home or in the office—was defined as difficult on the final questionnaire. Differences between abstainers' and relapsers' preliminary questionnaire ratings were found for two situations—drinking coffee and wanting to test personal control. In both instances, relapsers rated these situations as more difficult than abstainers. Significant differences between abstainers' and relapsers' final questionnaire ratings were found for seven of the 11 difficult situations. As for the preliminary questionnaire ratings, relapsers rated these situations as more difficult to be in without smoking than abstainers.
<table>
<thead>
<tr>
<th>Situation</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>$s$</td>
<td>$\bar{x}$</td>
<td>$s$</td>
<td>$\bar{x}$</td>
</tr>
<tr>
<td>Bar or restaurant with smokers</td>
<td>3.33</td>
<td>2.22</td>
<td>2.60</td>
<td>1.99</td>
<td>3.86</td>
</tr>
<tr>
<td>Party with smokers</td>
<td>3.57</td>
<td>2.30</td>
<td>3.13</td>
<td>2.47</td>
<td>3.57</td>
</tr>
<tr>
<td>After a good meal</td>
<td>3.40</td>
<td>1.73</td>
<td>2.80</td>
<td>1.52</td>
<td>3.86</td>
</tr>
<tr>
<td>Feeling anxious or fearful</td>
<td>3.87</td>
<td>2.14</td>
<td>3.20</td>
<td>2.08</td>
<td>3.47</td>
</tr>
<tr>
<td>Feeling angry or upset</td>
<td>4.10</td>
<td>2.11</td>
<td>3.40</td>
<td>2.06</td>
<td>4.71</td>
</tr>
<tr>
<td>Feeling sad or depressed</td>
<td>3.80</td>
<td>2.09</td>
<td>3.40</td>
<td>2.09</td>
<td>4.28</td>
</tr>
<tr>
<td>With an old friend</td>
<td>3.23</td>
<td>2.06</td>
<td>2.87</td>
<td>2.10</td>
<td>3.57</td>
</tr>
<tr>
<td>Drinking coffee</td>
<td>3.60</td>
<td>2.09</td>
<td>2.67</td>
<td>1.80</td>
<td>4.43</td>
</tr>
<tr>
<td>Drinking alcohol</td>
<td>3.96</td>
<td>2.13</td>
<td>3.28</td>
<td>2.13</td>
<td>4.66</td>
</tr>
<tr>
<td>Wanting to test personal control</td>
<td>3.40</td>
<td>2.53</td>
<td>2.40</td>
<td>2.23</td>
<td>5.71</td>
</tr>
</tbody>
</table>

The response scale was "1" (not at all difficult) to "7" (extremely difficult).
<table>
<thead>
<tr>
<th>Situation</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X}$</td>
<td>$s$</td>
<td>$\bar{X}$</td>
<td>$s$</td>
<td>$\bar{X}$</td>
</tr>
<tr>
<td>Bar or restaurant with smokers</td>
<td>3.74</td>
<td>2.36</td>
<td>2.67</td>
<td>2.16</td>
<td>5.75</td>
</tr>
<tr>
<td>Party with smokers</td>
<td>4.04</td>
<td>2.58</td>
<td>2.93</td>
<td>2.37</td>
<td>5.78</td>
</tr>
<tr>
<td>After a good meal</td>
<td>3.38</td>
<td>2.47</td>
<td>2.00</td>
<td>1.73</td>
<td>5.67</td>
</tr>
<tr>
<td>Feeling anxious or fearful</td>
<td>4.26</td>
<td>2.38</td>
<td>3.50</td>
<td>2.31</td>
<td>5.44</td>
</tr>
<tr>
<td>Feeling angry or upset</td>
<td>4.48</td>
<td>2.41</td>
<td>3.43</td>
<td>2.06</td>
<td>6.11</td>
</tr>
<tr>
<td>Feeling sad or depressed</td>
<td>4.17</td>
<td>2.42</td>
<td>3.78</td>
<td>2.69</td>
<td>4.78</td>
</tr>
<tr>
<td>With an old friend</td>
<td>3.54</td>
<td>2.36</td>
<td>3.21</td>
<td>2.52</td>
<td>4.13</td>
</tr>
<tr>
<td>Drinking coffee</td>
<td>3.04</td>
<td>2.40</td>
<td>1.84</td>
<td>1.68</td>
<td>4.78</td>
</tr>
<tr>
<td>Drinking alcohol</td>
<td>3.38</td>
<td>2.44</td>
<td>2.54</td>
<td>2.07</td>
<td>4.75</td>
</tr>
<tr>
<td>Wanting to test personal control</td>
<td>3.80</td>
<td>2.10</td>
<td>3.00</td>
<td>2.45</td>
<td>5.00</td>
</tr>
<tr>
<td>Working at home or office</td>
<td>3.10</td>
<td>2.10</td>
<td>2.54</td>
<td>2.07</td>
<td>4.00</td>
</tr>
</tbody>
</table>

*The response scale was "1" (not at all difficult) to "7" (extremely difficult).*
Principal components factor analysis using varimax rotation was performed on the situation ratings for both the preliminary and final questionnaire data. The purpose of this analysis was to explore the data for general types of difficult situations.

Six factors with eigenvalues of one or larger emerged from the preliminary questionnaire data which accounted for 78% of the systematic common variance. However, examination of the situations which defined these factors indicated no conceptually consistent or logical general categories of difficult situations. Five factors with eigenvalues of one or larger emerged from the final questionnaire data which accounted for 87% of the systematic common variance. The situations which defined these factors did indicate conceptually consistent general categories of difficult situations. The correlation coefficient matrix for the final questionnaire factor analysis is presented in Table 10.

Insert Table 10 About Here

The situations which defined these five factors are presented in Table 11.

Insert Table 11 About Here
Table 10

Correlation Coefficient Matrix for Situation Ratings on Final Questionnaire

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar or restaurant with smokers</td>
<td>.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Party with smokers</td>
<td>.75</td>
<td>.73</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After good meal</td>
<td>.60</td>
<td>.60</td>
<td>.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxious/fearful</td>
<td>.58</td>
<td>.69</td>
<td>.50</td>
<td>.50</td>
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<td></td>
<td></td>
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<tr>
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<td>.58</td>
<td>.42</td>
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<tr>
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</tr>
<tr>
<td>Alone/find cig.</td>
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<td>.76</td>
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</tr>
<tr>
<td>See cigarette ad</td>
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<td>Read/studying/write</td>
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<td>.87</td>
<td>.78</td>
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<td>.74</td>
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<td>.55</td>
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<td></td>
</tr>
<tr>
<td>Working home/office</td>
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<td>.68</td>
<td>.56</td>
<td>.67</td>
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<td>.67</td>
<td>.57</td>
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<td>After sex</td>
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<td>.61</td>
<td>.56</td>
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<tr>
<td>Free sample</td>
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<td>.77</td>
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<tr>
<td>Test personal control</td>
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<td>.45</td>
<td>.48</td>
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<td>.61</td>
<td>.26</td>
<td>.65</td>
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</tr>
</tbody>
</table>
Table 11

Varimax Rotated Factor Matrix of Tempting Situation Ratings on Final Questionnaire\(^a\);\(^b\)

<table>
<thead>
<tr>
<th>Situation</th>
<th>Factor I</th>
<th>Factor II</th>
<th>Factor III</th>
<th>Factor IV</th>
<th>Factor V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar/restaurant with smokers</td>
<td>55</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Party with smokers</td>
<td>68</td>
<td>57</td>
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<td></td>
</tr>
<tr>
<td>After good meal</td>
<td></td>
<td></td>
<td></td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>On vacation/trip</td>
<td>61</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling anxious/fearful</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling angry/upset</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling sad/depressed</td>
<td>87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling good/celebrating</td>
<td></td>
<td></td>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>Feeling physically ill/ in pain</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With old friend</td>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking coffee</td>
<td></td>
<td></td>
<td></td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Drinking alcohol</td>
<td></td>
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<td>80</td>
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</tr>
<tr>
<td>Alone/find cigarettes</td>
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<td></td>
<td>52</td>
</tr>
<tr>
<td>See cigarette ad</td>
<td></td>
<td></td>
<td></td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>Bored, waiting, idle</td>
<td></td>
<td></td>
<td></td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Reading, studying, writing</td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>After a movie</td>
<td></td>
<td></td>
<td></td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Working at home/office</td>
<td></td>
<td></td>
<td></td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>After sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>69</td>
</tr>
<tr>
<td>Stranger gives free sample</td>
<td></td>
<td></td>
<td></td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>Wanting to test personal control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>91</td>
</tr>
</tbody>
</table>

\(^a\)Decimal points are omitted.

\(^b\)Only loadings greater than .50 are reported.
The first factor appears to include situations which could be classified as relatively nontempting. Examination of these situations, however, suggests that they may be nontempting for a variety of reasons. For example, going on a vacation or trip and seeing a movie may be nontempting because they are pleasant and distracting. Being physically ill or in pain may also be nontempting because it is distracting, but certainly not in a pleasant way. The remaining situations may be nontempting because they are not salient.

Going to a bar or a restaurant where others are smoking and going to a party where others are smoking loaded highly on both factors two and three. This can be interpreted to mean that they are highly salient and highly tempting situations. The remaining situations which defined the second factor were clearly negative emotional state situations. The situations which defined the third factor also seem to define an "affect-related" tempting situation factor; generally the situations would be associated with either positive or neutral emotional states.

The fourth factor which emerged can be seen as an internal, testing personal control factor. It is defined by situations which could provide intrapersonal cues for smoking. The fifth and final factor is defined only by the situation "after having sex or during an intimate personal encounter."

Separate one-way ANOVAs on the average difficulty ratings on the final questionnaire for each situation as a function of smoking status were performed to see whether relapsers' perceptions of how hard it was not to smoke in various situations differed from
abstainers'. The results of these analyses are presented in Table 12.

---

Insert Table 12 About Here

---

Significant differences (with \( p \leq 0.05 \)) were found on four of the five situations in Factor 2, five of the seven situations in Factor 3, and four of the five situations in Factor 4. In all instances, the mean rating for abstainers was significantly lower than the mean rating for relapsers. This suggests, as would be expected, that for the three factors which appear to include salient tempting situations, relapsers find them more difficult to be in without smoking than abstainers. No significant differences were found between abstainers' and relapsers' ratings of the situations in Factor 1. This implies that abstainers and smokers tend to agree on the situations in which it is not difficult to refrain from smoking.

Social factors. Three measures of social support were obtained on the preliminary questionnaire. Fourteen of the 16 abstainers and all of the relapers indicated on a yes-no question that they believed they had people in their lives who would be supportive in their cessation efforts. These other individuals were usually members of their immediate family and/or friends. Participants expected that their help would come primarily in the form of verbal encouragement and praise for not smoking.
Table 12
Means, Standard Deviations and F's for Twenty-One Situations on Final Questionnaire Grouped into Five Factors for Abstainers and Relapsers a

<table>
<thead>
<tr>
<th>Factor 1</th>
<th>Abstainers</th>
<th>Relapsers</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td></td>
<td>s</td>
<td></td>
</tr>
<tr>
<td>Vacation/trip</td>
<td>1.64</td>
<td>2.75</td>
<td>1.49</td>
<td>2.281</td>
</tr>
<tr>
<td>Feeling ill</td>
<td>1.71</td>
<td>2.56</td>
<td>2.01</td>
<td>1.179</td>
</tr>
<tr>
<td>in pain</td>
<td>3.21</td>
<td>4.12</td>
<td>2.10</td>
<td>0.746</td>
</tr>
<tr>
<td>With old friend</td>
<td>1.57</td>
<td>1.88</td>
<td>1.46</td>
<td>0.187</td>
</tr>
<tr>
<td>See cig ad</td>
<td>1.62</td>
<td>2.50</td>
<td>1.77</td>
<td>1.290</td>
</tr>
<tr>
<td>After movie</td>
<td>1.43</td>
<td>3.00</td>
<td>2.14</td>
<td>3.843</td>
</tr>
<tr>
<td>Free sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar/restaurant</td>
<td>2.67</td>
<td>5.75</td>
<td>1.04</td>
<td>14.302</td>
</tr>
<tr>
<td>Party</td>
<td>2.93</td>
<td>5.78</td>
<td>1.92</td>
<td>9.113</td>
</tr>
<tr>
<td>Anxious/fearful</td>
<td>3.50</td>
<td>5.44</td>
<td>2.07</td>
<td>20.71</td>
</tr>
<tr>
<td>Angry/upset</td>
<td>3.43</td>
<td>6.11</td>
<td>2.03</td>
<td>9.374</td>
</tr>
<tr>
<td>Sad/depressed</td>
<td>3.79</td>
<td>4.78</td>
<td>1.92</td>
<td>0.914</td>
</tr>
<tr>
<td>Factor 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar/restaurant</td>
<td>2.67</td>
<td>5.75</td>
<td>1.04</td>
<td>14.302</td>
</tr>
<tr>
<td>Party</td>
<td>2.93</td>
<td>5.78</td>
<td>1.92</td>
<td>9.113</td>
</tr>
<tr>
<td>Vacation/trip</td>
<td>1.64</td>
<td>2.75</td>
<td>1.49</td>
<td>2.281</td>
</tr>
<tr>
<td>Good/celebrating</td>
<td>1.87</td>
<td>3.62</td>
<td>1.60</td>
<td>4.731</td>
</tr>
<tr>
<td>Drinking coffee</td>
<td>1.85</td>
<td>4.78</td>
<td>2.28</td>
<td>12.148</td>
</tr>
<tr>
<td>Drinking alcohol</td>
<td>2.54</td>
<td>4.75</td>
<td>2.49</td>
<td>4.858</td>
</tr>
<tr>
<td>Working, home-office</td>
<td>4.54</td>
<td>4.00</td>
<td>1.93</td>
<td>2.603</td>
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<tr>
<td>Factor 4</td>
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<tr>
<td>Good meal</td>
<td>2.00</td>
<td>5.67</td>
<td>2.06</td>
<td>21.891</td>
</tr>
<tr>
<td>Alone, find cig</td>
<td>1.77</td>
<td>4.56</td>
<td>2.35</td>
<td>10.515</td>
</tr>
<tr>
<td>Bored, waiting, idle</td>
<td>2.28</td>
<td>3.75</td>
<td>1.83</td>
<td>2.471</td>
</tr>
<tr>
<td>Read/study/writing</td>
<td>1.62</td>
<td>4.78</td>
<td>1.86</td>
<td>17.544</td>
</tr>
<tr>
<td>Test personal control</td>
<td>3.00</td>
<td>5.00</td>
<td>1.93</td>
<td>3.757</td>
</tr>
<tr>
<td>Factor 5</td>
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</tr>
<tr>
<td>After sex</td>
<td>2.08</td>
<td>3.00</td>
<td>2.20</td>
<td>0.922</td>
</tr>
</tbody>
</table>

aThe response scale was "1" (not at all difficult) to "7" (extremely difficult)
Twelve abstainers and six relapsers did not believe that other individuals would be a hindrance in their cessation efforts. Those who did believe that others could hinder their efforts (four abstainers and four relapsers) referred primarily to family members, friends or co-workers who would smoke in their presence and/or who would rather the participant smoked.

A summary of the percentage of smokers in participants' immediate environment as assessed with the "Scope of Life" diagram is presented in Table 13.

Insert Table 13 About Here

In order to compare the average percentage of smokers in participants' immediate environment for abstainers and relapsers, a split plot ANOVA on the average percentage of smokers was done using a 2 (Smoking Status) by 2 (Time of Assessment) design and the 22 participants who completed this diagram on both the preliminary and final questionnaires. Results of this analysis are summarized in Table 14.

Insert Table 14 About Here

The results indicate that the percentage of smokers in all participants' environments was not observably changed from the beginning to the conclusion of the investigation. Typically, smokers comprised at least one-third of the people participants lived, worked and/or socialized with. At the start of their participation, relapsers
Table 13

Means and Standard Deviations for the Percentage of Smokers in Participants' Immediate Environment as Assessed with the Scope of Life Diagram in the Preliminary and Final Questionnaires\textsuperscript{a,b}

<table>
<thead>
<tr>
<th></th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X}$</td>
<td>$s$</td>
<td>$\bar{X}$</td>
</tr>
<tr>
<td>Preliminary Questionnaire</td>
<td>38.96</td>
<td>21.55</td>
<td>33.53\textsuperscript{a}</td>
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<tr>
<td>Final Questionnaire</td>
<td>36.59</td>
<td>20.81</td>
<td>32.40</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Four participants (1 abstainer; 3 relapsers) provided incomplete data.

\textsuperscript{b} Means with the same subscript are significantly different at $p \leq .05$ by Fisher's LSD
Table 14

Summary of Split Plot ANOVA for the Average Percentage of Smokers in Participants' Immediate Environment as a Function of Smoking Status and Time of Assessment

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking status</td>
<td>2475.74</td>
<td>1</td>
<td>2475.74</td>
<td>4.55</td>
<td>.05</td>
</tr>
<tr>
<td>Error</td>
<td>10884.90</td>
<td>20</td>
<td>544.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of assessment</td>
<td>147.86</td>
<td>1</td>
<td>147.86</td>
<td>0.56</td>
<td>.46</td>
</tr>
<tr>
<td>Time X Smoking status</td>
<td>82.13</td>
<td>1</td>
<td>82.13</td>
<td>0.29</td>
<td>.60</td>
</tr>
<tr>
<td>Error</td>
<td>5663.87</td>
<td>20</td>
<td>283.19</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Four participants (1 abstainer; 3 relapsers) provided incomplete data.
had a significantly higher percentage of smokers in their work, home and social environments than abstainers. A significant difference between the percentage of smokers in abstainers' and relapsers' environments was not found on the final questionnaire. However, there was an observable difference between the means, with relapsers reporting a higher percentage of smokers than abstainers.

Section 2: Six Month Follow-Up Data

Experiences relative to maintaining abstinence from cigarettes were assessed monthly for six months. Twenty-three of the 31 original participants provided data for the complete six month period. In addition to the overall purpose of looking for differences between the experiences reported by abstainers and relapsers, the data were used to determine: a) the characteristics of situations in which participants reported being tempted to smoke; b) what kind of coping strategies individuals used in tempting situations; c) the characteristics of situations in which participants reported actually smoking; d) how the characteristics of tempting situations compared to the characteristics of smoking episodes; and e) how the characteristics of anticipated smoking or relapse situations (as described in the preliminary questionnaire) compared to the characteristics of actual smoking experiences.

Number of cigarettes smoked. At the beginning of the first follow-up questionnaire, participants were asked to indicate how many cigarettes they had smoked during the previous month. Table 15 summarizes the mean number of cigarettes reported for each month.
The above-zero mean number of cigarettes indicated for abstainers in Table 15 reflects the fact that at least one "abstinent" participant reported a slip each month. The increase for relapsers in the average number of cigarettes smoked at each follow-up is indicative of both an increase in the number of participants who relapsed as well as of the re-establishment of former smoking habits over time.

Symptom ratings and mood index scores. Means and standard deviations for participants' average symptom ratings and mood index scores as a function of smoking status at the conclusion of the investigation are presented in Tables 16 and 17.

When interpreted in the context of the 7-point scale on the symptom questionnaire, the means for abstainers and relapsers summarized in Table 16 reflect low to neutral responses to the list of withdrawal symptoms. The positive means for all participants' mood index scores summarized in Table 17 indicate that participants typically reported experiencing more positive than negative moods in the week prior to filling out the questionnaire.

In order to compare the average symptom ratings and mood index scores for abstainers and relapsers, separate split plot ANOVAs were performed using a 2 (Smoking Status) by 2 (Time of Assessment) design and the participants who provided data at all six follow-ups. Results
Table 15

Means and Standard Deviations for Reported Number of Cigarettes Smoked During Follow-Up Months for All Participants, Relapsers and Abstainers\textsuperscript{a}

<table>
<thead>
<tr>
<th>Follow-Up Month</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X}$</td>
<td>$s$</td>
<td>$\bar{X}$</td>
</tr>
<tr>
<td>1</td>
<td>30.43</td>
<td>77.81</td>
<td>1.64</td>
</tr>
<tr>
<td>2</td>
<td>77.23</td>
<td>207.72</td>
<td>1.86</td>
</tr>
<tr>
<td>3</td>
<td>105.39</td>
<td>331.26</td>
<td>0.75</td>
</tr>
<tr>
<td>4</td>
<td>165.83</td>
<td>352.21</td>
<td>2.35</td>
</tr>
<tr>
<td>5</td>
<td>238.30</td>
<td>480.05</td>
<td>0.06</td>
</tr>
<tr>
<td>6</td>
<td>257.39</td>
<td>564.88</td>
<td>0.44</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Data are reported for 23 participants (16 abstainers, 7 relapsers) who provided complete monthly follow-up data.
Table 16

Means and Standard Deviations of Average Symptom Ratings for All Participants, Abstainers and Relapsers\textsuperscript{a, b, c}

<table>
<thead>
<tr>
<th>Follow-Up Month</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>$s$</td>
<td>$\bar{x}$</td>
</tr>
<tr>
<td>1</td>
<td>4.35</td>
<td>2.37</td>
<td>4.51</td>
</tr>
<tr>
<td>2</td>
<td>4.09</td>
<td>1.48</td>
<td>4.52</td>
</tr>
<tr>
<td>3</td>
<td>4.08</td>
<td>1.89</td>
<td>3.90</td>
</tr>
<tr>
<td>4</td>
<td>3.50</td>
<td>1.21</td>
<td>3.38</td>
</tr>
<tr>
<td>5</td>
<td>2.98</td>
<td>0.82</td>
<td>2.99</td>
</tr>
<tr>
<td>6</td>
<td>3.03</td>
<td>0.83</td>
<td>3.05</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Data are reported for 23 participants who provided complete monthly follow-up data.

\textsuperscript{b}Response scale was "1" (not at all) to "7" (extremely).

\textsuperscript{c}Average symptom scores were the sum of each participants' ratings to 14 symptom questions divided by 14.
<table>
<thead>
<tr>
<th>Follow-Up Month</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X    s</td>
<td>X    s</td>
<td>X    s</td>
</tr>
<tr>
<td>1</td>
<td>3.22 5.67</td>
<td>3.12 6.01</td>
<td>3.43 5.33</td>
</tr>
<tr>
<td>2</td>
<td>3.56 5.10</td>
<td>4.12 .95</td>
<td>2.28 5.22</td>
</tr>
<tr>
<td>3</td>
<td>2.43 6.39</td>
<td>2.75 5.45</td>
<td>1.71 7.59</td>
</tr>
<tr>
<td>4</td>
<td>2.00 5.78</td>
<td>2.12 6.44</td>
<td>1.71 4.79</td>
</tr>
<tr>
<td>5</td>
<td>3.35 3.64</td>
<td>3.69 3.59</td>
<td>2.57 3.82</td>
</tr>
<tr>
<td>6</td>
<td>2.61 5.21</td>
<td>2.25 5.82</td>
<td>3.42 4.67</td>
</tr>
</tbody>
</table>

\(^a\) Data are reported for 23 participants who provided complete follow-up data

\(^b\) Mood index scores were constructed by subtracting the number of negative mood states circled from the number of positive mood states circled from a list of 27 mood adjectives.
of these analyses are summarized in Table 18.

The results indicate that abstainers and relapsers did not differ in their overall symptom ratings on the average during the study. A significant change in the ratings did occur over trials. There was a general decline in the average symptom scores for both relapsers and abstainers over time. No differences in mood index scores were found between relapsers and abstainers.

**Occurrences of temptations to smoke.** Each month an average of 15 participants reported that they had not smoked during the follow-up month. These participants were asked to indicate how difficult it was for them to remain a nonsmoker on a 1 to 7 point scale. One-way ANOVA on the average difficulty ratings given by abstainers and the average difficulty ratings given by participants who eventually relapsed was performed to see if abstainers and relapsers reported similar or different amounts of difficulty, $F(1,91)=4.85, p \leq .03$. Typically, relapsers reported experiencing greater difficulty remaining nonsmokers than abstainers did. The mean rating for abstainers was 2.4 ($s=1.7$); relapsers' mean rating was 3.78 ($s=1.4$).

For the first follow-up, all abstainers were asked to provide a description of the most tempting situation they encountered during the previous month. Beginning with the second follow-up, abstainers were first asked to indicate if they had, in fact, been tempted to smoke during the past month. Those who indicated yes were then asked to
Table 18

Summary of Split Plot ANOVAs for Average Symptom Ratings and Mood Index Scores as a Function of Smoking Status and Time of Assessment

### Average Symptom Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking status</td>
<td>0.95</td>
<td>1</td>
<td>0.95</td>
<td>0.28</td>
<td>.60</td>
</tr>
<tr>
<td>Error</td>
<td>70.41</td>
<td>21</td>
<td>3.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of assessment</td>
<td>29.85</td>
<td>5</td>
<td>5.97</td>
<td>2.36</td>
<td>.05</td>
</tr>
<tr>
<td>Time X Smoking status</td>
<td>12.72</td>
<td>5</td>
<td>2.54</td>
<td>1.01</td>
<td>.30</td>
</tr>
<tr>
<td>Error</td>
<td>265.26</td>
<td>105</td>
<td>2.53</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Mood Index Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking status</td>
<td>6.92</td>
<td>1</td>
<td>6.92</td>
<td>0.07</td>
<td>.80</td>
</tr>
<tr>
<td>Error</td>
<td>2162.30</td>
<td>21</td>
<td>102.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of assessment</td>
<td>31.02</td>
<td>5</td>
<td>6.20</td>
<td>0.42</td>
<td>.83</td>
</tr>
<tr>
<td>Time X Smoking status</td>
<td>28.88</td>
<td>5</td>
<td>5.78</td>
<td>0.39</td>
<td>.86</td>
</tr>
<tr>
<td>Error</td>
<td>1553.82</td>
<td>105</td>
<td>14.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
describe the most tempting situation they remembered encountering.
This change in the questionnaire format was made because two
participants indicated on their first follow-up that they had not
been tempted to smoke at all, that they felt like "nonsmokers" and,
thus, it was difficult for them to complete the questionnaire. From
the second to the sixth follow-up, an average of nine participants
reported encountering a tempting situation during the previous
month. The highest number reporting temptations was 13 at the second
follow-up; the lowest number was seven at the fourth and sixth follow-ups.
A total of 62 descriptions of tempting situations were obtained during
this investigation. Abstainers reported 54 temptations; eight
temptations were reported by participants who eventually relapsed.

Common characteristics of temptations. Data pertaining to the
common characteristics of the 62 tempting situations are summarized
in Table 19.

The frequencies in the table suggest differences between the
common characteristics of the temptations reported by abstainers
and those reported by relapsers with regard to the setting of the
temptation. Most of the temptations reported by relapsers occurred
in public places, whereas most of the temptations reported by
abstainers took place in their own home.

Overall, home in the afternoon or evening were the most common
place and times for temptations to smoke. Other frequent settings
Table 19

Frequencies of Time, Place, Presence of Others and Access to Cigarettes for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Measure</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Setting</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>24</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Work</td>
<td>12</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Friend/relative's house</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Public place</td>
<td>7</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Time of Day</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morning (6am-noon)</td>
<td>8</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Afternoon (noon-5pm)</td>
<td>17</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Evening (5pm-10pm)</td>
<td>16</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Night (10pm-6am)</td>
<td>12</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td><strong>Others Present</strong></td>
<td>41</td>
<td>34</td>
<td>7</td>
</tr>
<tr>
<td><strong>Others Present &amp; Smoking</strong></td>
<td>38</td>
<td>31</td>
<td>7</td>
</tr>
<tr>
<td><strong>Had Access to Cigarettes</strong></td>
<td>53</td>
<td>45</td>
<td>8</td>
</tr>
<tr>
<td><strong>Type of Access to Cigarettes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offered without asking</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Could have bought them</td>
<td>10</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Could have &quot; bummed&quot; one</td>
<td>33</td>
<td>26</td>
<td>7</td>
</tr>
<tr>
<td>Stumbled across old pack</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

*a62 descriptions were obtained (54 from abstainers; 8 from relapsers)

b Not reported for 11 descriptions

c Not reported for 9 descriptions

d Not reported for 1 description
were at work and in public places such as a bar or restaurant. Other individuals were present during the temptation a majority of the time and, in these instances, most participants reported that at least one other individual was smoking. Most of the temptations included access to cigarettes; the most common types of access were being able to "bum" a cigarette or being able to purchase them.

Precipitators of temptation. Descriptions of tempting situations were coded using Marlatt and Gordon's (1979) Categories for Classification of Relapse Episodes. Because the investigator intended to compare the data from this investigation to data published by Marlatt and Gordon and she was familiar with their findings, an independent coder (trained by the investigator) coded the tempting situation descriptions. Table 20 summarizes the frequencies of situations coded into each general classification category.

-------------------
Insert Table 20 About Here
-------------------

The frequencies in the table suggest that the majority of tempting situations described by relapsers were interpersonal and they were precipitated either by social pressure or by the desire to enhance one's pleasure in an interpersonal setting. The majority of tempting situations described by abstainers were intrapersonal and they were primarily in response to negative emotional states. The second most common precipitator of abstainers' temptations was social pressure.
### Table 20

Frequencies of Tempting Situations Coded in Each General Classification Category for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Category</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrapersonal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping with negative emotional states</td>
<td>19</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>Enhancement of positive emotional states</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Urgings/cravings not related to emotional states or interpersonal situations</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Testing personal control</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Interpersonal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping with interpersonal conflict</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Social Pressure</td>
<td>24</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Enhancement of positive emotional state</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>
For all participants combined, responding to social pressure and coping with intrapersonal negative emotional states were the two main precipitators of temptations. A larger number of the social pressure situations involved indirect rather than direct pressure (i.e., responding to the observation of another person or group who are smoking, but who do not put direct pressure on the individual to smoke). In all of the situations classified as involving intrapersonal negative emotional states, individuals were coping with negative emotional states other than frustration or anger (e.g., anxiety, depression, loneliness). The third most common precipitator was internal urges, cravings or intense subjective desire in the absence of interpersonal factors. This was followed by situations involving coping with interpersonal conflict.

Examples of each of these four types of temptations are presented below. They represent a summary of information presented in questions 1 through 9 in the "description of tempting situation" section (Part A) in the follow-up questionnaire.

Social pressure (P 24): With old friends who I used to smoke with and I hadn't seen for a long time. I could have bummed a cigarette. The temptation occurred at 'coffee times.' I had an ache in my stomach I wanted one so badly. The main reasons for being tempted were companionship, my smoking buddies were visiting and relaxation. Being with former smoking friends made me want to smoke. I thought of how relaxing it would be.

Coping with intrapersonal negative emotional states (P 02): In a doctor's office, late morning with others who were not smoking. Did not have access to cigarettes. The main reason for wanting to smoke was because of bad news, the possibility of having a terminal illness.
Internal urge, craving (P 32): At home in the evening with husband who does not smoke. Could have purchased cigarettes. The main reason for the temptation was seeing cigarette advertisements in magazines. Please note, I haven't had any strong temptation, just once in a while such advertisements seem to remind me of smoking. I felt a longing for a cigarette—remembered it as soothing, comforting.

Interpersonal conflict (P 20): In the evening visiting parents. Others were smoking, could have bummed a cigarette. The main reason for the temptation was stress created by family anger and disagreement over major decisions.

Scale ratings. As part of the tempting situation descriptions, ratings were obtained on measures of feelings of self-control, the influence of lack of willpower, other people's influence, external influence and the stressfulness of the situation. The small number of abstainers and relapers reporting temptations at some of the follow-up months precluded comparisons of their ratings over time. However, comparisons were possible between abstainers' and relapers' ratings collapsed across time. Table 21 summarizes the mean ratings on each measure (collapsed across time) for all participants, abstainers and relapers.

-----------------------------
Insert Table 21 About Here
-----------------------------

Separate one-way ANOVAs on each measure indicated no significant differences between the average ratings of abstainers and relapers. Overall, these ratings suggest that individuals were feeling relatively in control of themselves prior to and during the tempting situation and slightly more in control of themselves after the temptation was resisted. The tempting situation was seen as
Table 21
Means, Standard Deviations and $F$'s for Tempting Situation Scale Ratings for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Measure</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X}$</td>
<td>$s$</td>
<td>$\bar{X}$</td>
<td>$s$</td>
<td>$\bar{X}$</td>
</tr>
<tr>
<td>Control during situation</td>
<td>5.24 1.73</td>
<td>5.28 1.77</td>
<td>4.75 1.28</td>
<td>.669</td>
<td>.42</td>
</tr>
<tr>
<td>Temptation due to lack of willpower</td>
<td>5.60 1.66</td>
<td>5.58 1.69</td>
<td>5.62 1.06</td>
<td>.004</td>
<td>.95</td>
</tr>
<tr>
<td>Temptation due to people close</td>
<td>4.41 2.24</td>
<td>4.58 2.16</td>
<td>3.25 2.49</td>
<td>2.56</td>
<td>.12</td>
</tr>
<tr>
<td>Temptation due to external factors</td>
<td>3.24 2.15</td>
<td>3.12 2.00</td>
<td>3.62 2.82</td>
<td>.383</td>
<td>.54</td>
</tr>
<tr>
<td>Stressfulness of situation</td>
<td>4.12 2.05</td>
<td>4.07 1.96</td>
<td>4.25 2.60</td>
<td>.052</td>
<td>.82</td>
</tr>
<tr>
<td>Control after situation</td>
<td>5.98 1.38</td>
<td>5.88 1.40</td>
<td>6.62 0.52</td>
<td>2.18</td>
<td>.14</td>
</tr>
</tbody>
</table>

$\text{a}$The response scale was "1" (not at all) to "7" (extremely).
moderately stressful. Temptations were believed to be due to a lack of willpower or loss of control more than due to the influence of other people or to external factors or situational circumstances.

**Coping strategies.** Individuals were asked to describe any thoughts they had and any actions they took in response to the temptations which enabled them to resist smoking. Working from the responses to these questions, coding categories for thoughts and for actions were developed in order to provide a summary of general coping strategies which had been used successfully. Five general categories plus an "other" category emerged from a review of the 62 responses (54 from abstainers; eight from relapers) to the "coping thoughts" question. The five categories have been labeled as follows:

1. **Thinking about having to start over again.** Responses which were coded into this category made reference to not wanting to smoke because if they did, it would mean having to "start quitting" all over again. Some individuals made reference to not wanting to go through the torture and misery experienced another time. Seven of the coping thoughts described (six from abstainers; one from a relaper) fit into this category. Examples include: "I thought of how hard it was to quit and I really didn't want to have to do it all over again."; "I thought of the five months that I've been through and how truly difficult it is to get over the psychological aspects of smoking and I don't want to go through it again."
(2) Thinking that all would be lost if one cigarette were smoked.

In contrast to thoughts which indicated a desire not to have to quit again, this category includes responses that indicated the individual would never quit again. Characteristic of these thoughts is the belief that the individual could not smoke only one cigarette; one cigarette would lead to a resumption of the former smoking habit and, thus, the individual would be a failure at quitting. Thirteen of the coping thoughts described fit into this category (12 from abstainers; one from a relapser). Examples include: "I don't want to begin smoking again as I don't think I could stop again."; "I realized that'd start me again--full blast."

(3) Thinking about negative health or physical consequences of smoking and/or positive health consequences of continued abstinence.

Recollections that smoking was not pleasurable and of the bad effects of smoking as well as rehearsal of the benefits of not smoking fall into this category. Thus, in these instances, individuals were focusing specifically on the act of smoking or of not smoking and were thinking about the practical health consequences. Eleven of the coping thoughts described fit into this category (nine from abstainers; two from relapsers). Examples include: "I made myself think of bad aspects of smoking--the smell, dizziness, etc."); "Health before desires."

(4) Thinking of smoking as unnecessary or unwanted. Fourteen of the coping thoughts described involved suppression, rejection, evasion, ignoring, dissociation, et cetera of the desire to smoke. Examples of this include: "The thought (of smoking) was an old fantasy, I
can't do that now."; "Smoking is senseless and dirty and I don't wish to be controlled by this." Thirteen of these were reported by abstainers; one was reported by a relapser.

(5) Thinking about letting others down. Two responses—both from abstainers—reported a coping thought which involved thinking specifically about how other people would be negatively affected by the individual's smoking. One stated, "I thought of all the people I would be letting down if I were to start smoking again."

(6) Other. This category includes responses to the question which did not fall into the other five categories and which did not logically comprise any other clear cognitive coping strategy. Almost one-quarter or 15 of the responses given to the question were coded as "other" (12 from abstainers; two from relapsers). Examples of undecipherable or logically inconsistent responses are: "I thought of how relaxing a cigarette would be,"; "My husband wouldn't buy me a pack,"; "I feel sorry for addicts." The rather large percentage of responses coded into this category may reflect a lack of clarity in the wording of the question and/or less-than-diligent filling out of the questionnaire.

Five general categories of coping actions emerged from a review of 57 questionnaire responses (50 from abstainers; seven from relapsers). Unlike the responses to the coping thoughts question, all of the descriptions of coping actions were classified into the five categories. The five categories have been labeled as follows:
(1) **Engaging in other oral behaviors.** Eight of the coping actions described involved either eating or drinking. All of these were described by abstainers. In several instances individuals made specific reference to providing themselves with an alternative source of oral gratification. Examples include: "Probably ate something instead (I've gained about 15 lbs. in past 3 months)"; "Popped a hard candy in my mouth."

(2) **Engaging in diverting activities.** This category includes descriptions of behaviors that were distractions rather than substitutions. Examples of this sort of coping action include: "I got involved in working,"; "I stopped looking at people's cigarettes and danced for several consecutive dances." Ten of the coping actions described fit into this category. This was the coping action most commonly reported by relapsers; four of the seven relapser responses were coded into this category.

(3) **Describe taking no action.** This category includes answers which describe the "action of not acting." Thus, some participants responded to the question by stating that they just did not smoke. Eleven of the coping actions described fit into this category (nine from abstainers; two from relapsers). Examples include: "Didn't smoke"; "Just didn't ask for one--not particularly difficult."

(4) **Describe cognitive action.** A large number of responses to this question (22) were descriptions of active mental actions taken. This number suggests that many participants did not make the distinction between cognitive and behavioral coping strategies in the same way that a psychologist might. Only one relapser response was
coded into this category, thus cognitive coping actions were described almost exclusively by abstainers. Examples include: "Prayer, I'm awfully glad that such an abstract action works for me"; "I thought of something else."

(5) Describe forgetting the temptation. Six of the responses to this question stated that the individual just "forgot about" smoking. All of these were described by abstainers. These responses basically described neither actions or thoughts. They seemed to indicate that in a small percentage of instances the temptation simply lost its salience for some abstainers. Examples include: "Just forgot about temptation to smoke, I'm certain I would not smoke even if a pack were on my desk"; "Not sure, just put it out of my mind."

Lifestyle information. At the conclusion of their description of a tempting situation, participants were asked if there were any specific activities they had been engaging in (e.g., exercise, crafts/hobbies) which they believed were helpful in staying off cigarettes and if they had noticed any changes in their social life during the last month.

Specific helpful activities were mentioned as part of all of the eight temptation descriptions obtained from relapsers. Helpful activities were reported for only 23 of the 54 temptation descriptions reported by abstainers. Most of the activities described by all participants were either exercise programs (e.g., jogging daily) or hobbies/crafts (e.g., knitting, reading, photography, etc.).
A noticeable change in one's social life was indicated following 15 of the tempting situations descriptions (13 from abstainers; two from relapsers). Participants stated either that they spent more time alone; spent more time with nonsmokers; or they noticed how much they disliked being around smokers at social functions.

**Occurrences of smoking episodes.** Descriptions of 36 smoking episodes were obtained during this investigation. These are descriptions of situations in which the individual first smoked a cigarette following a period of abstinence. Abstainers described 15 smoking episodes; relapsers described 21 smoking experiences. Twenty-six of the smoking episodes were reported during the first three follow-ups (10 from abstainers; 16 from relapsers). The greatest number of smoking episodes reported by abstainers was four, at the third follow-up. The greatest number reported by relapsers was six (at the first and third follow-ups).

**Common characteristics of smoking episodes.** Data pertaining to the common characteristics of the 36 smoking episodes are summarized in Table 22.

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**Insert Table 22 About Here**

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Examination of the frequencies in the table indicate that home in the afternoon or morning were the most common place and times for smoking episodes for both abstainers and relapsers. Other frequent settings were public places followed by work and friends' or relatives' homes. Other individuals were present during the smoking episode.
Table 22

Frequencies of Time, Place, Presence of Others, Access to Cigarettes, Thinking About Smoking and Conscious Decision to Smoke for Smoking Episodes for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Measure</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Setting</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>16</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Work</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Friend/relative's house</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Public Place</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Time of Day</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morning (6am-noon)</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Afternoon (noon-5pm)</td>
<td>11</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Evening (5pm-10pm)</td>
<td>9</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Night (10pm-6am)</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td><strong>Others Present</strong></td>
<td>25</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Others Present &amp; Smoking</td>
<td>21</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td><strong>How Obtained Cigarette</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offered without asking</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Bought it</td>
<td>9</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>&quot;Bummed&quot; it</td>
<td>17</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Thinking About Smoking Earlier</strong></td>
<td>16</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td><strong>Made a Conscious Decision to Smoke</strong></td>
<td>18</td>
<td>7</td>
<td>11</td>
</tr>
</tbody>
</table>

*36 descriptions of smoking episodes were obtained (15 from abstainers, 21 from relapsers)

b Not reported for 4 episodes
a majority of the time and, in these instances, most participants reported that at least one other individual was smoking. "Bumming" a cigarette or asking another smoker for one of his/her cigarettes was the most frequent means of obtaining the first cigarette. This was followed by buying cigarettes and being offered a cigarette without asking for it.

In nearly half of the smoking episode descriptions, individuals reported that they had been thinking about smoking earlier. A similar number reported making a conscious decision to smoke. The similarity in numbers, however, does not mean that only individuals who had been thinking about smoking earlier had made a conscious decision to smoke prior to having their first cigarette. For example, in eight of the smoking episodes, participants indicated that they had not been thinking about smoking earlier, but they did make a conscious decision to smoke prior to smoking the first cigarette. In six of the smoking episodes, participants reported having thought about smoking earlier, but not making a conscious decision to smoke.

**Precipitators of smoking episodes.** Descriptions of smoking episodes were coded by the independent coder using the coding system used to classify tempting situations. Table 23 summarizes the percentage of coded episodes in each general category.

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Insert Table 23 About Here

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Table 23

Frequencies of Smoking Situations Coded in Each General Classification Category for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Category</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrapersonal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping with negative emotional states</td>
<td>15</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td><strong>Interpersonal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping with interpersonal conflict</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Social Pressure</td>
<td>15</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Enhancement of positive emotional state</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>
Coping with intrapersonal negative emotional states and responding to social pressure were the two main precipitators of smoking for abstainers and relapsers. In the majority of situations classified as involving intrapersonal negative emotional states, individuals reported coping with negative emotional states other than frustration or anger (e.g., anxiety, depression, etc.). A larger number of the social pressure situations involved indirect rather than direct pressure to smoke (i.e., responding to the observation of another person or group who are smoking but who do not put direct pressure on the individual to smoke). For relapsers, these primary precipitators were followed by coping with intrapersonal conflict and enhancing positive emotional states in an interpersonal setting. Examples of each of these situations are:

**Intrapersonal negative emotional states** (P 04): Home alone in the afternoon. Smoked cigarettes from an old pack. Had been thinking about smoking earlier that day; did not make a conscious decision to smoke prior to the first cigarette. The main reason for smoking was lack of willpower. My husband was on a trip and I was lonely.

**Social pressure** (P 32): At work during mid-morning break with friends and fellow-workers. Two others were smoking. Bummed the cigarette. Had not been thinking about smoking earlier that day; did make a conscious decision to smoke prior to having the first cigarette. The main reason for smoking was hard to pin down, but I think it was actually seeing others smoke freely, smelling their cigarette smoke in the air. Some sort of lingering dependency perhaps?

**Interpersonal conflict** (P 17): At home after 8 pm with girlfriend who was smoking. Bummed the cigarette. Had not been thinking about smoking earlier that day and did not make a conscious decision to smoke prior to having the first cigarette. The main reason for smoking was tension because of girlfriend. Emotional feelings were making me feel inadequate to cope with girlfriend.
Enhance positive emotional state in interpersonal setting (P 15): In the afternoon at an outside picnic with wife and friends. Approximately twenty others were smoking. Bummed the cigarette. Had been thinking about smoking earlier that day and made a conscious decision to smoke prior to having the first cigarette. The main reason for smoking was I said the hell with it, it was my promotion and I was going to celebrate (I also had a few beers under my belt).

Scale ratings. The same scale ratings obtained from descriptions of temptations, with two additions—guilt and unhappiness—were also obtained as part of individuals' descriptions of smoking episodes. The small number of abstainers and relapsers reporting smoking episodes at some of the follow-ups precluded comparisons of their ratings at each time. However, comparisons were made between abstainers' and relapsers' ratings collapsed across time. Table 24 summarizes the mean ratings on each measure, collapsed across time, for all participants, abstainers and relapsers.

Insert Table 24 About Here

Separate one-way ANOVAs on each measure indicated that abstainers and relapsers differed significantly only in their ratings of how in control of themselves they were feeling after smoking their first cigarette. Relapsers reported feeling significantly less in control of themselves than abstainers. Although relapsers' and abstainers' average ratings of feelings of control during the smoking episode did not differ significantly, abstainers typically reported feeling slightly more in control of themselves after smoking a cigarette than they did during the episode. Relapsers, on the other typically
Table 24

Means, Standard Deviations and F's for Smoking Episode Scale Ratings for All Participants, Abstainers and Relapsers

<table>
<thead>
<tr>
<th>Measure</th>
<th>All Participants</th>
<th>Abstainers</th>
<th>Relapsers</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>s</td>
<td>X</td>
<td>s</td>
<td>X</td>
</tr>
<tr>
<td>Control during situation</td>
<td>3.91</td>
<td>2.13</td>
<td>4.20</td>
<td>2.18</td>
<td>3.62</td>
</tr>
<tr>
<td>Smoking due to lack of willpower</td>
<td>3.88</td>
<td>2.09</td>
<td>3.60</td>
<td>2.26</td>
<td>3.81</td>
</tr>
<tr>
<td>Smoking due to people close</td>
<td>3.82</td>
<td>2.16</td>
<td>4.00</td>
<td>2.33</td>
<td>3.57</td>
</tr>
<tr>
<td>Smoking due to external factors</td>
<td>3.09</td>
<td>1.84</td>
<td>3.27</td>
<td>1.75</td>
<td>2.71</td>
</tr>
<tr>
<td>Stressfulness of situation</td>
<td>4.64</td>
<td>2.15</td>
<td>4.67</td>
<td>2.26</td>
<td>4.90</td>
</tr>
<tr>
<td>Control after situation</td>
<td>3.88</td>
<td>2.10</td>
<td>4.73</td>
<td>2.09</td>
<td>2.95</td>
</tr>
<tr>
<td>Guilt feelings</td>
<td>4.47</td>
<td>2.03</td>
<td>4.07</td>
<td>2.28</td>
<td>4.76</td>
</tr>
<tr>
<td>Unhappiness feelings</td>
<td>4.71</td>
<td>1.48</td>
<td>4.60</td>
<td>1.68</td>
<td>4.80</td>
</tr>
</tbody>
</table>

aThe response scale was "1" (not at all) to "7" (extremely).
reported feeling slightly less in control of themselves after smoking. The situations/circumstances in which the first cigarette was smoked were rated as more than moderately stressful by abstainers and relapsers. During and immediately following their first cigarette, all participants reported feeling more than moderately guilty and unhappy.

No significant differences were found between relapsers' and abstainers' willpower, other people's influence and external factor influence ratings. When combined for all participants, the pattern of these ratings obtained in smoking episode descriptions is similar to that of tempting situation ratings. That is, individuals saw their smoking as influenced more by a lack of willpower or loss of control on their part than as due to the influence of other people or to external, environmental factors.

In addition to assessing the mean ratings for abstainers' and relapsers for each type of episode (temptation and smoking), ratings on the five measures obtained for both temptation and smoking episode descriptions were compared as a function of participants' smoking status at the conclusion of the investigation. That is, the five ratings were collapsed across type of situation and over time and then compared multivariately as a function of smoking status. Results of this analysis are summarized in Table 25.

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Insert Table 25 About Here

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Table 25

Means, Standard Deviations and F's for Tempting Situation and Smoking Episode Scale Ratings for Abstainers and Relapsers\textsuperscript{a}

<table>
<thead>
<tr>
<th>Measure</th>
<th>Abstainers</th>
<th>Relapsers</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X}$</td>
<td>s</td>
<td>$\bar{X}$</td>
<td>s</td>
</tr>
<tr>
<td>Control during situation</td>
<td>5.02</td>
<td>1.87</td>
<td>3.92</td>
<td>1.94</td>
</tr>
<tr>
<td>Lack of willpower influence</td>
<td>5.21</td>
<td>1.94</td>
<td>4.39</td>
<td>1.89</td>
</tr>
<tr>
<td>Other people influence</td>
<td>4.41</td>
<td>2.14</td>
<td>3.43</td>
<td>2.12</td>
</tr>
<tr>
<td>External factor influence</td>
<td>3.24</td>
<td>1.90</td>
<td>3.04</td>
<td>2.18</td>
</tr>
<tr>
<td>Stressfulness of situation</td>
<td>4.27</td>
<td>2.03</td>
<td>4.67</td>
<td>2.12</td>
</tr>
<tr>
<td>Control after situation</td>
<td>5.65</td>
<td>1.56</td>
<td>4.00</td>
<td>2.07</td>
</tr>
</tbody>
</table>

\textsuperscript{a}The response scale was "1" (not at all) to "7" (extremely).
A significant overall difference was found between abstainers' and relapers' ratings on the six measures, $F(6, 84) = 3.50, p \leq .004$. The univariate comparisons summarized in the table indicate that abstainers and relapers differed significantly in: a) their feelings of control during smoking or tempting situations; b) how much they believed their temptation or smoking was due to lack of willpower; c) how much they believed their temptation or smoking was due to the influence of other people; and d) their feelings of control after temptation or smoking situations. In all instances, the average ratings of abstainers were greater than relapers*. No significant differences emerged in comparisons of the other two ratings (external factor influence and stressfulness of the situation).

**Subsequent smoking behavior.** Relapsers followed their first cigarette with a second significantly more often than abstainers, $\chi^2(1) = 6.61, p \leq .02$. A second cigarette was smoked in 15 of the 21 smoking episodes reported by relapers; abstainers reported smoking a second cigarette in only five of the 15 smoking episodes they described. However, in those instances when more than one cigarette was smoked, abstainers and relapers did not differ significantly in the number of additional cigarettes they smoked, $F(1, 19) = 1.07, p \leq .31$. On the average, both groups smoked four additional cigarettes.

Relapsers also reported following their first smoking occasion with a second smoking occasion significantly more often than abstainers $\chi^2(1) = 7.05, p \leq .01$. Abstainers reported a second smoking occasion in four of their 11 smoking episode descriptions; relapers reported them in 15 of their 21 descriptions. Eight of these second
occasions (three abstainers; five relapsers) occurred within hours of the first (e.g., overnight); 10 (one abstainer; nine relapsers) occurred within days of the first; and one relapser reported a second smoking occasion more than a week after the initial smoking experience.

In only nine of the smoking episode descriptions did participants report that they subsequently returned to regular smoking. This figure is consistent with the overall number of participants who were classified as smokers at the conclusion of their participation. Seven individuals who relapsed reported returning to regular smoking within days of their initial smoking episode; the remaining two resumed regular smoking within hours of their first cigarette.

Comparisons of temptations and smoking episodes. The same coding system was utilized for identifying the precipitators of tempting situations and smoking episodes in order to compare the characteristics of each. Chi-square analyses were done on the frequencies of situations coded into the two major classifications and their various subcategories (as summarized in Table 20 and Table 23) to look for qualitative differences or similarities between the precipitators of each. There were no significant differences between the number of situations classified into the two main categories—intrAPERSONAL and interpersonal \( \chi^2(1) = .90, p = .50 \). There was a wider range of types of intrAPERSONAL temptation situations than smoking situations \( \chi^2(3) = 8.41, p = .05 \). No differences were evident in the number of situations coded into the interpersonal subcategories \( \chi^2(2) = .50, p = .80 \).
Comparisons of predicted smoking situations with actual smoking situations. The question of whether individuals can predict or anticipate under what circumstances they are likely to smoke following a period of abstinence can be addressed by an informal, impressionistic comparison of the situations described as high risk to smoke in the preliminary questionnaire with the actual smoking episodes described by participants during the follow-up period. During the course of the follow-ups, fifteen participants reported at least one smoking experience. Descriptions of anticipated high risk to smoke situations were provided by thirteen of these participants. As stated earlier, the majority of participants anticipated smoking in situations involving extremely negative feelings. Ten of the individuals who smoked fell into this category and eight of them smoked at least once in a situation categorized as coping with intrapersonal negative emotional states or coping with interpersonal conflict. In several instances the similarities between predicted and actual smoking episodes were striking. For example:

**Predicted smoking situation (P 11):** After a heavy date (or on a Friday night—tired, bored, with nothing better to do.  
**Actual smoking situation (P 11):** At home in the early evening alone. Main reason for smoking was loneliness and encroaching depression. I needed a calmative and some space to think which seems aided by a cigarette. Emotional involvement with a new male person going haywire.

**Predicted smoking situation (P 01):** Bad confrontation with one of my more recent lady friends.  
**Actual smoking situation (P 01):** Home in the evening alone. Expected date did not work out as anticipated (she couldn't show up for date!).
Three participants anticipated smoking situations involving some sort of social influence or pressure. All of them described at least one smoking experience that was coded as social influence. Again there were noticeable similarities between predicted and actual smoking experiences for two of the participants.

**Predicted smoking situation (P 14):** If we went to a party and I had a little too much to drink and the 'urge' to have a cigarette hit me and if someone offered me one of my brand.

**Actual smoking situation (P 14):** In the afternoon at a picnic with about 100 other people, several of whom were smoking. Was having a great time and felt like having one for the hell of it.

**Predicted smoking situation (P 32):** Being with a group of individuals, most of whom are smoking.

**Actual smoking situation (P 32):** At work during mid-morning break with friends and fellow workers, two others were smoking. The main reason for smoking was hard to pin down, but I think it was actually seeing others smoke freely, smelling their cigarette smoke in the air.

**Section 3: Final or Post Follow-Up Data**

At the conclusion of the research, participants were asked several questions concerning their experiences at trying to maintain nonsmoking. Information was obtained from the 23 participants who provided complete follow-up information. The final questionnaire was also mailed to those who had not responded to all follow-ups; three additional participants completed and returned it.

Responses to several of the final questionnaire items have been summarized in the first part of this chapter where pre and post data comparisons were made. These include participants' motivation and commitment to quit smoking, expectations for success at quitting, and expected difficulty in quitting ratings; percentage of smokers in one's immediate environment (Scope of Life); difficult situation ratings;
and lifestyle information regarding exercise, relaxation and hobbies. In this section, the remainder of pertinent final questionnaire data are summarized.

A significant difference was found between the average number of cigarettes per day the 10 relapsers reported smoking at the start of their participation and the average number they reported smoking per day in the final questionnaire (preliminary questionnaire: $\bar{X}=33.78$, $s=15.07$; final questionnaire: $\bar{X}=24.56$, $s=18.13$; $F(1,8)=6.75$, $p<0.03$). It appears that some participants did not completely resume their former level of smoking, although they did resume regular smoking. All but one participant indicated that there was a delay ranging from a day or less to a week between smoking their first cigarette and resuming their former smoking habit. The remaining subject reported that he never resumed his former smoking habit. The average number of cigarettes smoked between the initial slip and resumption of the former habit was 25.

When asked what they believed their reaction would be if they were to smoke a single cigarette in the future, 12 of the abstainers believed that they would be highly likely to return to their former smoking pattern. Four participants believed that they could handle it without resuming their former smoking pattern. Only one of the individuals who indicated the latter reaction had actually smoked and not resumed smoking during the follow-up period.

Participants were asked to indicate if they believed there were any people and/or circumstances which were influential in their remaining or not remaining nonsmokers. They were also also asked
whether they believed the influence was supportive or nonsupportive.

Nineteen of the participants (12 abstainers and seven relapsers) said that they believed other people were influential in their experience at trying to maintain abstinence. Ninety percent of the influential others were members of the participants' immediate family. Eleven of the 12 abstainers described other people's influence as supportive whereas only three of the seven relapsers felt they had received supportive influence from other people. Supportive influence was described primarily as: a) verbal praise for remaining abstinent; b) living with people who were allergic to or disliked cigarette smoke; c) expected harassment—particularly from one's children—if the individual were to resume smoking; and/or d) individuals who quit and stayed abstinent along with the participant. Nonsupportive influence was primarily described as individuals (family, friends or co-workers) who continued to smoke in the participant's presence.

Sixteen of the participants said that they believed certain circumstances were influential in their remaining or not remaining abstinent (10 abstainers and six relapsers). However, participants did provide descriptions of these circumstances. All of the circumstances described by abstainers could be classified as supportive of abstinence, for example: fearing death; pregnancy and/or young children in the house; serious illness or negative health effects experienced by the participant or significant others as a result of smoking. As one might expect, relapsers described unsupportive circumstances which were stressful events such as divorce, separation and business difficulties.
During the course of the study, one participant indicated on his questionnaire that he believed there was a difference between "thinking about smoking" and "being tempted to smoke." He said that while he thought about smoking from time to time, he could not really say that he was ever seriously tempted to smoke. As this seemed like an interesting distinction, a question was included to see if it was meaningful to other individuals who were abstaining. Almost all of the abstainers (15) did feel that there was a distinction between thinking about smoking and being tempted to smoke. Individuals pointed out that it was possible to think about smoking without actually desiring a cigarette. They also reported that they thought about smoking more often than they were actually tempted to smoke. A few of the more articulate explanations of the differences between thinking about smoking and being tempted to smoke were:

'Tempted' is a more emotionally and physically active process and likely to be much more difficult to deal with.

If I think about it I can logically deduce why I do not wish to (smoke). Tempting situation usually is almost like a lapse of memory.

Thinking is like day-dreaming--a pleasant way to make our inner wishes be what we want them to be. Temptation means reality and reality is not at all the same as day-dreaming.

Thinking about smoking: wouldn't it be nice to have a cigarette? If I were still smoking, I'd certainly have a cigarette now--too bad smoking's not good for you. Versus being tempted: I can barely stand not smoking; coming 'this close' to smoking.
CHAPTER IV

DISCUSSION

The process of trying to maintain abstinence from cigarettes—including maintenance failure or recidivism—was assessed for a small group of individuals who had quit smoking on their own. As a longitudinal descriptive research project, this investigation has provided a substantial source of information from which to start building a working understanding of the complex processes of smoking cessation, successful abstinence and relapse.

The first part of this discussion will highlight the primary differences which emerged between the experiences of abstainers and relapsers. As stated previously, this research was designed to both replicate and extend some of the existing literature on smoking cessation and recidivism. Following the summary, the discussion will focus on how the findings in this research replicate and extend research and theory on cigarette smoking in general and on the process of relapse following smoking cessation. Following this, limitations of the study and suggestions for future research will be discussed.

Abstainers and Relapsers

The majority of participants who provided information for six follow-ups and/or who completed both the preliminary and final questionnaires were classified as abstainers at the conclusion of the investigation. A number of differences were evident between these abstainers and relapsers.
At the start of their participation, abstainers indicated slightly higher strengths of commitment to quit and expectations for success at staying off cigarettes than participants who eventually relapsed. Cessation goals which left open the possibility of smoking one or more cigarettes in the future were primarily reported by relapsers, whereas abstainers primarily indicated complete, lifetime abstinence from cigarettes as their cessation goal. Interpersonally, relapsers reported a significantly greater percentage of smokers in their immediate environment than abstainers. Taken together, these differences suggest that there were two distinct groups of individuals from the outset. One of these was a group of individuals highly committed to attaining complete abstinence from cigarettes who believed that they would be successful in their efforts. Typically, two-thirds of the individuals in these participants' immediate social environment were nonsmokers.

Although the other group's commitment to quit and expectations for success at quitting were comparatively lower than the first, individuals in the second group did begin their participation with fairly high strengths of commitment and success expectations. However, they were more often committed to breaking their smoking habit but still occasionally having a cigarette than to lifetime abstinence from smoking. Typically, nearly half of the individuals in these participants' immediate social environment were smokers. It is not surprising that participants in this group were smoking regularly by the conclusion of the investigation and that those in the former group were nonsmokers.
Relapsers' greater vulnerability to resume smoking was also evident in ratings of how difficult it was to remain a nonsmoker which were given during the monthly follow-ups prior to their resumption of regular smoking. They reported significantly greater difficulty than abstainers did. Nearly all of the tempting situations reported by participants who eventually relapsed were precipitated by social pressure and they typically occurred in public places such as bars or restaurants. Abstainers' temptations were most often precipitated by a negative emotional state and they typically occurred at home.

Some participants who were classified as abstainers at the conclusion of the research did smoke one or more cigarettes during the six month follow-up period. The settings and precipitators of the smoking episodes reported by abstainers did not differ from those reported by relapsers. Smoking episodes occurred most often in the morning or afternoon. The principle settings were at home or at work. Coping with intrapersonal negative emotional states and social pressure were the most common precipitators of smoking experiences.

Abstainers did report feeling more in control of themselves after they smoked their first cigarette than relapsers did. Relapsers' feelings of lack of control following the initial cigarette were evident in the finding that significantly more relapsers smoked one or more cigarettes after their first cigarette and followed this first smoking occasion with a second significantly more often than abstainers did.
When control, influence and stressfulness ratings obtained as part of temptation and smoking episode descriptions were combined and then compared between abstainers and relapsers, a few differences emerged. Overall, abstainers reported feeling more in control of themselves during as well as after temptations and smoking episodes. In addition, abstainers perceived significantly more influence from lack of willpower and from people close to them than did relapsers.

Several differences which appeared to reflect their experience during the investigation were found between abstainers' and relapsers' responses to the final questionnaire. Significant differences were found between abstainers' and relapsers' strength of commitment to quit smoking, expected success abstaining and expected difficulty abstaining. Abstainers reported higher commitment, higher success expectations and lower difficulty expectations than relapsers. Comparisons of final questionnaire ratings with preliminary questionnaire ratings showed that abstainers' commitment and expected success ratings were virtually the same and their difficulty expectations were considerably lower at the conclusion of the investigation. On the other hand, relapsers' commitment and expected success ratings were much lower and their difficulty expectations were considerably higher at the conclusion of the investigation.

Five general categories emerged from a factor analysis of participants' final questionnaire ratings for 21 potentially tempting situations. Three of these categories included situations which could be considered salient tempting or difficult situations. Relapsers' ratings were significantly higher than abstainers' for the majority
of situations in these three categories.

On the final questionnaire, relapsers reported nonsupportive influence from other people and external circumstances whereas abstainers reported supportive interpersonal and/or circumstantial influence in their efforts at nonsmoking.

In summary, then, several factors have emerged from this investigation as potentially important distinguishers between individuals who were able to maintain nonsmoking and those who were not. Individuals' strength of commitment to total abstinence from cigarettes and their confidence in or expected success at maintaining nonsmoking were two important intraindividual factors. Another individual factor was participants' feelings of self control after an initial "slip" or smoking one cigarette. Potentially important interpersonal factors were the percentage of smokers in one's immediate environment and the availability of support for one's efforts from significant others. These factors will be further examined in the following section where the findings from this investigation are discussed in the context of current theory and research.

**Current Theory and Research**

When the dynamics underlying the process of cigarette addiction were examined within a social learning framework, several variables were cited as relevant to understanding relapse. These included: (1) the severity of withdrawal symptomatology; (2) the experience and control of negative emotional states; and (3) the social supports and smoking or nonsmoking environment of the individual trying to
maintain abstinence.

Consistent with the views of Shiffman (1979a), no evidence emerged from this research supportive of relapse being strongly related to the degree or severity of withdrawal from cigarettes. Many participants did refer to their initial withdrawal as quite severe and unpleasant (e.g., when reporting what thoughts they had in dealing with temptations to smoke). The level of reported symptomatology (as assessed on Shiffman and Jarvik's scale) did decline over the course of subjects' participation. This could be due to an actual decrease in withdrawal symptoms; it is also plausible that the response pattern resulted from repeated exposure to the questionnaire. However, none of the initial smoking episodes were described as primarily involving severe craving or intense subjective desire in the absence of emotional and/or interpersonal factors. It is important to keep in mind, however, that most individuals began their participation in this research having maintained abstinence for several weeks. Thus, the sample was biased in favor of participants who did not succumb to their initial withdrawal symptoms. The findings could be different for a sample of individuals who were tracked from the start of their abstinence or cessation attempt. In this instance, Gritz's (1980) recommendation to look at the relationships between expected withdrawal severity and actual withdrawal severity and between actual withdrawal severity and success at abstinence could be fruitful.
The experience and control of negative emotions did emerge as important for an understanding of the experiences of both abstainers and relapsers. Nearly forty percent of the tempting situations and over fifty percent of the smoking episodes involved the experience of some negative or dysphoric emotion. It appears that smoking cigarettes is perceived as a viable and effective way of dealing with these feelings. It is not surprising, then, that at the conclusion of the study participants rated situations where one is feeling angry or upset, anxious or fearful, sad or depressed as the three hardest situations to deal with without smoking a cigarette. These data imply that individuals' beliefs about the effects of cigarettes or about what cigarettes can do for them is a salient intrapersonal factor. Pomerleau's (1978) findings that people who smoked primarily in negative emotional states (dysphoric smokers) were more likely to have relapsed one year after completing a treatment program suggest that assessment of most frequent types of smoking as well as beliefs about the benefits of smoking could be useful.

Information regarding social factors and nonsmoking maintenance which resulted in this research is consistent with Eisinger's (1971) earlier work. The presence of young children in the house as a deterrent to resuming smoking was mentioned in a couple of contexts. A few participants cited wanting to set a nonsmoking example for their children as part of their motivation for quitting smoking. Young children's presence was also mentioned by participants at the conclusion of the study as having provided supportive influence for maintaining abstinence. For example, one participant wrote about
his son, "for a 10 year old, he knows all the magic phrases: 'If you want to quit you can' and he doesn't like being in a closed car with cigarette smoke at all." Another wrote, "My children do not smoke and the youngest 3 really get on my case if I start to weaken!"

Eisinger also found that the smoking behavior of the twenty people his participants knew best was predictive of success at maintaining nonsmoking. Although this measure was not included in the present investigation, there are data which are consistent with his findings. Relapsers were found to have significantly more individuals in their immediate social environment who smoked than did abstainers. In addition, the continued smoking of significant others in participants' lives was often mentioned as interpersonal influence which was not supportive of their continued abstinence. On the other hand, some successful abstainers reported that other people quitting at the same time was supportive of maintaining nonsmoking.

Aside from the influence of one's immediate social environment on maintaining nonsmoking, a more general sociocultural influence may work against long term abstinence following smoking cessation. In their discussion of the issue, Shor et al (1980) referred specifically to sociocultural norms about cigarette smoking. These norms may be part of an even larger system which generally endorses the use of substances for a variety of purposes.

When discussing the issue of addiction and substance abuse, professionals often refer to our society as "substance oriented" (e.g., Ray, 1978; Cummings, 1979). The issue is often raised as to whether the general public has been led to believe that their lives
should be relatively free of unpleasant feelings and stress and, if their lives are not, that they can attain an optimal state of well-being chemically. Consistent with this view, one participant in this research (a medical doctor) said that he believed cigarettes and alcohol were the two most commonly self-prescribed antidepressants. Cigarettes are certainly readily available and, as Shor et al have pointed out, smoking them is seen as normal, acceptable, appropriate, etc. In addition, there are many instances in which smoking is appropriate and accepted but drinking alcohol is not. When combined, these two sociocultural factors—a substance oriented society and the large scale acceptance of cigarette smoking—can exert powerful and yet subtle influence against long term abstinence from cigarettes.

The relationship between availability of cigarettes, exposure to others smoking, and difficulty maintaining abstinence is evidenced by reported access to cigarettes when in a tempting or smoking situation and by the general precipitators of smoking and temptation. In over eighty percent of all temptations described, participants reported having access to cigarettes; being able to "bum" a cigarette was the most common access. Requesting a cigarette from another person was also the most common way of obtaining the first cigarette in smoking episodes. Perhaps even more indicative of the influence of sociocultural norms which are accepting of cigarette smoking is that social pressure was implicated as the precipitator of over a third of the temptation and close to half of the smoking experiences. In these situations, individuals were tempted or smoked in response to the influence of another individual or group of individuals who
exerted pressure (either direct or indirect) on the individual. Most of the social pressure situations described in this research involved indirect pressure where the individual was responding primarily to another person or group who served as models of smoking.

Closer investigation of the circumstances (e.g., times, places, social contexts, etc.) surrounding relapse has been advocated by a number of investigators (e.g., Mair, 1970; Gritz, 1980; Lichtenstein, 1977). This study provided both replication and extension of Marlatt and Gordon's (1979) research on this issue.

There were both similarities and differences between the characteristics of tempting and smoking situations from this research and the characteristics of smoking episodes from Marlatt and Gordon's work. Home, followed by work and public places were the most common settings for both samples' smoking episodes and this study's temptations. There were some differences in the time of day that smoking occurred. Most of the smoking episodes reported by Marlatt and Gordon occurred in the evening, whereas the smoking episodes and temptations reported in this study were more evenly distributed from morning to night. In Marlatt and Gordon's research, 16% of the relapses occurred in the evening, compared to 25% of the smoking episodes and 30% of the temptations reported in this study. These differences could be due, in part, to differences in how morning, afternoon and evening were defined. If the percentage of situations coded as occurring at night in this study are combined with the evening percentages, the figures are somewhat closer to Marlatt and Gordon's data (smoking episodes - 41% in the evening; temptations - 53% in the evening).
Coping with intrapersonal negative emotional states, social pressure and coping with interpersonal conflict were the three most common precipitators of smoking in both studies. In both samples, feelings other than frustration or anger most often characterized the intrapersonal negative emotional states. The major difference between the precipitators was with regard to the type of negative emotions experienced when coping with interpersonal conflict. Marlatt and Gordon found anger and frustration to be the two emotions most commonly associated with smoking episodes precipitated by interpersonal conflict. None of the smoking episodes and only a small percentage (2%) of the temptations in this research were seen as precipitated by anger and frustration from interpersonal conflict.

Work in progress by Jarvik and Shiffman (1981) has identified anger and depression as the two most common affective precursors of relapse. They did not make the distinction between intra and interpersonal sources of negative feelings. In a brief summary of findings to date from another study in progress, Colletti and Supnick (1981) reported using Marlatt and Gordon's classification system to code relapse situations obtained from cessation program participants. They reported differences between their data and Marlatt and Gordon's but did not state specifically what those differences were.

Comparisons between tempting situations and smoking episodes (presented in the previous chapter) extended existing information on the relapse process by demonstrating that individuals who smoked following abstinence from cigarettes encountered the same type of temptations as those who were tempted but did not smoke. The
comparisons between the data from this study and other investigations of relapse (discussed above) suggest that there are common, identifiable characteristics of high risk to relapse situations. Unlike other research on the characteristics of relapse situations, participants in this investigation had not quit by way of a formal cessation program. Thus, these comparisons also suggest that the nonsmoking and relapse experiences of self-initiated quitters are not qualitatively different from those of program participants.

In addition to providing replication and extension of information about the characteristics of relapse episodes, data from this study can be interpreted in the context of Marlatt and Gordon's cognitive behavioral model of the relapse process. (The reader is referred to pages 18-20 for a complete description of the model). Self-efficacy, perceived control over oneself, and one's reaction to an initial "slip" (smoking one cigarette) are among the factors identified as important in the relapse process.

Marlatt and Gordon (1979) related individuals' expectations of being able to cope with high risk to relapse situations to Bandura's (1977) notion of self-efficacy. They theorized that as individuals successfully cope with tempting situations, their belief in their ability to remain abstinent would increase and thus the probability of a relapse during subsequent temptations would decrease. Participants' expectations for success at maintaining abstinence can be taken as an index of self-efficacy. One would assume that the higher one's success expectations, the more confidence one has in his/her ability to refrain from smoking. The differences between success expectations for abstainers
and relapsers that emerged in this study support the relevance of self-efficacy to successful maintenance of nonsmoking. Relapsers had lower expectations for success than abstainers at the start of the research and a marked decrease in success expectations at the conclusion of their participation.

One might assume that those with lower expectations for success at the start of their participation would have less confidence in their ability to deal successfully with a high risk to relapse situation. This lack of confidence could result in an increased probability of the individual smoking a cigarette when confronted with a strong temptation to smoke.

Marlatt and Gordon related perceived self-control or feelings of powerfulness to self-efficacy. They theorized that successfully coping with a temptation to smoke would lead to increased feelings of self-control as well as self-efficacy. Conversely, smoking in response to a temptation would result in lessened feelings of self-control and self-efficacy. Comparisons of reported feelings of self-control prior to a high risk situation and after the situation for abstainers and relapsers support this conceptualization. Abstainers reported feeling more in control of themselves during high risk situations than did relapsers. In addition, abstainers indicated a slight increase in feelings of self-control at the conclusion of the experience. This was true for abstainers even after they "slipped" or smoked a cigarette. It is possible that their higher feelings of self-control and expectations for success contributed to their ability to resist progressing from a single smoking experience to regular
smoking. Relapsers, on the other hand, were approaching high risk situations with lower expectations for success and lower feelings of self-control. This could have contributed to their progression from a single slip to regular smoking.

An important aspect of Marlatt and Gordon's model of the relapse process is their distinction between a "slip" and a full-blown relapse. This distinction is supported by several instances in this study of participants smoking cigarettes but not returning to regular smoking. An important contributor to whether a slip leads to a relapse is the individual's reaction to the initial slip. Marlatt and Gordon defined an Abstinence Violation Effect (AVE) as one precursor to a full-blown relapse. The AVE involves feelings of having "blown it". The individual identifies him/herself as a weak person who is a "failure" at abstinence. Feelings of guilt and unhappiness can accompany these self-attributions. Thus, smoking one's first cigarette is seen as the first dominoe falling in the chain that leads to regular smoking again. It would not be surprising that an individual who experienced the AVE would return to regular smoking. The reactions to initial smoking episodes reported by participants in this research who returned to regular smoking were consistent with the characteristics of Marlatt and Gordon's AVE. Most participants reported feeling guilty or disappointed in themselves for smoking. No one reported feeling good about themselves following smoking. However, some participants reported enjoying the cigarette. For example, one person said he felt "relaxed," another said the "cigarette tasted quite good," and a third person said, "After I finished it, it was like I had fooled
the devil, like, 'ha ha, I had one and I'm not dead'."

Data from this study suggest that people set themselves up for an AVE with their expectations concerning their reaction to smoking a single cigarette. This is evident in the large number of individuals who reported at the start and conclusion of their participation that they would be highly likely to return to their former smoking pattern after smoking a single cigarette. While it is possible that this belief prevents individuals from smoking following cessation, it may also contribute to the high relapse rates. Given the large percentage of individuals who relapse following smoking cessation, it is highly likely that a person will smoke one cigarette after "quitting." If one expects that smoking one cigarette means resuming regular smoking, then the feelings of failure and guilt which characterize the AVE would follow and could result in a self-fulfilled prophecy.

Summary. The findings from this study replicated and extended existing research on smoking cessation and relapse. The individual and interpersonal variables which emerged as relevant to understanding the nonsmoking experience of abstainers and relapers were consistent with the variables highlighted from an analysis of the process of cigarette addiction within a social learning theoretical framework. The findings also suggest the importance of further examination and articulation of sociocultural influence on the nonsmoking experience. Comparison of the data from this investigation on the precipitators of temptation and smoking experiences with data on relapse episodes from other research support the existence of universal, identifiable determinants of relapse.
Results from this research were also supportive of Marlatt and Gordon's cognitive behavioral model of the relapse process. The experiences of participants in relapse situations with regard to self-efficacy, self-control and reactions to smoking were consistent with the predictions of the model.

Limitations of the Present Investigation

This was a preliminary, laying-the-groundwork research project. In light of this, there are limitations to this investigation.

Data were obtained from a relatively small sample of individuals. Although all of the participants had quit smoking on their own, a larger percentage had at one time participated in a formal cessation program than one would expect to find in a random sample of quitters (29% versus 2%, respectively). Thus a problem regarding the "representativeness" of this sample exists which is similar to the problem with studies which include only program quitters: does the experience of these individuals in any way represent the experience of the majority of people trying to quit smoking?

As a longitudinal study, this research had the potential to provide information on the temporal characteristics of relapse as well as on the stability of the nonsmoking experience over time. In most instances, however, the wide range of times off cigarettes at the start of participation precluded the exploration of these issues. The temporal course of relapse was quite varied. Some participants relapsed within days of quitting, some within weeks and others within months. The wide range of lengths of abstinence at the start of the study also meant that some participants had probably
had a number of experiences related to maintaining abstinence from cigarettes which were not assessed and yet might have had an effect on the experiences reported during the study.

Aside from sample limitations, a few problems with the questionnaires were evident at the conclusion of the research. The numerical scale used in Shiffman and Jarvik's withdrawal symptom questionnaire was sometimes confusing for participants and may not have provided a clear index of symptom experience. Participants were asked to respond on a numerical scale which ranged from 1 (not at all) to 4 (neutral) to 7 (extremely). Some of the questions asked participants to indicate whether they had experienced a particular symptom "more than usual." A few participants indicated that they did not know whether "neutral" meant "no more experience of the 'symptom' than usual" or if "not at all" was the better choice.

Results from this research indicated that abstainers encountered tempting situations similar to those in which relapsers smoked their first cigarette. Several types of coping strategies which abstainers used to successfully deal with high risk situations were also identified. Participants describing smoking episodes were not asked whether they tried to cope with the high risk situation and, if so, how. As a result, this research could not provide information concerning the types of coping strategies that are most effective and whether individuals succumb to temptation because they do not engage in any coping responses or because they use ineffective ones.
Participants who were successfully maintaining nonsmoking were asked whether they believed they were engaging in any activities which they believed influenced their abstinence and whether they were noticing any changes in their social life. Both of these questions were included in the follow-up questionnaires in order to obtain suggestions for helping individuals successfully remain abstinent in the future. Unfortunately, the questions were placed such that they were answered only by abstinent participants who described a tempting situation. This precluded obtaining data from those who were abstinent and had not been seriously tempted to smoke during the follow-up month.

Although all of the participants were considered self-initiated quitters, participation in this investigation could be construed as a potential interventive factor. As such, it is possible that participation itself influenced the smoking or nonsmoking behavior of the individuals. This influence could have been either supportive or nonsupportive of abstinence. It could have been supportive in that participants may have resisted the temptation to smoke so that they would not have to report a "failure" to the investigator. In addition, the monthly follow-ups could have provided abstainers with the opportunity to reflect on their continued success and to report this success to someone who was genuinely interested in their experiences.

On the other hand, participation in the investigation may have caused individuals to be more aware of their abstinence efforts and their cravings and, thus, could have increased their desire to smoke
and their likelihood of relapsing. No data which would bear directly on this issue were obtained. However, the relapse rate of 38 percent among the 26 participants providing pre and post data was lower than the 50 to 70 percent range reported in the literature.

The smoking or nonsmoking behavior of all participants in this research was not verified independently. Thus, all of the reported data on number of relapsers and abstainers was based only on participants' self-reports.

Suggestions for Future Research

In spite of the above-mentioned limitations, this research project has demonstrated the feasibility of recruiting individuals from the general public to participate in a longitudinal investigation. Given that no financial or treatment program incentives were offered, it is encouraging that 76% of the initial participants provided data for six follow-ups. With time lags for sending and receiving questionnaires through the mail, this often meant eight or nine months total participation. The following recommendations for future research are offered on the basis of the author's experience conducting this research, the findings which emerged and the investigation's limitations.

The use of newspaper ads for recruiting participants was reasonably successful and I would recommend their use in future studies. Given the potential benefits of research of this kind, it would be worthwhile to pursue possibilities for public service radio and television recruitment announcements. Large industries could also provide a means for recruiting participants. In order for a longitudinal study of this
nature to provide meaningful data on the temporal course of relapse and/or on the characteristics of the nonsmoking experience over time, a fairly large sample, preferably including recent quitters is necessary. More vigorous recruitment could be directed at individuals who have not yet quit, but who are planning to quit in the near future. This would increase the likelihood of being able to follow participants from the very early stages of cessation. In order to assess the effect of participation in a longitudinal study of this nature on maintaining abstinence, future investigations could include a control group of quitters who are only contacted at the start and conclusion of the study.

It may also be desirable to extend this research to particular high risk populations. For example, area medical doctors could be asked to refer cardiovascular patients who are quitting smoking for participation in the research.

Changes reflecting the instrument limitations discussed above are recommended for future use of this study's follow-up questionnaires. This includes: (1) changing the numerical scale or the symptom question wording on the withdrawal symptom questionnaire; (2) moving the lifestyle change questions to the beginning of the temptation section of the second follow-up questionnaire; (3) including questions regarding attempted strategies for coping with the temptation to smoke in the description of smoking experience section of the follow-up questionnaire.
Several variables emerged from this study which could be assessed in more depth in future research. Participants' strength of commitment to quit smoking and expected success at maintaining abstinence may be important individual factors which influence the nonsmoking experience. More direct assessment of individuals' feelings of self-efficacy at the start of their attempt to quit and when encountering high risk to relapse situations is recommended. Self-efficacy could be assessed by providing individuals with various types of high risk situations and asking them how confident they would be in their ability to cope with each of them. Chaney (1979) uses a questionnaire similar to the one suggested in his work with alcoholics. This questionnaire, along with descriptions of tempting and smoking situations obtained in this research provide a base from which such an instrument could be developed.

Data from this study suggested that many people use cigarettes to help them deal with negative feelings. Marlatt and Gordon's model, which was supported by data from this research, suggests that if individuals have positive expectancies about the effects of smoking, then the likelihood of a relapse following initial smoking is increased. Thus, another individual variable which could be assessed is participants' beliefs or expectations about what smoking cigarettes can do for them. This could also be assessed at the start of their attempt to quit and when participants describe high risk situations.
Interpersonal or social factors appeared to play an important role in the experiences of participants in this study as well. Relapsers had a significantly higher percentage of smokers in their home, work and social environments; the presence of smokers in one's life was mentioned by several participants as specifically influential in their return to smoking. Future research could focus on the dynamics of this interpersonal influence. Potential research questions include: (1) Are quitters who live, work and socialize with smokers "doomed" to relapse; (2) How do abstainers who have smokers in their lives deal with the smokers; (3) Do the smokers in abstainers' lives change or accommodate their smoking in a supportive way and, if so, how? Using significant others to verify participants' smoking or nonsmoking could provide the opportunity for additional assessment of social supports and interpersonal influence.

Participants' descriptions of tempting situations and smoking episodes suggest that social factors beyond the interpersonal influence relapse. Further articulation and assessment of the Social Support System of Smoking (SSSS) is important for a more complete understanding of the nonsmoking experience and the relapse process. A questionnaire designed by Shor and Williams (1978) could be adapted for inclusion in future research. Potential research questions include: (1) How aware of the SSSS are individuals who are trying to maintain abstinence from cigarettes; (2) How salient is this influence on them; (3) Are successful abstainers more aware of it; less aware; (4) Do individuals make adjustments in their lives in response to sociocultural factors?
It is important that future research on the process of maintaining nonsmoking not focus exclusively on theory building and testing. The clinical applications of research findings from studies such as this one could also be explored in future research projects. For example, on the basis of the findings from this preliminary research, a relapse prevention program could be designed which focused on: (1) increasing individuals' feelings of self-efficacy; (2) confronting individuals' positive expectancies of smoking cigarettes; (3) assessment of skills for coping with high risk situations and training of additional skills as necessary; (4) strategies for dealing assertively with a socio-cultural support system of smoking.

Conclusion

The feasibility of conducting longitudinal research on the experiences of individuals who quit smoking on their own has been demonstrated by this research project. The factors which emerged from this study as potential determinants of relapse were consistent with existing theory and research. Marlatt and Gordon's theoretical model of the relapse process was supported. Data on the experiences of successful abstainers obtained in this study contributed to a working understanding of nonsmoking maintenance. The factors which emerged from this study as important for more in-depth understanding of long term maintenance of nonsmoking and intervention for relapse prevention are: (1) individuals' confidence in their ability to remain nonsmokers (self-efficacy); (2) expectancies about the outcome of smoking following abstinence; (3) coping strategies used for dealing with the temptation to smoke; (4) the influence of significant
others who smoke on relapse; and (5) the influence of sociocultural factors on relapse.

The primary limitations of this study were with regard to sample size, participants' lengths of abstinence at the beginning of their participation and specific aspects of the questionnaires utilized. These limitations could be corrected in future research projects of larger scope.
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APPENDICES
APPENDIX A

PRELIMINARY QUESTIONNAIRE

CODE #_________ DATE_________

We are interested in gathering some background information and some information on the reasons why you have chosen to quit smoking at this time. Although many people have attempted to quit smoking, some are more successful than others. No one seems to know much about why some individuals achieve success in this endeavor, while others have more difficulty. This questionnaire is designed to provide us with some information about this issue. Perhaps something you tell us on this questionnaire will turn out to be predictive of your own outcome with regard to smoking. If so, we will be able to provide this information to others who are trying to quit, to help them in their own attempts to kick the habit. Please take time to fill out this questionnaire carefully, and try to be honest and candid in your replies. The information you give us here may be of considerable help to us in designing and developing new and effective smoking cessation programs. Thank you for your time and attention. (NOTE: If you need more space for your answers, feel free to use the back of this page).

*******

Age:
Sex:
Occupation/month:
Income/month:
Marital Status: Single___ Married___ Living with___ Divorced/Separated ___ Widowed___
Education: High school diploma___ # years college___
college degrees______________

PART I - Reasons why you have decided to quit smoking

1. Take a few moments now to sit back and reflect on the reasons why you have chosen to stop smoking at this particular time in your life. In the space below, please describe the most important reasons or circumstances that have influenced your decision to quit smoking at this time:
2. Listed below are several reasons why someone might decide to quit smoking. Look at this list, and rank order the items in terms of how important each reason is for you in your own personal decision to quit. Give the most important reason the rank of 1 in the space provided; give the second most important reason the rank of 2 and so on for each of the seven items. Please rank every item in this way.

<table>
<thead>
<tr>
<th>Rank of Importance</th>
<th>Reason for Quitting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Smoking is having a harmful effect on my current physical well-being</td>
</tr>
<tr>
<td></td>
<td>Smoking will probably be harmful to my health in the long run</td>
</tr>
<tr>
<td></td>
<td>Other people who are important to me want me to quit smoking or would be very happy if I quit</td>
</tr>
<tr>
<td></td>
<td>I feel dependent on my smoking habit, and I want to be free of this dependency habit</td>
</tr>
<tr>
<td></td>
<td>Smoking is an expensive habit</td>
</tr>
<tr>
<td></td>
<td>I don't like my social or public image as a smoker</td>
</tr>
<tr>
<td></td>
<td>I don't enjoy smoking as much as I used to</td>
</tr>
</tbody>
</table>

3. Was there a particular event or series of events that had a significant impact on your decision to quit smoking at this time?

   [ ] Yes  [ ] No

If you answered Yes, please provide a brief description of this event:
Part II - Motivation and commitment to quit smoking

1. We would like to know how strongly you are committed to stay off cigarettes at this time. On a scale from 1 to 100, with "1" representing the lowest strength of commitment, and "100" representing the strongest possible commitment to quit, give yourself a rating (choose any number between 1 and 100) of your own strength of commitment to stay off cigarettes at this time: ____________.

2. I would like to know how successful you expect to be in your attempt to stay off cigarettes at this time. Be realistic about this, based on your past experiences and your present strength of motivation. On a scale from 1 to 100, with "1" representing the lowest expectation of success, and "100" representing the highest expectation of success in quitting smoking, give yourself a rating of your own expectations of success in quitting smoking (remember, the higher the number, the greater the expectation of success): ____________.

3. I would like to know how difficult you think it will be for you to remain abstinent from smoking. On a scale from 1 to 100, with "1" representing the least amount of difficulty, and "100" representing the greatest amount of difficulty, give yourself a rating of how difficult you think it will be for you to quit and remain abstinent (remember, the higher the number, the more difficult you think it will be for you to remain abstinent): ____________.

4. I want to know the goal you have chosen for yourself with regard to your smoking at this time. Look over the goals listed below first, and then place a check mark next to the one goal that best represents your own goal at this time:

<table>
<thead>
<tr>
<th>Check</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I want to quit smoking once and for all, to be totally abstinent, and never to smoke even one cigarette again for the rest of my life</td>
</tr>
<tr>
<td></td>
<td>I want to become an ex-smoker once and for all, even though I realize that I may slip up and have the occasional cigarette once in a while</td>
</tr>
<tr>
<td></td>
<td>I don't want smoking to be a habit for me anymore, but I would like to be able to have the occasional cigarette when I really want to have one</td>
</tr>
<tr>
<td></td>
<td>I want to become a &quot;controlled smoker&quot; - to limit the number of cigarettes I have to a fixed number for any given period. For me, I would like to limit the number of cigarettes I have to no more than _____ (indicate upper limit) per ____ (indicate time interval, e.g., per &quot;day&quot;, per &quot;week&quot;, per &quot;month&quot;, or per &quot;year&quot;)</td>
</tr>
</tbody>
</table>

continued on next page....
I want to be totally abstinent from all smoking for a period of time, after which I will make a new decision about whether or not I will smoke again in any way. For me, the time period I want to be abstinent for is ____________________________ (indicate time period, e.g., one month, one year, or whatever, if you have decided on a time period).

I don't really have a fixed goal in mind

None of the goals listed above applies exactly to me. My goal for myself is as follows:
SCOPE OF LIFE

We would like to get a "picture" of the type of smoking (or nonsmoking) environment you are trying to remain a nonsmoker in. The circle below represents the scope of your life with you in the center. Each division of the circle is an aspect of your life. Within the circle place smaller circles in the appropriate division for the people you know. The closer a person is to you, the closer you should place him or her to you in the chart; i.e., your wife or husband would be close to you and a vague acquaintance near the outer limits of the circle. Using the code shown below, mark each circle according to each individual's smoking status. Also, please place the initials of the person each circle represents next to the circle.

WHERE I LIVE

WHERE I WORK

WHERE I PLAY

CODE

○ = SMOKER
○ = NON-SMOKER
☒ = EX-SMOKER

Source: American Cancer Society
Part III - Social factors relevant to maintaining abstinence

1. Are there people in your life (family, friends, co-workers, etc.) who you believe will be helpful/supportive in your effort to stay off cigarettes? Yes No

If you answered Yes, what is your relationship to this person or persons?

________________________________________

In what way do you expect him/her/them to be helpful?

2. Are there people in your life (family, friends, co-workers, etc.) who you believe will be a hindrance/nonsupportive in your effort to stay off cigarettes? Yes No

If you answered, Yes, what is your relationship to this person or persons?

________________________________________

In what way do you expect him/her/them to be a hindrance?
Part IV - Plans and strategies for maintaining abstinence

1. Some people develop techniques, strategies, or attitudes that they plan to use to resist the temptation to go back to smoking after having quit. I would like to know if you have any ideas about how you will handle the urge to smoke again. In the space below, please list any strategies, beliefs or techniques you plan to use to handle temptations or urges.

2. Some people develop specific incentives to help them resist the temptation to resume smoking. For example, some individuals plan to offer themselves a reward or some positive consequences for maintaining abstinence, while others plan to punish themselves in some way if they resume smoking (e.g., pay a fine or give up some rewarding activity if they go back to smoking). Have you developed an incentive (reward or punishment) for yourself to help you maintain abstinence?

_____Yes _____No

If you answered yes, please briefly describe the incentive you have chosen to use:
3. Some people use other individuals in some way to help them resist the temptation to resume smoking. For example, perhaps you have told or are planning to tell important people in your life that you have quit smoking. Or perhaps you make a promise or a strong commitment to someone else that you would quit smoking. If you have done something like this, or something similar involving another person or persons in your plans to quit smoking, please briefly describe what you did or plan to do in the space below:

4. Imagine that after you have quit smoking, at a certain time in the future, you were to voluntarily smoke a cigarette again (the first one after having quit). In your own mind, how likely do you think this event would influence your tendency to go back to regular smoking again? Look over the list of possible reactions below, check the one that most applies in your own case. Think carefully about this before you decide.

<table>
<thead>
<tr>
<th>Check</th>
<th>Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If I had a single cigarette, I think it would be highly probable that I would go back to my old smoking pattern again. (On a scale from 1 to 100, with &quot;1&quot; indicating the least probability of going back to your old smoking pattern, and &quot;100&quot; indicating the highest probability of this reaction, give yourself a rating of how probable you think it would be that you would go back to your former smoking pattern if you had a single cigarette:__________).</td>
</tr>
<tr>
<td></td>
<td>If I had a single cigarette, I think I could handle this without resuming my former smoking habits again; I think I could have one or two cigarettes and be able to stop again without too much difficulty.</td>
</tr>
<tr>
<td></td>
<td>Neither of the above two reactions apply to me. If I had a single cigarette, my reaction would probably be as follows:</td>
</tr>
</tbody>
</table>
5. Using your imagination and to the best of your knowledge, can you think of a single reason or situation that would be most likely to "cause" you to have the first cigarette after having quit—in other words, can you think of an event or situation that would be the most difficult for you to handle without having a cigarette? Yes No

If you answered Yes, please provide a brief description of this situation or event:

6. Listed below are a number of situations or events that you might encounter after having quit smoking. For each situation, we would like you to indicate how difficult you think this situation would be in terms of remaining abstinent—in other words, how difficult it would be for you to resist the temptation of having a cigarette in that situation. Using a scale from 1 to 7, with "1" representing the least difficulty and "7" representing the greatest difficulty, rate each situation in terms of how difficult it would be for you to resist the temptation to smoke (use any number from 1 to 7; the higher the number, the greater the difficulty):

<table>
<thead>
<tr>
<th>Rating</th>
<th>Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Going to a bar or restaurant where others are smoking</td>
</tr>
<tr>
<td>1</td>
<td>Going to a party where others are smoking</td>
</tr>
<tr>
<td>1</td>
<td>After a good meal</td>
</tr>
<tr>
<td>1</td>
<td>Going on a vacation or a trip</td>
</tr>
<tr>
<td>1</td>
<td>When you are feeling very anxious or fearful about something</td>
</tr>
<tr>
<td>1</td>
<td>When you are feeling very angry or upset about something</td>
</tr>
<tr>
<td>1</td>
<td>When you are feeling sad or depressed about something</td>
</tr>
<tr>
<td>1</td>
<td>When you are feeling very good and are celebrating some good fortune</td>
</tr>
</tbody>
</table>

continued on next page...
When you are feeling physically ill or are in pain
When an old friend offers you a cigarette when you are having a "deep" conversation
When you are drinking coffee
When you are drinking alcohol
When you are alone and accidentally run across a pack of cigarettes somewhere
When you see a cigarette advertisement
When you are bored or waiting or have nothing to do
When you are reading, studying or writing
After a movie
When you are working at the office or at home
After having sex or during an intimate interpersonal encounter
If someone you didn't know gave you a free sample package of cigarettes
Thinking it would be okay just to have a single cigarette and then stop (wanting to test your personal control)

Part V - Some final questions

1. Is this your first attempt to quit smoking?   ___Yes   ___No

If this is not your first attempt to quit, please indicate to the best of your recollection, how many times in the past you made a serious effort to quit smoking: ___ times. What is the longest single period of time that you have maintained abstinence from smoking in the past? ________________ (Give approximate number of days, weeks, months, or years of the longest prior period of nonsmoking in your life after you had started smoking.

Looking back on your past attempts to quit smoking, please answer this question: Have you ever participated in an organized program designed specifically to help people quit smoking? (e.g., a Cancer Society Program or a professional program such as Smokenders, the Schick program, etc.)? ___Yes ___No. If you answered Yes, please briefly describe the type of program you participated in:
2. How old were you when you first started to smoke on a regular basis? _____ Years old. How many years have you smoked on a more-or-less continuous basis? _____ Years of smoking. On an average day of smoking, about how many cigarettes do (did) you usually smoke? _____ cigarettes. How long has it been since your last cigarette? ____________.

3. Does the person you are closest to in your life (e.g., spouse, parent or close friend) smoke? Yes _____ No. Is this person quitting at the same time as you are? Yes _____ No. What is the relationship of this person to you (spouse, relative, etc.)? ____________________.

4. Are you planning to change some other habits in your life at the same time as quitting smoking? For example, are you planning to go on or continue on a diet, start some new exercise program, cut down on your drinking, or change some other habit or behavior? Yes _____ No.

If you answered Yes, please describe briefly the nature of this other attempt to change your behavior.

5. Are you currently engaged in any regular program of physical exercise? Yes _____ No. If you answered Yes, please describe the exercise and estimate the amount of time you engage in it per week.
6. Are you currently using any relaxation procedures such as meditation, muscle relaxation, or self-hypnosis on a regular basis? _____Yes _____No. If Yes, please describe the nature of this activity and estimate the amount of time you engage in it per week.

7. Are you planning to take up any new hobbies/activities in the near future? For example are you planning to start woodworking, rug hooking photography, etc.? _____Yes _____No.

If Yes, please describe briefly the type of hobby/activity you plan to start.

8. How would you describe your drinking habits (alcoholic beverages)? Please indicate in the spaces below how you would describe your current drinking practices.

_____ I am an abstainer from alcohol
_____ I am an occasional, light social drinker
_____ I am an average social drinker
_____ I am a heavy social drinker (drink more than most people)
_____ Other

9. Do you smoke marijuana from time to time? _____Yes _____No
10. Please place a check mark next to any of the following health problems you have been diagnosed/treated for:

[ ] Heart disease
[ ] High blood pressure
[ ] Bronchitis
[ ] Emphysema
[ ] Cancer, type:
[ ] High cholesterol
[ ] Stroke
[ ] Sinusitis

11. Some people define smoking as a physical addiction, in which one becomes physically addicted or dependent upon nicotine; while others describe it as a psychological habit, or an overlearned behavior. How would you define your own smoking in this sense?

[ ] For me, smoking was (is) more like a physical addiction
[ ] For me, smoking was (is) more like a psychological habit
[ ] Undecided
[ ] Both

12. Listed below are several reasons why one might volunteer to participate in this research. We would like you to indicate the THREE most important reasons why you decided to volunteer to participate in this research. Read over all of the reasons and place the number "1" next to the MOST important reason, the number "2" next to the second most important reason, and the number "3" next to the third most important reason.

[ ] I would like to receive some help in successfully quitting smoking
[ ] I would like to contribute to research on smoking cessation, the results of which might help other people quit smoking successfully
[ ] I know the investigator personally or through a friend and I want to be of assistance in her research program

continued on next page....
I am generally interested in or curious about participating in psychological research.

Another person (relationship ________) convinced me to participate with him/her.

Other ________
APPENDIX B

FOLLOW-UP QUESTIONNAIRES

Withdrawal Symptom Questionnaire

Code #_________________________ Date_____________________

The purpose of this questionnaire is to find out how you have been feeling - physically and emotionally - since attempting to give up cigarettes. Please answer the first question according to your smoking behavior during the last month and the remainder of the questions according to how you have been feeling during the past week.

1. How many cigarettes have you smoked during the last month?________

2. Please describe how you have been feeling and respond to the following items by checking the box about the appropriate phrase:

a. Has your heart been beating faster than usual?
   ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, no mostly neutral somewhat yes yes
   not at all not

b. Have you felt more calm than usual?
   ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, not at all mostly neutral somewhat yes yes
   not at all not

c. Have you felt wide awake?
   ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, not at all mostly neutral somewhat yes yes
   not at all not

d. Have you felt content?
   ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, not at all mostly neutral somewhat yes yes
   not at all not

e. Have you been unusually sleepy during the day or evening?
   ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, not at all mostly neutral somewhat yes yes
   not at all not

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f. Have you had fluttery feelings in your chest?
   ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, no mostly neutral somewhat yes yes
   not at all not
   very much so

g. Have you felt hungrier than usual?
   ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, no mostly neutral somewhat yes yes
   not at all not
   very much so

h. Have you felt unusually tired?
   ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, no mostly neutral somewhat yes yes
   not at all not
   very much so

i. Have you felt alert?
   ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, no mostly neutral somewhat yes yes
   not at all not
   very much so

j. Have you felt irritable?
   ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, no mostly neutral somewhat yes yes
   not at all not
   very much so

k. Have your hands been shaky?
   ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, no mostly neutral somewhat yes yes
   not at all not
   very much so

l. Have you been more nervous than usual?
   ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, no mostly neutral somewhat yes yes
   not at all not
   very much so

m. Has it been usually difficult to fall asleep?
   ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, no mostly neutral somewhat yes yes
   not at all not
   very much so

n. Have you had more headaches than usual?
   ( ) ( ) ( ) ( ) ( ) ( ) ( )
   no, no mostly neutral somewhat yes yes
   not at all not
   very much so
3. Please circle each word on the following list which describes how you have been feeling over the last week.

<table>
<thead>
<tr>
<th>Active</th>
<th>Lively</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert</td>
<td>Miserable</td>
</tr>
<tr>
<td>Angry</td>
<td>Muddled</td>
</tr>
<tr>
<td>Bad-tempered</td>
<td>Nervous</td>
</tr>
<tr>
<td>Carefree</td>
<td>Optimistic</td>
</tr>
<tr>
<td>Cheerful</td>
<td>Proud</td>
</tr>
<tr>
<td>Clear-headed</td>
<td>Ready to Fight</td>
</tr>
<tr>
<td>Confused</td>
<td>Relaxed</td>
</tr>
<tr>
<td>Considerate</td>
<td>Sad</td>
</tr>
<tr>
<td>Efficient</td>
<td>Shaky</td>
</tr>
<tr>
<td>Friendly</td>
<td>Spiteful</td>
</tr>
<tr>
<td>Full of Pep</td>
<td>Tense</td>
</tr>
<tr>
<td>Hopeless</td>
<td>Unworthy</td>
</tr>
<tr>
<td>Worn out</td>
<td></td>
</tr>
</tbody>
</table>

4. Please describe any emotional or physical feelings you have had which are not described in this questionnaire that you believe are relevant to your nonsmoking.
Temptation/Smoking Episode Questionnaire

Code # ........................................ Date ........................................

The purpose of this questionnaire is to find out about your experiences since filling out your last questionnaires relative to cigarette smoking. Your cooperation in sharing your experiences will help increase the understanding of such questions as "What situations, feelings, are most difficult to deal with without smoking?" Your personal information is confidential; it will be coded by number and will be used only for the purpose of the research project.

1. Have you smoked any tobacco since you filled out the last questionnaire? Yes No

2. If you answered "NO", PLEASE TURN TO SECTION "A" OF THIS QUESTIONNAIRE.

3. If you answered "YES":

a) circle the kind of tobacco you smoked: cigarettes cigars pipe

b) how many cigarettes, etc. have you smoked in this time period?

________________________________________

c) what is the longest period of time that you have not smoked?

________________________________________

d) PLEASE COMPLETE SECTION "B" OF THIS QUESTIONNAIRE
SECTION "A": TEMPTATIONS TO SMOKE

1. Approximately how long has it been since your last cigarette?_________

2. During the last month, how difficult has it been for you to remain a nonsmoker?

   1 2 3 4 5 6 7
   not at all extremely
difficult difficult

3. To the best of your recollection has there been a time during the last month that you have been tempted to smoke? Yes No

4. a) If you answered NO, please return the questionnaire in the postage paid envelope along with the other completed questionnaire. Thank you for your continued interest and cooperation in this research program and congratulations on your continued nonsmoking.

   b) If you answered YES, please complete the following "DESCRIPTION OF MOST TEMPTING SITUATION"

DESCRIPTION OF MOST TEMPTING SITUATION

1. To the best of your recollection, where - what specific place (home, bar, friend's house, car, etc.) - were you most tempted to smoke during the last month?

2. Time of day______________________________

3. Alone ___ with others ___ (relationship)__________________________
   If with others, was anyone else smoking? Yes No, If Yes, how many others were smoking?__________

4. Did you have access to a cigarette (pipes, cigars, etc.) in this situation? Yes No. If yes, check the statement that best describes your access.

   ___ Someone offered you a cigarette without you asking for it
   ___ You could have bought cigarettes
   ___ You could have "bummed" a cigarette
   ___ You stumbled across an old pack of cigarettes
   ___ Other (describe):
5. What would you say was the MAIN REASON for wanting to smoke?

6. Describe any inner thoughts or emotional feelings (things within you as a person) which triggered off your desire to smoke.

7. Describe any particular circumstances, situations or events (things which happened to you in the outside world) which triggered off your desire to smoke.

8. Describe what thoughts you had in response to the temptation that enabled you to resist smoking.

9. Describe what actions you took in response to the temptation to smoke that enabled you to resist smoking.
10. During this tempting situation, how much were you feeling in control (strong, powerful) of yourself?

1 2 3 4 5 6 7
very little       very much
control          control

11. Approximately how long did this strong temptation to smoke last?

12. How did you feel about the way you coped with the situation?

13. To what degree do you believe your temptation was due to lack of willpower, loss of control?

1 2 3 4 5 6 7
very much from       not at all from
lack of willpower    lack of willpower

14. To what degree do you believe your temptation was due to the influence of people close to you (e.g., family, friends, coworkers)?

1 2 3 4 5 6 7
very much           not at all
influenced by       influenced by
other people        other people

15. To what degree do you believe your temptation was due to external, environmental factors, situational circumstances?

1 2 3 4 5 6 7
very much           not at all
influenced by       influenced by
external factors    external factors

16. In terms of the situation/circumstances in which you were most tempted, please indicate the degree to which the situation was stressful to you.

1 2 3 4 5 6 7
not at all           extremely
stressful            stressful
17. After you resisted the temptation or the temptation passed, please rate how much you were feeling in control (strong, powerful) of yourself at that time.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>very little control</td>
<td>very much control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18. Are there any specific activities or things that you have been doing which you believe have helped you to stay off cigarettes (e.g. exercise program, diet program, meditation, crafts/hobbies)?

_____ Yes _____ No

If Yes, please describe these activities briefly:

19. Have you noticed any changes in your social life (e.g., who you spend time with) during the past month? _____ Yes _____ No

If Yes, please briefly describe these changes:

You have now completed Section A. Thank you for your continued interest and cooperation in this research program and congratulations on your continued nonsmoking. Please return this questionnaire in the postage paid envelope along with the other completed questionnaire.
SECTION "B": SMOKING EXPERIENCES

Setting of the first smoking occasion

1. Place (be specific; home, bar, friend's house, car, etc.)

2. Time of day

3. Alone ____ With others ___ (relationship) __________. If with others, was anyone else smoking? ____ Yes ____ No If yes, how many others were smoking?

4. How did you obtain that first cigarette (pipe, cigar, etc.)
   ____ Someone offered you the cigarette without you asking for it
   ____ You bought it
   ____ You " bummed" it
   ____ Other (Describe):

5. Had you been thinking about smoking earlier that day? ____ Yes ____ No

6. Prior to having the first cigarette, did you make a conscious decision to smoke? ____ Yes ____ No

7. What would you say was the MAIN REASON for smoking that first cigarette?

8. Describe any inner thoughts or emotional feelings (things within you as a person which triggered off your need or desire to take that first cigarette:}
9. Describe any particular circumstances or situations or events (things which happened to you in the outside world) which triggered off your need or desire to take that first cigarette.

10. Just prior to smoking the first cigarette, how much were you feeling in control (strong, powerful) of yourself at that time?

\[
\begin{array}{ccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 \\
\text{very little control} & & & & & & \text{very much control}
\end{array}
\]

11. In your own words, how did you feel about your smoking during and immediately after that first cigarette?

12. In terms of the following two scales, how did you feel about your smoking during and immediately after that first cigarette?

\[
\begin{array}{ccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 \\
\text{not at all guilty} & & & & & & \text{extremely guilty}
\end{array}
\]

\[
\begin{array}{ccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 \\
\text{extremely happy} & & & & & & \text{extremely unhappy}
\end{array}
\]
Please rate the degree to which your smoking the first cigarette was influenced by: (questions 13, 14, 15):

13. Lack of willpower, personal weakness, giving in to temptation, loss of control.

1 2 3 4 5 6 7
very much influenced by
not at all lack of willpower
influenced by lack of willpower

14. The behavior of people close to you (family, friends, co-workers)

1 2 3 4 5 6 7
very much influenced by
not at all other people
influenced by other people

15. External, environmental factors, situational circumstances.

1 2 3 4 5 6 7
very much influenced by
not at all external factors
influenced by external factors

16. In terms of the situation/circumstances in which you had the first cigarette, please indicate the degree to which the situation was STRESSFUL to you.

1 2 3 4 5 6 7
not at all stressful extremely stressful

17. After you smoked that first cigarette, please rate how much you were feeling in control (strong, powerful) of yourself at that time:

1 2 3 4 5 6 7
very little control very much control
First occasion of smoking on the first day

(Occasion is defined to mean a period of more or less continuous smoking, uninterrupted by more than 6 hours of non-smoking)

18. Was this first cigarette followed by a second cigarette? ___Yes ___No

19. If yes to #18, how many more cigarettes were smoked on that first smoking occasion?

Next distinct smoking occasion

(This second occasion is defined to mean the next time you smoked again, after at least a period of 6 or more hours of non-smoking)

20. How long a time period elapsed between your first smoking occasion (see #19) and this next smoking occasion?

____ I never smoked again

____ Hours

____ Days

____ Weeks

21. How many cigarettes did you smoke on this second occasion?

22. Did you return to normal (daily, regular) smoking after that?

___ Yes ___No

23. If Yes to #22, how much time elapsed until you began to smoke regularly?

___ Hours ___Days ___Weeks

24. How many cigarettes per day do you smoke now?

25. What current situations are most difficult for you to deal with without cigarettes?

26. If you have additional information which you feel is important in order for us to understand your smoking, please feel free to add it.

You have now completed Section B. Thank you for your continued interest and cooperation in this research program. Please return this questionnaire along with the completed other questionnaire in the postage-paid envelope.
Cover Sheets for Relapsers' Temptation/Smoking Episode Questionnaires

The purpose of this questionnaire is to find out about your experiences since filling out your last questionnaires relative to cigarette smoking. Your cooperation in sharing your experiences is greatly appreciated. Your personal information is confidential; it will be coded by number and will be used only for the purpose of the research project.

1. The last time you filled out this questionnaire, you indicated that you were currently smoking ______ cigarettes per day.

   Are you still smoking? Yes No

2. If you answered NO, when did you have your last cigarette? ______

   PLEASE FILL OUT SECTION "A" OF THIS QUESTIONNAIRE

3. If you answered YES, have you made a serious attempt to quit smoking since filling out the last questionnaire? Yes No

   a) If you answered YES: How many attempts ______

      What has been your longest period of nonsmoking during this time ______

   b) If you answered NO, briefly describe what you believe to be the reason(s) why you have not seriously attempted to quit.

4. If you are currently smoking, do you consider yourself a "controlled smoker?" Yes No

5. If so, under what circumstances do you allow yourself to smoke?
6. a) if you are a controlled smoker, under what circumstances do you NOT allow yourself to smoke?

b) how do you deal with the temptation to smoke under these circumstances?

IF YOU ARE CURRENTLY SMOKING AND HAVE ANSWERED ITEMS 1-6 please return this questionnaire along with the other completed questionnaire in the postage-paid envelope. Thank you for your continued interest and cooperation in this research project. If you feel I can be of assistance in your effort to quit, please call.
APPENDIX C

CATEGORIES FOR CLASSIFICATION OF RELAPSE EPISODES

I. Intraperonal/Environmental Determinants
Includes all determinants which are primarily associated with intrapersonal factors (within the individual) and/or reactions to nonpersonal environmental events. Includes reactions to interpersonal events in the relatively distant past (i.e., in which the interaction is no longer of significant impact).

A. Coping with Negative Emotional States
Determinant involves coping with a negative (unpleasant) emotional state, mood or feeling.

1. Coping with Frustration and/or Anger
Determinant involves an experience of frustration (reaction to a blocked goal-directed activity), and/or anger (hostility, aggression) in terms of the self or some nonpersonal environmental event. Includes all references to guilt, responses to demands ("hassles") from environmental sources or from within the self which are likely to produce feelings of anger.

2. Coping with Other Negative Emotional States
Determinant involves coping with emotional states other than frustration/anger, which are unpleasant or aversive, including feelings of fear, anxiety, tension, depression, loneliness, sadness, boredom, worry, apprehension, grief,
loss, and other similar dysphoric states. Includes reactions to evaluation stress (examinations, promotions, public speaking, etc.), employment and financial difficulties, and personal misfortune or accident.

B. **Coping with Negative Physical/Physiological States**

Determinant involves coping with unpleasant or painful physical or physiological reactions.

1. **Coping with Physical States Associated with Prior Substance Use**

Coping with physical states which are specifically associated with prior use of drug or substance, such as "withdrawal agony" or "physical craving" associated with withdrawal (Note: references to "craving" in the absence of withdrawal are classified under Section E below).

2. **Coping with Other Negative Physical States**

Coping with pain, illness, injury, fatigue, specific disorders (e.g., headache, menstrual cramps, etc.) which are not associated with prior substance use.

C. **Enhancement of Positive Emotional States**

Use of substance to increase feelings of pleasure, joy, freedom, celebration, etc. (as when traveling or on vacation, etc.). Includes use of substance for primarily positive effects, e.g., to "get high", or to experience the enhancing effects of a drug.
D. **Testing Personal Control**

Use of substance to "test" one's ability to engage in controlled or moderate use; to "just try it once" to see what happens; or in cases in which the individual is testing the effects of treatment or a commitment to abstinence (including tests of "willpower").

E. **Giving in to Temptations or Urges**

Substance use in response to "internal" urges, temptations, or other promptings. Includes references to "craving" or intense subjective desire, in the absence of interpersonal factors. (Note: references to "craving" which are associated with prior drug use or withdrawal are classified under Section B-1 above).

1. **In the Presence of Substance Cues**

Use occurs in the presence of cues associated with substance use (e.g., running across a hidden bottle or pack of cigarettes, passing by a bar, seeing an ad for cigarettes, etc.). (Note: where other individuals are using the substance, refer to Category II-B below)

2. **In the Absence of Substance Cues**

Here, the urge or temptation comes "out of the blue", and is followed by the individual's attempt to procure the substance.
II. **Interpersonal Determinants**

Includes determinants which are primarily associated with interpersonal factors: reference is made to the presence or influence of other individuals as part of the precipitating event. Implies the influence of present or recent interaction with another person or persons, who exert some influence on the user (reactions to events which took place in the relatively distant past are classified in Category I). Just being in the presence of others at the time of the relapse does not justify an interpersonal classification, unless some mention is made or implied that these people had some influence or were somehow involved in the event.

A. **Coping with Interpersonal Conflict**

Coping with a current or relatively recent conflict associated with any interpersonal relationship, such as marriage, friendship, family patterns, employer-employee relations.

1. **Coping with Frustration and/or Anger**

Determinant involves frustration (reaction to blocked goal directed activity, and/or anger (hostility, aggression) stemming from an interpersonal source. Emphasis is on any situation in which the person feels frustrated or angry with someone including involvement in arguments, disagreements, fights, jealousy, discord, hassles, guilt, etc.
2. **Coping with Other Interpersonal Conflict**

Determinant involves coping with conflicts other than frustration and anger stemming from an interpersonal source. Feelings such as anxiety, fear, tension, worry, concern, apprehension, etc., which are associated with interpersonal conflict, are examples. Evaluation stress in which another person or group is specifically mentioned would be included.

**B. Social Pressure**

Determinant involves responding to the influence of another individual or group of individuals who exert pressure (either direct or indirect) on the individual to use the substance.

1. **Direct Social Pressure**

There is direct contact (usually with verbal interaction) with another person or group who puts pressure on the user or who supplies the substance to the user (e.g., being offered a drug by someone, or being urged to use a drug by someone else). Distinguish from situations in which the substance is obtained from someone else at the request of the user (who has already decided to use).

2. **Indirect Social Pressure**

Responding to the observation of another person or group who are using the substance or who serve as models of substance use for the user. If the model(s) puts any direct pressure on the individual to use the substance, it should be categorized under II B-1 above.
C. **Enhancement of Positive Emotional State**

Use of substance in a primarily interpersonal situation to increase feelings of pleasure, celebration, sexual excitement, freedom, etc. Distinguish from situations in which other person(s) is using the substance prior to the individual's first use (classify these under Section II B above).

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

**Scoring Rules**

For each relapse episode, only one category can be used for scoring. When multiple categories seem to apply, choose the most significant precipitating event for scoring (the event immediately preceding the relapse). When it is impossible to decide between two equally likely categories, assign the score on a priority basis: Category I takes precedence over Category II; within each major category, the ordering of categories (A before B, etc.) indicates the priorities.
APPENDIX D

FINAL QUESTIONNAIRE

We are interested in gathering some additional information relative to your smoking or nonsmoking at the conclusion of our six month study. Please take time to fill out this questionnaire carefully, and try to be honest and candid with your replies. The information you provide here, along with that provided throughout your participation may be of considerable help to us in understanding why some individuals remain nonsmokers while others have difficulty. Unless otherwise indicated, please answer all questions regardless of your smoking or nonsmoking status.

1. Current smoking status: Smoker _____ Nonsmoker _____
   If you currently smoke, on the average how many cigarettes do you smoke per day? ______ What brand of cigarettes do you smoke?   

2. Motivation & Commitment to Quit Smoking
   a. I would like to know how strongly committed you feel to quit smoking (if you currently smoke) or to stay off cigarettes (if you currently do not smoke) at this time. On a scale from 1 to 100, with "1" representing the lowest strength of commitment, and "100" representing the strongest possible commitment, give yourself a rating (choose any number between 1 & 100) of your own strength of commitment to quit smoking or to stay off cigarettes at this time: ______
      You may elaborate on your rating if you wish:

   b. I would like to know how successful you would expect to be in an attempt to quit smoking (if you currently smoke) or how successful you expect to be in staying off cigarettes (if you currently do not smoke) at this time. Be realistic about this based on your past experiences and your present strength of motivation. On a scale from 1 to 100, with "1" representing the lowest expectation of success and "100" representing the highest expectation of success, give yourself a rating of your own expectations of success in either quitting smoking or staying off cigarettes: ______
      You may elaborate on your rating if you wish:
c. I would like to know how difficult you think it will be for you to remain abstinent from smoking. On a scale from 1 to 100, with "1" representing the least amount of difficulty and "100" representing the greatest amount of difficulty, give yourself a rating of how difficult you think it will be for you to quit and remain abstinent (if you currently smoke) or to continue to remain abstinent (if you currently do not smoke). Remember, the higher the number, the more difficult you think it will be to remain abstinent: __________
You may elaborate on your rating if you wish:

3. Are there people in your life (family, friends, co-workers, etc.) who you believe have been influential in your remaining or not remaining a nonsmoker? ____Yes ____No

If you answered Yes, a) what is your relationship to this person or persons? ________________________________

b) do you feel this influence has been supportive ____ or nonsupportive ____?

In what way has the influence been supportive or nonsupportive:

4. Are there circumstances in your life which you believe have been influential in your remaining or not remaining a nonsmoker? ____Yes ____No

If you answered Yes, a) what is the nature of these circumstances?

______________________________

b) do you feel the influence has been supportive ____ or nonsupportive ____?

In what way has the influence been supportive or nonsupportive?
5. We would like to get a "picture" of the type of smoking (or non-smoking) environment you are presently in. The circle below represents the scope of your life with you in the center. Each division of the circle is an aspect of your life. Within the circle place smaller circles in the appropriate division for the people you know. The closer a person is to you, the closer you should place him or her to you in the chart; i.e., your wife or husband would be close to you and a vague acquaintance near the outer limits of the circle. Using the code shown below, mark each circle according to each individual's smoking status. Also, please place the initials of the person each circle represents next to the circle.

Source: American Cancer Society
6. Answer "a" OR "b"

a. If you are presently not smoking, imagine that at a certain time in the future you were to voluntarily smoke a cigarette again (the first one after having quit). In your own mind, how likely do you think this event would influence your tendency to go back to regular smoking again? Look over the list of possible reactions below, and check the one that most applies in your own case. Thank carefully about this before you decide.

Check  Reaction

_____  If I had a single cigarette, I think it would be highly probable that I would go back to my old smoking pattern again.

_____  If I had a single cigarette, I think I could handle this without resuming my former smoking habits again; I think I could have one or two cigarettes and be able to stop again without too much difficulty.

_____  Neither of the above two reactions apply to me. If I had a single cigarette, my reaction would probably be as follows:

b. If you are presently smoking, which of the following statements do you think best describes what happened after you smoked your first cigarette after having quit?

Check  Reaction

_____  After having had a single cigarette, I immediately went back to my old smoking pattern again.

_____  After having had a single cigarette, I felt that I could handle it without resuming my former smoking habit again. I didn't return to my old smoking pattern until __________ (days, weeks, etc.) later, at which time I had smoked approximately ____ cigarettes.

continued on next page....
After having had a single cigarette, I felt I could handle it without resuming my former smoking habit. Although I do currently smoke cigarettes, I did not return to my former pattern.

None of the above reactions apply to me. My reaction to the first cigarette I smoked after having quit was:

7. Listed below are a number of situations or events that one might encounter after having quit smoking. For each situation, we would like you to indicate how difficult you think this situation would be for you in terms of remaining abstinent—in other words, how difficult would it be for you to resist the temptation of having a cigarette in that situation. Using a scale from 1 to 7, with "1" representing the least difficulty, and "7" representing the greatest difficulty, rate each situation in terms of how difficult it would be for you to resist the temptation to smoke (use any number from 1 to 7; the higher the number, the greater the difficulty):

<table>
<thead>
<tr>
<th>Rating</th>
<th>Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Going to a bar or restaurant where others are smoking</td>
</tr>
<tr>
<td></td>
<td>Going to a party where others are smoking</td>
</tr>
<tr>
<td></td>
<td>After a good meal</td>
</tr>
<tr>
<td></td>
<td>Going on a vacation or a trip</td>
</tr>
<tr>
<td></td>
<td>When you are feeling very anxious or fearful about something</td>
</tr>
<tr>
<td></td>
<td>When you are feeling very angry or upset about something</td>
</tr>
<tr>
<td></td>
<td>When you are feeling sad or depressed about something</td>
</tr>
<tr>
<td></td>
<td>When you are feeling very good and are celebrating some good fortune</td>
</tr>
<tr>
<td></td>
<td>When you are feeling physically ill or are in pain</td>
</tr>
<tr>
<td></td>
<td>When an old friend offers you a cigarette when you are having a &quot;deep&quot; conversation</td>
</tr>
<tr>
<td></td>
<td>When you are drinking coffee</td>
</tr>
<tr>
<td></td>
<td>When you are drinking alcohol</td>
</tr>
</tbody>
</table>

continued on next page...
When you are alone and accidentally run across a pack of cigarettes somewhere

When you see a cigarette advertisement

When you are bored or waiting or have nothing to do

When you are reading, studying or writing

After a movie

When you are working at the office or at home

After having sex or during an intimate interpersonal encounter

If someone you didn't know gave you a free sample package of cigarettes

Thinking that it would be okay just to have a single cigarette and then stop (wanting to test personal control)

8. Are you currently engaged in any regular program of physical exercise? Yes No. If you answered Yes, please describe the exercise and estimate the amount of time you engage in it per week.

9. Are you currently using any relaxation procedures such as meditation, muscle relaxation, or self-hypnosis on a regular basis? Yes No? If Yes, please describe the nature of this activity and estimate the amount of time you engage in it per week.

10. Do you currently have any new hobbies/activities that you regularly engage in (e.g., woodworking, rug-hooking, photography, etc.)? Yes No. If Yes, please describe the type of hobbies/activities you pursue and estimate the amount of time you engage in it per week.
11. Are you currently taking any medication? Yes No. If Yes, what kind of medication? __________________________ How long have you been taking it? __________________________

12. What brand of cigarettes did you smoke before the attempt to quit smoking that preceded your participation in this study?

13. On the following scale, please indicate how bothersome it is for you to be with or around other people who are smoking.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>extremely bothersome</td>
</tr>
</tbody>
</table>

14. IF YOU ARE CURRENTLY NOT SMOKING, Do you feel that there is a distinction between "thinking about smoking" and "being tempted to smoke?" Yes No

Please explain your answer:

Approximately how often do you think about smoking? ________________
Approximately how often are you tempted to smoke? ________________

15. If you have additional information which you feel is important in order for us to understand your nonsmoking or smoking, please feel free to add it.

16. I would like to receive a brief summary of the findings and conclusions of this research Yes No

Please note: It will be several months before this information will be available, so please be patient!

* * * * * * * * * * * * * *

You have now completed this questionnaire. I cannot thank you enough for your cooperation while participating in this research. I sincerely hope it has been a worthwhile experience. Please return this questionnaire along with the other two and your journal (whether you have written in it or not) in the postage paid envelope provided.
APPENDIX E

INFORMED CONSENT FORM

Federal law requires that all participants in research under University auspices be provided the opportunity for informed consent.

Participants in this research are being asked to share information, over a six-month period, relevant to their attempts to remain nonsmokers. The information will be obtained via questionnaires which will be mailed to participants' homes each month. Postage for returning the questionnaires will be provided by the investigator. In addition to completing questionnaires, all participants may keep an optional daily journal of their experiences relevant to maintaining nonsmoking.

While it is believed that the questionnaires will not ask for information that is of a personal or sensitive nature, regulations require that you be informed that you do not have to answer any questions you feel are objectionable. We would also like you to understand that you may withdraw from participation at any time without penalty. Notification of intent to withdraw will be appreciated.

Any and all use of the information obtained will be in the strictest confidence. No names or other identifying information will ever be made part of the public records.

At the conclusion of the research, a summary of the findings will be furnished upon request.

I have read the above informed consent statement and I am willing to participate in the research.

____________________  ____________________
Signature               Date

____________________
Print Name