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Gregory, Vickie Rae

THE EFFICACY OF A COGNITIVE-BEHAVIORAL TREATMENT AIMED AT RELAPSE PREVENTION IN SMOKERS

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The efficacy of a cognitive-behavioral treatment

aimed at relapse prevention in smokers

by

Vickie Rae Gregory

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INTRODUCTION

Review of Smoking Literature

Authorities view smoking as the number one health problem in the United States today (Pechacek & Danaher, 1979). It certainly appears to be the leading preventable cause of death. Recent epidemiological and biomedical research indisputably identifies smoking as a significant causal factor in numerous serious diseases, including lung cancer (Doll & Hill, 1964; Horn, 1968a), coronary heart disease (Doll & Hill 1964; Doll & Peto, 1976; Friedman, Dales, & Ury, 1979; USPHS, 1979), emphysema, chronic bronchitis, ulcers, and various cancers (Horn, 1968a; USPHS, 1978, 1979). Investigators estimate that more than 37 million Americans will die prematurely as a result of smoking (Pollin, 1977; USPHS, 1977, 1978).

Most smokers are aware of the health risks associated with smoking (Gallup Opinion Index, 1974). In a literature review, Lichtenstein and Danaher (1976) reported that at least one-half of the adult smokers would like to or have seriously attempted to break their smoking habits. Further, they estimated that only 25% of smokers who tried to quit were successful (Lichtenstein & Danaher, 1976). Thus, the problem does not appear to be lack of awareness, but lack of success.

Due to increasing concern about smoking, research concerning empirical treatments and theoretical models has proliferated in

recent years. Educational campaigns, pharmacological substances, hypnosis, aversion techniques, nicotine-fading procedures, and multicomponent packages are among the wide variety of interventions used to treat smokers. In addition, numerous investigators have delineated theoretical models in an attempt to explain smoking behavior and to categorize smokers' personalities (Eysenck, 1973; Horn, 1968b; Ikard, Green & Horn, 1969; McKennell, 1968, 1970; Russell, 1971a, 1971b; Schachter 1978, 1980; Tomkins, 1966, 1968). Finally, other researchers have focused specifically on the relapse process associated with smoking (Marlatt, 1980; Marlatt & Gordon, 1980; Shiffman, 1982).

Early research in the area produced almost uniformly disappointing results (Bernstein, 1969; Hunt & Matarazzo, 1973). However, due to improvements in both treatment methodology and outcome data, recent reviews are more optimistic about smoking treatments (Bernstein & Glasgow, 1979; Lichtenstein & Danaher, 1976; Lando, 1980; Pechacek, 1979). Smokers demonstrate an impressive decrease in smoking during treatment, whether the criterion is cessation or significant reduction in smoking (Lando, 1980; Leventhal & Cleary, 1980). However, the long-term efficacy of these treatments remains problematic. Leventhal and Cleary (1980) estimated that as few as 10 to 25% of subjects remained abstinent at 12-month follow-up periods, although higher rates have been reported (35 to 45%). The high recidivism rates suggest that treatment strategies aimed at long-term maintenance of

nonsmoking need further development and testing.

Nonbehavioral treatments

Researchers and clinicians have developed numerous treatments to aid smokers in quitting smoking. For example, Pechacek (1979) noted that changes in patterns of smoking (e.g., switching to filter cigarettes) were attributable to information and education campaigns. However, only 10% of the exsmokers not attending clinics credited mass media efforts for their stopping (Pechacek, 1979). In addition, several public service clinics (e.g., American Cancer Society, American Lung Association) have offered treatments aimed at helping smokers break the habit.

Investigators have also searched for pharmacological agents (e.g., lobeline, nicotine chewing gum) to substitute for nicotine and minimize withdrawal symptoms. Although early efforts were frustrating as most drugs were used in combination with other treatments and did not appear to improve long-term success rates (Schwartz & Rider, 1977), more recent efforts with the nicotine chewing gum have been more promising (Russell, Raw, & Jarvis, 1980).

Finally, hypnosis has been used to treat smokers for more than 30 years (Bernstein & McAlister, 1976). Although some researchers have criticized the use of hypnosis for inadequate follow-up data (Schwartz & Rider, 1977) and methodological problems (Pechacek, 1979), Holroyd (1980) reported positive findings in a review investigating

the components incorporated into successful hypnotherapies. The most salient variable in the successful studies was tailoring the suggestions to the smoker's individual needs and motivations. Abstinence in the tailored groups ranged from 60 to 88% at 6-month follow-up (Holroyd, 1980).

Behavioral treatments

A diversity of behavioral treatments have been aimed at smoking populations, including: sensory deprivation (e.g., Suedfeld & Ikard, 1974), systematic desensitization (e.g., Koenig & Masters, 1965), stimulus control (e.g., Levinson, Shapiro, Schwartz, & Tursky, 1971), reinforcement for nonsmoking (e.g., Tooely & Pratt, 1967), and aversive conditioning (e.g., Lichtenstein, Harris, Birchler, Wahl, & Schmahl, 1973; Resnick, 1968). Although the initial focus was exclusively on smoking cessation, recent investigators have developed multicomponent and cognitive-behavioral interventions designed for both cessation and maintenance (e.g. Boelens, 1980; Lando, 1978). In summary, the majority of the empirical research has involved aversion strategies, self-management techniques, and multicomponent packages.

Aversion. The most common cessation interventions use aversive stimuli (electric shock, covert sensitization, and cigarette smoke). Laboratory researchers have favored electric shock because it is easily quantified and manipulated. Although a few positive results have been achieved (Dericco, Brigham, & Garlington, 1977), most

treatments relying upon electric shock have proven ineffective
(Bernstein, 1969; Lando, 1980; Lichtenstein & Danaher, 1976;
Pechacek, 1979; Schwartz & Rider, 1977). Lichtenstein and Keutzer
(1971), in a literature review, concluded that the ineffectiveness
of laboratory-administered shock was because "humans appear to
be all too capable of discriminating between shock and no-shock
situations and the hoped for generalization never materialized"
(p. 63). In a comprehensive study, the effects of contingent
shock were not superior to noncontingent shock, leading researchers
to suggest that the traditional conditioning processes were
inoperative in smoking behavior (Russell, Armstrong, & Patel, 1976).
Finally, Wilson and Davison (1969) stated that aversion strategies
should have an intrinsic relationship to the target behavior to
be effective.

Covert sensitization, the second aversion technique, requires
the smoker to vividly imagine smoking followed by unpleasant
sensations, such as nausea and vomiting (Cautela, 1967). Although
case studies using covert sensitization have appeared promising,
controlled investigations have proven relatively ineffective at
long-term follow-ups (Bernstein & McAlister, 1976; Pechacek, 1979;
Schwartz & Rider, 1977). A recent investigation, supporting this
conclusion, found that pairing an actual cigarette with the
aversive imagery was initially effective (80.5% reduction in smoking),
but treatment effects were absent at the 2-month follow-up

(Lichtenstein & Sallis, 1981). However, it is possible that covert sensitization may have value in multicomponent packages.

The third type of aversion strategies, rapid smoking and satiation, involve the use of cigarette smoke. Rapid smoking requires smokers to puff on a cigarette once every six seconds until they are unable to continue. Lichtenstein and his colleagues (Harris & Lichtenstein, Note 1; Lichtenstein et al., 1973; Schmahl, Lichtenstein, & Harris, 1972; Weinrobe & Lichtenstein, Note 2) have reported the most success with this technique, with initial success rates of approximately 95% and 60% abstinence rates at 6-month follow-ups. However, similar studies conducted in other laboratories have not replicated these results (Flaxman, 1978; Lando, 1975, 1976a, 1976b; Levenberg & Wagner, 1976), calling the efficacy of the procedure into question. In addition, Lichtenstein and Rodrigues (1977) reported only 34% abstinence at longer follow-ups (2 to 6 years). Further, of the 33 subjects reporting abstinence, 20 stated they had smoked since the termination of treatment. Thus, the role of rapid smoking in long-term abstinence is unclear. Finally, the efficacy of the rapid smoking technique itself is clouded by the inclusion of nonspecific treatment variables, including a warm personal client-therapist relationship, verbal praise, and high expectations of success.

In addition, Resnick (1968) reported a satiation procedure requiring smokers to greatly increase their normal smoking

consumption for one week. The rationale behind this technique was that smoking would become aversive, thus decreasing the reinforcement value. Although Resnick (1968) reported 60% abstinence at the 4-month follow-up, more recent studies have not replicated these results (Lando, 1980). However, recent research has suggested that satiation, within a multicomponent package, can produce impressive results (Best, Owen, & Trentadue, 1978; Lando, 1977).

Potential disadvantages of rapid smoking and satiation involve medical risks as both procedures were designed to produce physio-logical discomfort. Researchers found that rapid smoking produced an immediate and dramatic effect on heart rate, blood pressure, and blood gases (Lichtenstein & Glasgow, 1977). Research concerning the medical risks of satiation found that heart rates were not effected, but carbon monoxide levels were increased (Lando, McCormack, & McGovern, Note 3). Clearly, both procedures require medical screening and are contraindicated for individuals with cardiovascular or pulmonary diseases (Lando, 1980; Pechacek, 1979).

Self-management techniques. Self-management techniques require smokers to participate more actively in defining and implementing the treatment than aversion therapies. First, the client becomes more aware of the target behavior and its controlling stimuli through self-monitoring. Although self-monitoring alone has rarely produced more than temporary results (Pechacek, 1979), it has been widely used in multicomponent packages for baseline measures

(Boelens, 1980; Lando, 1977).

Next, self-management skills are utilized to modify the frequency and/or topography of the behavior. Contingency contracting, a widely used technique, requires the smoker's agreement that specific consequences will occur for performance or nonperformance of smoking behavior. Researchers have used several types of contracting with smokers. For example, smokers have deposited money and its return was contingent upon attaining specific goals related to smoking (Elliot & Tighe, 1968). Lando described two types of contracting which were used in his laboratory (Lando, 1976c). The first contract was for one month and required the smoker to pay a certain amount of money per cigarette smoked to an organization of his/her choice. The second contract involved rewarding the smoker for not smoking or punishing the smoker for smoking and was rewritten weekly.

Elliot and Tighe (1968), in an uncontrolled study, required undergraduate smokers to deposit $50 or $65 as guarantees of abstinence for 12 or 16 weeks, respectively. Although subjects reported a high abstinence rate initially (86%), 17-month follow-up found only 35% of the subjects abstinent. In a more carefully controlled study, Winett (1973) achieved 50% abstinence at the 6-month follow-up. A recent study (Murray & Hobbs, 1981) compared self-punishment, self-reinforcement, a combination of the two, and self-monitoring. Results indicated that the combination of self-punishment and reinforcement was significantly more effective than

either technique alone or self-monitoring. Although the combination produced only moderate abstinence rates at the 3-year follow-up, the results lend support to Lando's treatment package (Lando, 1976a, 1977, Lando & McCullough, 1978) as the combination contingency contracting group was similar to Lando's contracting procedures which use both self-reinforcement and self-punishment techniques (Lando, 1976c). In summary, when contingency contracting was the only intervention, modest results appeared, but when used within a multicomponent treatment package, contracting has enhanced treatment effectiveness (Lando, 1977; Lindsay, 1978).

Stimulus control is another self-management procedure. By systematically altering the stimulus situations associated with smoking (e.g., after meals, social occasions, after sex) or by bringing smoking under the control of an external cue (e.g., time), researchers have attempted to control smoking behavior. Presumably, decreasing the strength of the association between smoking and various controlling stimuli would facilitate abstinence. Unfortunately, little evidence exists favoring the use of stimulus control techniques (Lando, 1980; Lichtenstein & Danaher, 1976). Although individual case studies have reported success, stimulus control techniques have typically resulted in a temporary reduction in smoking followed by a rapid relapse (Pechacek, 1979). In addition, the value of stimulus control in multicomponent packages has proven disappointing (Flaxman, 1978).

Although the use of behavioral interventions has proven effective at helping people quit smoking, the problem of long-term abstinence still plagues smoking researchers. Recent research has combined self-control coping strategies with other behavioral interventions to enhance the effectiveness of the treatments over longer follow-up periods. Thus, the current trend in smoking research has been in the direction of multicomponent packages.

Multicomponent treatments. Despite mixed results, the trend in reported outcome for multicomponent treatments has been encouraging. One study (Brengelmann, unpublished, cited in Lichtenstein & Danaher, 1976) included 37 self-control procedures (e.g. limiting smoking to certain times and places, changing brands daily). With the inclusion of contingency contracting, the effectiveness of the program increased to 58% abstinence at 2-month follow-up. A treatment-by-mail approach also produced positive results from self-control procedures with 86% of the subjects completing the treatment and 57% reporting abstinence at follow-up (Brengelmann & Sedlmayr, 1977). However, the results of this study were not verified.

In a carefully evaluated clinical study (Pomerleau, Adkins, & Pertschuk, 1978) which included a baseline period, a cessation treatment (reduction using daily quotas, stimulus control, and contingency management), and a maintenance treatment (covert conditioning, reviewing reasons for abstinence, social reinforcement, and encouragement) 61% of the subjects were abstinent at the end of treatment. However, this rate decreased to only 32% at 1-year

follow-up, demonstrating problems with recidivism in multicomponent packages.

Several other investigations have provided support for the efficacy of multicomponent packages utilizing self-management techniques. Conway (1977) reported that self-management plus aversion was more effective than the single interventions. Similarly, Lando (1976a) reported that combining aversion with contractual management enhanced the treatment outcome, although this effect was no longer evident at the 6-month follow-up. Flaxman (1978) used a self-management program and a specific target date for quitting and reported a 50% abstinence rate at the 6-month follow-up. Finally, Elliot and Denney (1978) found that a multi-component package (including rapid smoking, covert sensitization, self-control strategies, and systematic desensitization) evidenced significant superiority at the 6-month follow-up when compared to a rapid smoking treatment group.

Lando and his colleagues have conducted a number of investigations concerning the efficacy of various multicomponent interventions. Lando (1977) conducted a treatment program consisting of aversive conditioning (excessive smoking), contingency contracting, group support, and booster sessions in the event of relapse (rapid smoking). A comparison group received only the aversive treatment. At the 6-month follow-up, 76% of the multicomponent treatment group reported abstinence, whereas only 35% of the aversion only group reported not smoking. The experimental design precluded isolating the

effective treatment components.

Further investigations were concerned with evaluating the differential effectiveness of more complex programs versus treatments with fewer interventions. Lando (1978) found that the addition of fear appeal and stimulus control techniques to the aversion plus maintenance package was not successful. Similarly, another study reported a trend favoring a 2-stage program (aversion and maintenance) over a more complex 3-stage program (preparation, aversion, and maintenance) (Lando, Shirley, Gregory, & McCullough, Note 4). In evaluating these studies, it appears that a program combining too many treatment components can actually decrease its effectiveness (Lando, 1980; Lichtenstein & Danaher, 1976). At the same time, multicomponent packages have proven more encouraging than the treatments involving single interventions (Lando, 1980; Pechacek, 1979).

Treatment innovations. Two new areas of research in smoking include nonaversive cessation techniques and process variables operative within behavioral treatments. First, Foxx and Brown (1979) described a nicotine fading procedure which requires the subjects to systematically change their cigarettes to successively lower tar and nicotine brands. The first week involves a 30% reduction of nicotine from baseline; weeks two and three require a 60% and 90% reduction, respectively. At the end of the third week, smokers are encouraged to quit smoking.

Foxx and Brown (1979) reported an abstinence rate of 40% at the 18-month follow-up for a nicotine fading/self-monitoring group. Even more encouraging, this abstinence rate was maintained at the 30-month follow-up (Foxx, Brown, & Katz, 1981). Finally, the non-abstainers were smoking cigarettes lower in tar and nicotine than their pretreatment brands, and 60% were smoking fewer cigarettes than their baseline rates (Foxx et al., 1981).

A preliminary study in Lando's laboratory (Lando, Etringer, McCormack, & Gregory, Note 5) compared the aversion procedure (satiation), the nicotine fading procedure, the nicotine fading plus a smoke-holding technique (Kopel, Suckerman, & Baksht, Note 6), and the nicotine fading only procedure. The first three conditions included Lando's maintenance package (Lando, 1977, 1978) using group support and contingency contracting. The fourth condition replicated Foxx and Brown's original study (Foxx & Brown, 1979). Initial abstinence rates in all conditions were encouraging with 60% of the subjects reporting abstinence. At 3-month follow-up, the nicotine fading plus smoke-holding group and the aversion group reported the most success, with 63% and 46% of the subjects abstinent, respectively. Although the nicotine fading plus maintenance group and the nicotine fading only group reported less success (37% and 32% abstinence, respectively), the nicotine fading procedure clearly merits further testing.

The nicotine fading procedure has two potential advantages.
First, smokers are probably exposed to less health risks during
the fading treatment than during aversion therapies. Thus, the
fading approach may be applicable to all smokers regardless of
health problems. Second, if smokers do relapse, their return to
lower tar and nicotine cigarettes (Beaver, Brown, & Lichtenstein,
1981; Foxx et al., 1981) may prove less harmful to their health
than relapsing to higher tar and nicotine cigarettes.

This last issue is controversial as some evidence has suggested
that changes to lower tar and nicotine cigarettes may not result in
decreased health risks (Hammond, Garfinkel, Seidman, & Lew, 1977;
Russell, 1974, 1976; Schachter, 1978). Specifically, some
investigators have found that smokers increase their rate of
cigarette consumption in order to compensate for the decreased
nicotine intake (Frith, 1971; Goldfarb, Gritz, Jarvik, & Stolerman,
1976; Schachter, 1977). Also, tentative evidence has suggested
that smokers may modify topography variables after switching to
lower tar and nicotine cigarettes. For example, smokers may increase
the number of puffs per cigarette (Ashton, Watson, Marsh, & Sadler,
1970; Schachter, Kozlowski, & Silverstein, 1977) and they may
increase the puff volume (Frith, 1971; Kumar, Cooke, Lader, &
Russell, 1977).

In contrast, other investigators have not reported compensatory
increases in cigarette smoking when smokers change to lower tar and

nicotine cigarettes (Beaver et al., 1981; Cherry & Forbes, 1972; Freedman & Fletcher, 1976). Additional evidence has suggested that topography changes in smoking, which accompanied switching to lower tar and nicotine cigarettes, resulted in decreased rather than increased biochemical exposure when measured by carboxy-hemoglobin levels (Turner, Sillett, & Ball, 1974). In a well-controlled physiological study, Prue, Krapel, and Martin (1981) examined the effects of progressively reducing the tar and nicotine content of cigarettes. They measured carbon monoxide levels (Frederiksen & Martin, 1979) and saliva thiocyanate levels (Prue, Martin, & Hume, 1980). Both measures directly assess exposure to harmful gases consumed while smoking. The study concluded that the nicotine fading procedure resulted in con-comitant decreases in the intake of poisonous gases. Although the theory that smoking lower tar and nicotine cigarettes involves diminished health risks is still controversial, this study provided strong support for it (Prue et al., 1981) and for the efficacy of the nicotine fading procedure.

The second innovative area in behavioral research involves investigating the effects of process variables on treatment outcome. Etringer, Gregory, and Lando (Note 7) manipulated group cohesion, a therapeutic relationship factor, in treatment groups including cessation (aversion and nicotine fading) and maintenance (group support and contingency contracting as delineated by Lando, 1976c).

Preliminary results indicated that increasing cohesion enhanced the effectiveness of both cessation treatments. Specifically, subjects in the structured cohesion groups maintained a percentage reduction from baseline smoking rate of 74% at the 3-month follow-up, as compared to only 44% reduction in the unstructured cohesion groups. Further, the cohesion manipulation enhanced the nicotine fading technique so much that it was as effective as the satiation procedure at the 3-month follow-up. Given previous findings (Lando et al., Note 5), this result was particularly impressive. It appears that further investigation of group cohesion, and other process variables active in behavioral treatments, may be a fruitful area in future research.

Concluding remarks. In summary, behavioral treatments for cigarette smoking have become more sophisticated in recent years. Multicomponent packages appear to be the most effective interventions. In addition, the satiation procedure within a multicomponent framework has produced impressive results (Best et al., 1978; Lando, 1977; Lando & McCullough, 1978). The possible health risks inherent in the aversion procedures have led researchers to develop nonaversive techniques. For example, Foxx and Brown (1979) described a nicotine fading procedure which appears to diminish health risks both during treatment and during relapse because smokers return to lower tar and nicotine cigarettes (Beaver et al., 1981; Foxx et al., 1981; Prue et al., 1981).

Finally, investigators have begun to study the impact of process variables operative within behavioral treatments. The importance of nonspecific treatment variables, such as the therapeutic relationship, verbal praise, and expectations of success, was noted in rapid smoking studies, but not studied (Lichtenstein & Rodrigues, 1977). More recently, one study, manipulating group cohesion in behavioral treatments, found that increased cohesion improved the effectiveness of the treatments (Etringer et al., Note 7). Thus, these nonspecific process variables warrant further investigation.

Although current smoking programs have demonstrated an impressive decline in smoking during the treatment, long-term maintenance of nonsmoking behavior continues to be problematic (e.g., Lando, 1980; Leventhal & Cleary, 1980; Marlatt, 1980). Focusing on individualizing treatment through the use of assessment devices and training smokers in cognitive-behavioral strategies to prevent relapses might improve long-term abstinence rates. The theoretical literature has provided assessment devices, information concerning the relapse process, and knowledge of coping strategies applicable to nonsmoking. Incorporation of the theoretical literature into a treatment format may result in more effective long-term treatments.

Review of Theoretical Issues

Assessment devices. The psychological models of smoking have

been based mainly on factor analyses of smokers' self-report data.

In an early model, Tomkins (1966) presented a theoretical rationale

for differentiating types of smoking behavior. Tomkins (1966)

delineated four types of smoking: (1) smoking to increase positive

affect, (2) smoking to reduce negative affect, (3) habitual

smoking (with no affective component), and (4) addictive smoking

(including both positive and negative affects).

Within Tomkins' model (1966) smoking was viewed as a learned

response which could be associated with any positive or negative

affect. For the positive and negative affect smokers, cigarette

smoking was used to regulate internal emotional states across

a variety of situations. For example, smoking to increase positive

affect resulted in stimulation or relaxation, while negative

affect smoking resulted in reducing feelings of distress or fear.

Habitual smoking involved a minimal degree of awareness, with the

smoker possibly being oblivious to the act of lighting a cigarette.

Finally, Tomkins (1966, 1968) hypothesized that dependence or

addiction developed by the sequential linking of negative and

positive emotional states. Specifically, the smoker experienced

a negative emotional state and smoked to produce a positive affect

that decreased the negative feelings. Addictive smokers were

aware of not smoking which was accompanied by a negative affect state.

Thus, the absence of cigarettes generated negative feelings which reinstated smoking and this became a self-reinforcing system.

The Horn-Waingrow Scale (Horn & Waingrow, Note 8; Appendix A) was devised to differentiate among the typology of smoking motives proposed by Tomkins (1968). The Horn-Waingrow Scale has been administered to college students (Coan, 1967), smokers attempting to quit (Ikard et al., 1969) and factor analyzed with large samples (Bosse, Garvey, & Glynn, 1980; Coan, 1969; Ikard et al., 1969). These factor analytic studies have resulted in six factors or motives for smoking: reduction of negative affect, addiction, habitual, stimulation, pleasurable relaxation, and sensori-motor manipulation. These motives subsume and extend Tomkins' original theoretical paradigm (Tomkins, 1966). In addition, further support for Ikard et al.'s (1969) six motives for smoking was provided by Costa, McCrae, and Bosse (1980) when they administered a 43-item questionnaire in an attempt to extend the affect management model. The factor analysis replicated the six factors described above.

Validity studies have also been conducted on the Horn-Waingrow Scale. Laboratory studies have provided support for the negative affect, stimulation, pleasurable relaxation, and habitual subscales (Ikard & Tomkins, 1973; Leventhal & Avis, 1976). In addition, a clinical study which correlated smokers' self-monitored reasons for smoking with their scores on the scale provided support for the negative affect and sensori-motor scales (Joffe,

Lowe, & Fisher, 1981).

In contrast, negative findings have also been reported.
Adesso and Glad (1978) reported that the six motives for smoking
did not predict smokers' behavior patterns in laboratory settings.
Further, validity studies have not provided support for the
addiction subscale. Finally, the scale has rarely been utilized
in treatment settings. One study (Flaxman, 1979) surveyed 33
subjects from two smoking modification studies who reported
abstinence at follow-up. The study revealed that although the
use of deep muscle relaxation and thought stopping were positively
related to success, subjects did not utilize these techniques
in relation to affect-management reasons for smoking as the
Horn-Waingrow Scale suggests. However, this study was conducted
after the termination of treatment. Further investigations
are necessary in order to determine the clinical utility of the
scale.

Other researchers have classified smokers based on situations
in which they smoke. For example, Best and Hakstian (1978)
developed a 50-item situational survey from ratings of common
smoking situations. Subjects rated each of the situations on
a scale of 1 to 7 indicating the strength of their urges to smoke
on those occasions. The cluster analysis of the questionnaire
resulted in a number of homogeneous factors for both sexes, e.g.
nervous tension, self-image, frustration, relaxation, automatic,

and social. Differences between the sexes also emerged with males

smoking in situations producing discomfort, inactivity, need for

time structuring, restlessness, need for sensory stimulation, and

need for concentration; whereas females smoked in situations

producing uneasiness, boredom, need for food avoidance, habit,

and need for stimulation. Best and Hakstian (1978) concluded:

> While affective factors may be important determinants of
> smoking behaviors, our cluster analyses do not suggest
> affective or any other smoker type corresponding to broad
> individual differences. Rather, the data are consistent
> with the notion that a wide variety of specific
> environmental, cognitive, affective, pharmacological,
> and sensori-motor events may serve as discriminative cues
> for smoking. Each smoker is presumably conditioned
> to many such cues, although the association is stronger
> to some cues than others. (p. 90)

In summary, the theoretical models of smoking have resulted

in the development of assessment devices. The Horn-Waingrow

Scale (Ikard et al., 1969; Appendix A), which differentiates

smokers into typologies based on self-report, and Best and

Hakstian's situational survey (1978), which includes a broad base of

situations in which smokers are tempted to smoke have received the

most support from the literature. Data from both measures

have suggested that their measures would be useful in tailoring

smoking treatments to the needs of the individual smoker,

although this has not been tested.

Relapse research. The second theoretical area of importance

in this study was process of relapse in smokers. The problem with

high relapse rates in the treatment of smoking has been well-

documented (Bernstein, 1969; Hunt, Barnett, & Branch, 1971; Leventhal
& Cleary, 1980). A typical reaction to this problem has been to
increase the initial treatment techniques, building a multimodal
or broad spectrum treatment package. Two problems were associated
with this approach. First, the program can become so complex
that clients cannot comply with the procedures (Hall, 1980;
Lando, 1981). Second, when the bulk of the treatments were
administered prior to cessation, the focus was on the therapist's
techniques rather than on the smokers' development of their own
coping strategies (Marlatt, 1980).

A different approach for treating addictive behaviors has
been espoused by some investigators (Marlatt, 1980; Marlatt &
Gordon, 1980). Hypothesizing that the treatment and principles
associated with cessation and maintenance of the target behavior
were independent (Best & Bloch, in press; Marlatt, 1980; Marlatt
& Gordon, 1980), the focus for maintenance became the conditions
and situations associated with relapses. In an early study,
Hunt et al. (1971) found that approximately two-thirds of all
the relapses occurred within 90 days after the termination
of treatment. Traditionally, these data have been interpreted as
supporting an addiction model. In contrast, Marlatt (Marlatt,
1980; Marlatt & Gordon, 1980) suggested that "there may be
common cognitive, affective, and behavioral components associated
with the relapse process itself" (Marlatt, 1980, p. 27).

Marlatt and his associates (Cummings, Gordon, & Marlatt, 1980;
Marlatt, 1980; Marlatt & Gordon, 1980) pioneered this approach to
the study of maintenance by identifying elements common to relapse
episodes across a variety of addictive substances (e.g., alcohol,
smoking, drug abuse, and excessive eating). For cigarette smokers,
Marlatt (1980) noted that over half of the relapse episodes were
associated with stress or tension for the individual. Further,
few relapses occurred in nonstressful situations. Cummings et
al. (1980), in a study analyzing the relapse situations of 64
smokers, found that 37% of the relapses were associated with
negative emotional states; 32% of the relapses were connected
with social pressure; and 15% of the relapses occurred during
interpersonal conflict. These conclusions were supported by
other investigations which found that negative affect smokers
were at highest risk for recidivism (Pomerleau et al., 1978);
and that negative affect, alcohol consumption, and the presence
of other smokers were frequently cited concomitants of the
relapse episodes (Lichtenstein, Antonuccio, & Rainwater,
Note 9).

In an elaborate study concerned with the relapse process,
Shiffman (1982) established a relapse counseling hotline and
interviewed 183 exsmokers. Shiffman (1982) presented his data for
all of the subjects first as relapse crises, and then differentiated
those who actually smoked from those who abstained. In detailing
the characteristics of the relapse crises, no particular time of

day was most likely to result in a relapse crisis. The majority

of the relapses occurred in the exsmokers' homes (56%), while 21%

of the crises were at work, and 23% happened in other locations

(e.g., restaurants, bars, etc.). The most common activities of

the subjects included consuming food or drink (29%) and socializing

(25%). In addition, approximately 32% of the exsmokers experienced

relapse crises when other smokers were present. Surprisingly,

45% of the subjects reported experiencing no withdrawal symptoms

after quitting and only 4% of the relapse crises were associated

with the first appearance of withdrawal symptoms. Finally,

71% of the subjects reported experiencing negative affect prior

to the relapse crisis, while 52% of the subjects identified

negative affect or severe stress as the precipitant of the

crisis. Anxiety was most often reported by the exsmokers (42%),

followed by anger or frustration (26%) and depression (22%).

Shiffman's study (1982) delineated situational variables

which predicted the outcome of the relapse crises. First,

when the subject was with another smoker, 54% of the crises

ended in relapses, as contrasted to only 32% of the subjects

relapsing without another smoker present. The stimulus value

of another smoker plus the availability of a cigarette seemed to

be powerful factors in the relapse process. These data have

been supported by other research (Eisinger, 1971; Lichtenstein et

al., Note 9). Second, the rate of relapse rose from 33% to 61% in

situations where the exsmoker consumed alcohol. Finally, the site of the crisis was also a predictor with 57% of the actual relapses occurring in restaurants or bars, as contrasted to only 33% happening at home or work. Although these situational variables distinguished the relapse crisis from the relapse itself, the most powerful determinant of the outcome of the crisis was the coping response of the exsmoker.

Exsmokers were asked to describe any attempts to cope with the relapse crisis. Of the total sample, 18% of the subjects made no attempt to cope with the crisis, 25% coped behaviorally, 23% coped cognitively, and 35% coped with cognitive-behavioral techniques. Of the exsmokers who did not attempt to cope, 79% relapsed. The use of behavioral or cognitive coping strategies significantly decreased the likelihood of relapse. Further, 71% of the subjects who used both cognitive and behavioral coping techniques did not relapse. This analysis demonstrated that active coping by the exsmoker was instrumental in preventing a relapse.

Shiffman's (1982) final analysis demonstrated that exsmokers were less able to perform a behavioral coping response when they drank alcohol or experienced depression. Behavioral strategies were twice as effective in preventing relapse in nondepressed subjects. Interestingly enough, cognitive coping strategies were relatively unaffected by alcohol consumption and depression, suggesting they may be more effective in maintaining

abstinence.

In summary, research concerning relapse situations demonstrated numerous consistencies across a number of exsmokers. Briefly, negative affect was correlated with the majority of relapse episodes (Cummings et al., 1980; Lichtenstein et al., Note 9; Marlatt, 1980; Marlatt & Gordon, 1980; Pomerleau et al., 1978; Shiffman, 1982); and both smoking stimuli and alcohol consumption were frequently associated with relapse crises (Lichtenstein et al., Note 9; Shiffman, 1982). Researchers (Marlatt, 1980; Marlatt & Gordon, 1980; Shiffman, 1982) have suggested that focusing on the assessment of relapse precipitants for individuals and teaching them to cope with these situations through the use of cognitive and behavioral skills may be instrumental in preventing relapse.

Relapse prevention model. Assuming that the maintenance of behavior change was associated with different factors than the cessation of the behavior, Marlatt and Gordon (1980) designed a self-control program aimed specifically at teaching individuals with addictive behavior problems how to anticipate and cope with relapse crises. Their relapse prevention model (RP) is a maintenance package which is implemented after an initial cessation treatment. The RP model applies to individuals who have made a commitment to abstinence, following voluntary cessation of the use of the addictive substance.

The RP model is a psycho-educational treatment which combines behavioral skill training with cognitive interventions. The RP model assumes that addictive behaviors are overlearned, maladaptive habits which developed by performance before or during stressful, unpleasant occasions. Further, addictive behaviors are strongly influenced by the individual's expectations associated with the use of the substance.

Physiological factors play a minor role in the RP model. The model does not adopt the traditional requirement of abstinence because any use of the substance is treated as a failure and associated with guilt. This causes the individual to feel as though s/he is in complete control or total loss of control. Instead, Marlatt (1980) uses the term lapse to refer to a slip, error, or temporary use of the substance and views it as a learning experience rather than a failure.

An illustration of the relapse process is presented in Figure 1 (Marlatt, 1980). The RP model assumes that abstaining individuals experience a sense of perceived control and enhanced self-efficacy. Self-efficacy (Bandura, 1977) is an hypothesized cognitive mechanism underlying behavioral change. Specifically, "the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977, p. 193) determines whether or not coping behaviors will be initiated and

Coping   Increased   Decreased
response ⟶ self-efficacy ⟶ probability
                                               of relapse

High-risk
situation

                   Decreased
                   self-efficacy   Abstinence
   No   Initial   Violation
coping ⟶ Positive ⟶ use of ⟶ Effect ⟶ Increased
response   outcome   substance   +   probability
           expectancies   Perceived   of
           (for initial   effects of   relapse
           effects of   substance
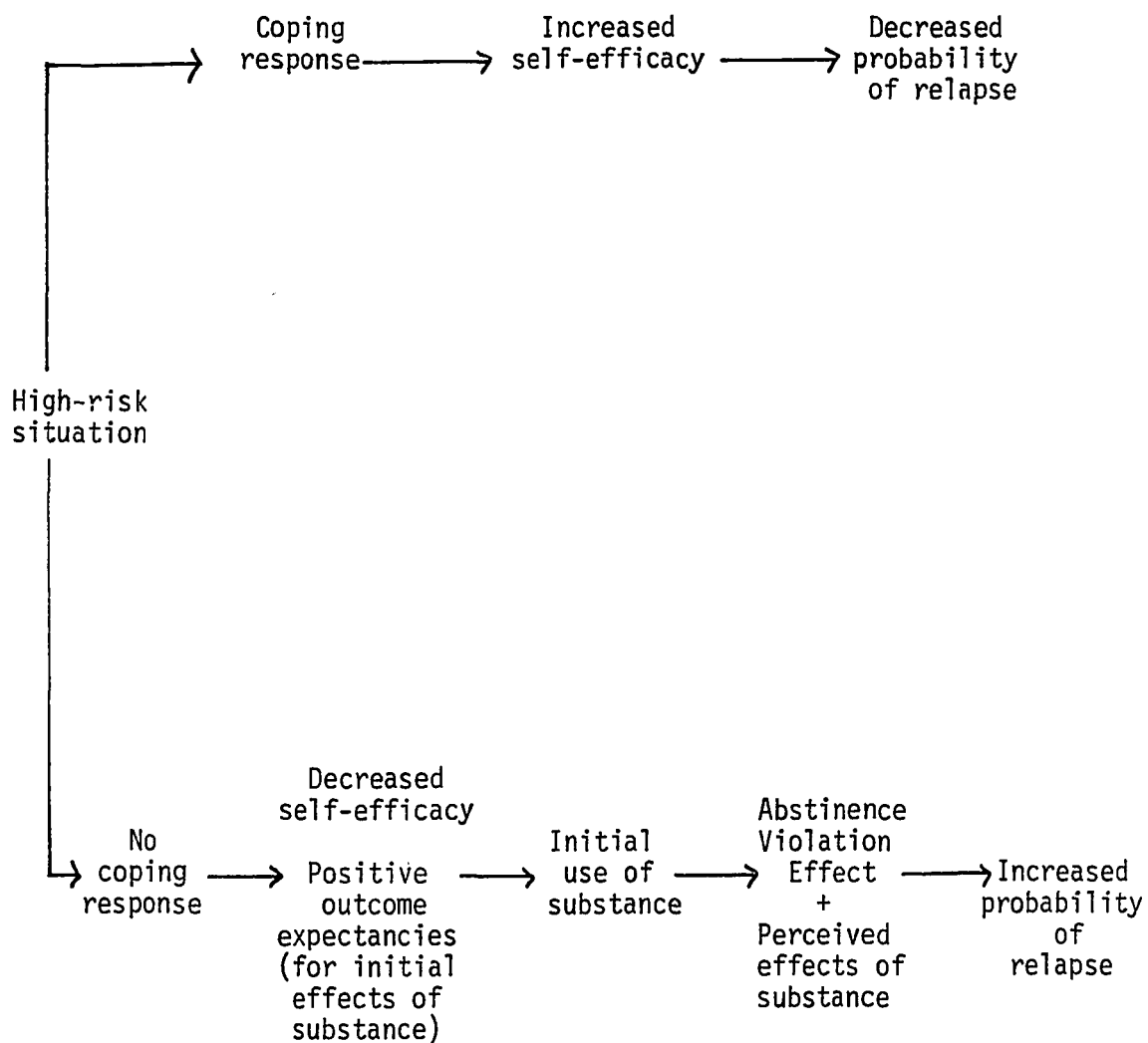   substance)

Figure 2

Cognitive-Behavioral Model

of the Relapse Process

Note: Adapted from Marlatt (1980)

sustained. The longer the period of abstinence, the greater the
perceived control. This continues until the individual encounters
a high-risk situation, which is "any situation that poses a threat
to the individual's sense of control and increases the risk of
potential relapse (Marlatt, 1980, p. 31).

If a coping response is not performed when a high-risk
situation is encountered, self-efficacy decreases and the use
of the substance is likely to occur. Following the substance use,
the individual experiences an abstinence violation effect (AVE).
The AVE includes two cognitive-affective elements: cognitive
dissonance (Festinger, 1964) where the individual experiences
discomfort due to the discrepancy between the self-image as an
abstainer and his/her use of the substance, and a personal
attribution effect (Harvey, Ickes, & Kidd, 1976) in which the
individual attributes the relapse to personal failure or weakness.
The AVE varies according to several factors, including duration of
and commitment to abstinence. The conflict and guilt resulting
from the AVE tend to increase the probability of further relapse.
In contrast, if an individual executes an effective coping response
when the high-risk situation is encountered, the probability
of relapse decreases and self-efficacy is enhanced.

Specific interventions suggested by the RP model are depicted
in Figure 2. In order to facilitate the use of effective coping
responses, the RP model focuses on assessing the high-risk

Self-monitoring
+
behavior assessment
(e.g. situational)
competency test

Relaxation training
stress management,
+ efficacy enhancing
imagery

Contract to limit
extent of use
+
reminder card (what to do
when you have a slip)

Decreased
self-
efficacy

High
risk
situation

No
coping
response

Positive
outcome
expectancies

Initial
use of
substance

Abstinence
Violation
Effect

Programmed
relapse

Relapse
fantasies +
descriptions of
past relapses

Skill
training
+
relapse
rehearsal

Education about
immediate vs.
delayed effects
of substances;
use of
decision
matrix

Cognitive
restructuring
(slip = mistake,
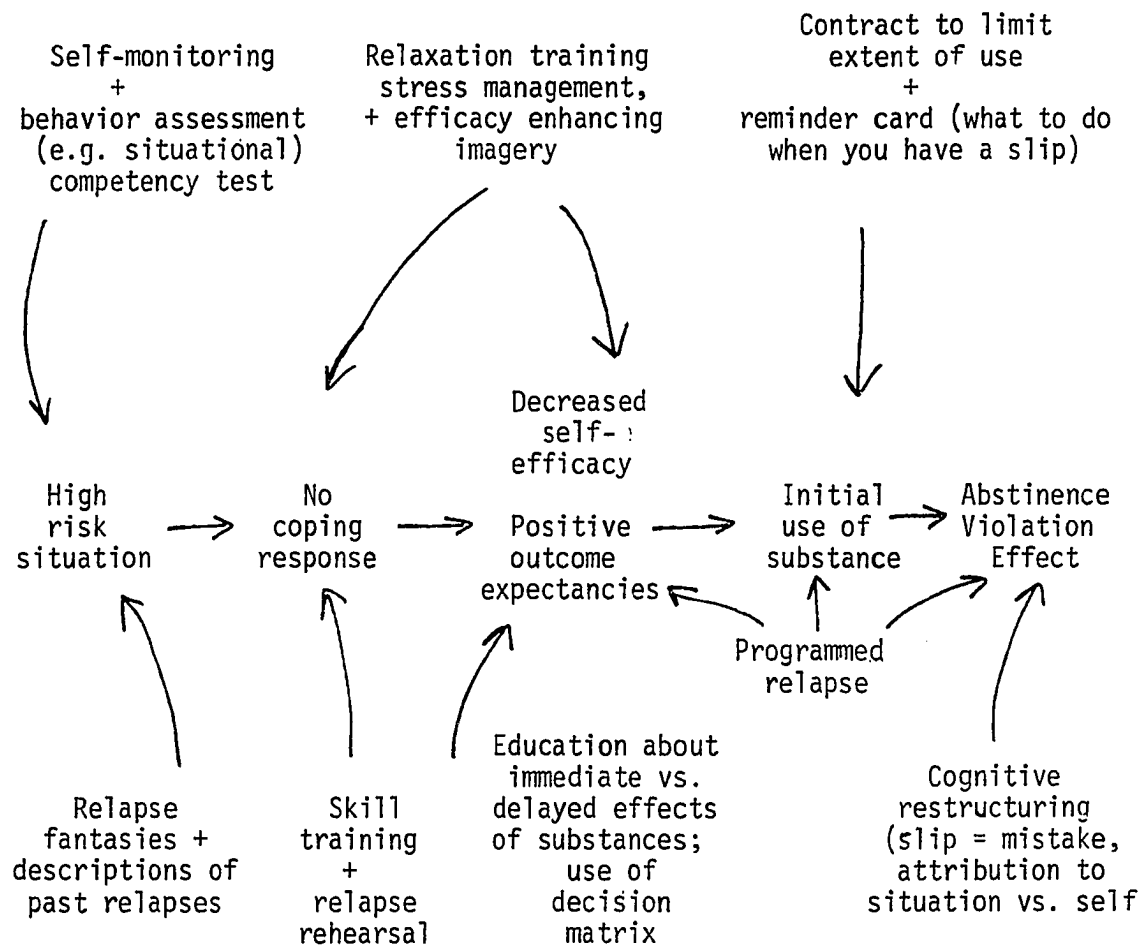attribution to
situation vs. self

Figure 2

Relapse Prevention:

Specific Intervention Strategies

Note: Adapted from Marlatt (1980)

situations and skills of each individual. The high-risk situations
become discriminative stimuli for coping. The therapist focuses
on teaching any necessary skills that are not within the client's
repertoire. Since each high-risk situation cannot be identified
in therapy, clients are also taught general problem-solving skills
(D'Zurilla & Goldfried, 1971; Goldfried & Davison, 1973).

In a further analysis of high-risk situations, Marlatt
(1980) noted that relapses are sometimes planned. Upon close
scrutiny, high-risk situations can be viewed as the last in
a chain of events. In attempting to cope with these situations,
individuals need to be aware of apparently irrelevant decisions
(AIDs). These AIDs are steps which end in a high-risk situation.
For example, when feeling frustrated or angry, an exsmoker decides
to visit a friend with whom she used to smoke. This AID ends
in a high-risk situation in which the individual is likely to
relapse and she set the stage for this to happen.

Other factors which operate in the relapse process have
been identified. As the period of abstinence lengthens, clients
often forget the reasons for cessation, and may begin to move
toward a decision to resume the addictive behavior. Another
factor operating in addictive lifestyles is the need for self-
indulgence. For example, smoking a cigarette may be the only
relaxation that the smoker takes during the day. The RP model
encourages clients to develop a balanced lifestyle, incorporating

pleasurable activities into a daily routine.

The most unique aspect of the RP model is teaching the individual to cope with relapses and the AVE. The lapse (a single cigarette), producing guilt and discomfort, becomes a learning experience rather than a total failure. In some situations, Marlatt (1980) has even required clients to plan a programmed relapse in the presence of the therapist. The purpose of a programmed relapse is to explore the AVE and to objectively experience the initial return to the target behavior. By contrasting the expected events and feelings with the realities of the use, the client often becomes motivated to resume abstinence. For example, expectations surrounding the initial return to smoking are usually quite positive (e.g., relaxation, good taste). However, the actual sensations are often negative (e.g., dizziness, nausea, headache). Thus, the programmed relapse focuses more objectively on the experience, in contrast to a lapse during which the individual smokes in response to stress without analyzing the situation.

Theoretical support for the RP model. Studies directly testing the RP model have been limited. The relapse research reviewed earlier provided indirect support for the RP model as the investigators concluded that relapse situations were commonly associated with similar cognitive, affective, and behavioral components (Cummings et al., 1980; Lichtenstein et al.,

Note 9; Pomerleau et al., 1978; Shiffman, 1982). In addition,

Shiffman's study (1982) concluded that both cognitive

and behavioral strategies were effective at preventing relapse

and the RP model incorporates a variety of these interventions.

In another indirect study of the RP model, Lichtenstein

et al. (Note 9) conducted a post hoc survey of smokers, who had

quit and then relapsed, to test the theoretical basis of the

AVE. They found that 61% of the relapsed smokers reported

experiencing mild to severe guilt reactions upon resumption

of the habit. Further, 38% of the subjects did not attempt

to control their smoking after the first lapse. This supported

the RP model's rejection of the traditional abstinence requirements,

as relapsers feel guilty, assume they have lost total control,

and pursue their habits rather than learning from the experience

and practicing coping skills after a lapse.

In a more controlled study, Condiotte and Lichtenstein (1981)

investigated the relationship of relapse to self-efficacy and to the

the AVE. Subjects were recruited from two smoking cessation programs.

The 78 smokers provided pretreatment, posttreatment, and follow-up

assessments of smoking rate, mood states, and self-efficacy across

a number of situations (Best & Hakstian, 1978; Appendix B). Both

treatment programs enhanced the self-efficacy of the participants.

Further, the subjects' self-efficacy ratings at termination of

treatment predicted abstinence at the 3-month follow-up. Further,

a high correlation emerged between the situations associated with

relapse and those associated with low self-efficacy ratings.

This finding suggested that subjects can predict those occasions

which will be difficult to handle. Self-efficacy is an integral

element of the RP model. Coping with high-risk situations enhances

self-efficacy and promotes abstinence. Condiotte and Lichtenstein's

findings (1981) supported the model's emphasis on enhancing self-

efficacy in order to maintain behavioral change.

The study also investigated the AVE concept. Of the 44

subjects who relapsed and continued smoking, 83% reported feeling

mild to severe guilt following their first lapse. Of these

subjects, 80% stated that this lapse exerted a moderate to severe

negative effect on their self-confidence to abstain from smoking

and 49% made no further coping efforts. In addition, eight subjects

smoked at least one cigarette, but did not resume the habit.

Of these subjects: three reported experiencing some guilt following

the lapse, only one reported a decrease in self-efficacy, all

of the eight subjects had self-efficacy ratings similar to

the exsmokers who did not relapse, and all successfully controlled

subsequent urges to smoke. These findings supported the RP model.

Specifically, subjects who relapsed and continued to smoke experienced

guilt and decreased self-efficacy, while subjects who relapsed

but resumed their nonsmoking behavior experienced milder guilt

and maintained their self-confidence. Thus, the results of this study supported the importance of the self-efficacy and AVE constructs in the RP model. Further, Condiotte and Lichtenstein (1981) suggested that assessment of self-efficacy across various situations would be a useful tool in identifying high-risk situations and tailoring treatment so individuals could cope with problem areas.

In a similar study, DiClemente (1981) operationalized the self-efficacy construct by using a 12-item situational survey and asking 29 male and 34 female smokers to rate their confidence in their ability to abstain from smoking in each situation. The scale involved a Likert rating system. All subjects had been abstinent at least 2 weeks but not more than 7 weeks at the time of the interview. Three different cessation treatments were compared (aversion, behavioral management, and self-quitters). Those subjects who reported abstinence at the 5-month follow-up had significantly higher self-efficacy scores than did the recidivists. Again, the results of this study supported the importance of the self-efficacy construct in maintaining behavior change.

In summary, support has been provided for the: common factors in relapse situations (Cummings et al., 1980; Lichtenstein et al., Note 9; Pomerleau et al., 1978; Shiffman, 1982), the AVE (Condiotte & Lichtenstein, 1981; Lichtenstein et al., Note

9), and the imporance of the self-efficacy construct in maintaining

behavioral change (Condiotte & Lichtenstein, 1981; DiClemente, 1981).

All of these studies endorsed the theoretical aspects of the RP

model. To date, a few empirical investigations of the RP

treatment have been conducted (Boelens, 1980; Brown & Lichtenstein,

Note 10; Cooney, Kopel, & McKeon, Note 11), and these will be

reviewed below.

Rationale for the Present Study

Thus far, the research delineating the theoretical models of

smoking and relapse, and the outcome studies aimed at facilitating

smoking cessation have been conducted independently. It is possible

that the integration of the theoretical models, assessment devices

and relapse prevention, and the treatment strategies would

address two problem areas in the smoking literature. First,

attempts to individualize treatment to the needs of the

smoker have proven elusive, although researchers have recognized

the necessity of individualized treatment in the field of psychology

(e.g., Kiesler, 1966), and more specifically, the need has been widely

recognized within the area of smoking research (Best, 1975; Best

& Hakstian, 1978; Best & Steffy, 1975; Coan, 1973; Costa et al.,

1980; Eysenck, 1973; Flaxman, 1979; Lando, 1980; Leventhal

& Avis, 1976; Leventhal & Cleary, 1980; Lichtenstein & Danaher,

1976; Pomerleau et al., 1978).

Although smoking cessation studies have rarely utilized assessment devices to individualize treatment, numerous questionnaires have resulted from theoretical models of smoking (Best & Hakstian, 1978; Ikard et al., 1969). Further, the relapse prevention model (Marlatt, 1980; Marlatt & Gordon, 1980) was based on a careful assessment of the individual smoker's skills and deficits and treatment was designed on the basis of the individual's problem areas. An integration of the assessment devices with already existing treatment strategies may enhance the effectiveness of established programs.

A second major problem in smoking research concerned the long-term efficacy of current treatment methods. Unfortunately, high recidivism rates after the termination of treatment has been the typical pattern. In order to increase treatment effectiveness, researchers have implemented multicomponent treatment packages. Although this approach has increased the effects of treatments with smokers, long-term results have still been problematic. Most treatments have administered the majority of the techniques prior to cessation of the target behavior. According to the RP model, the factors affecting maintenance of behavior may be independent of those governing cessation (Marlatt, 1980). Therefore, utilizing the research concerned with the relapse process and assessment of individual needs to tailor the treatment may increase the long-term efficacy of smoking clinics.

Preliminary work in this area will be reviewed below.

Maintenance treatments. Four studies have compared maintenance

treatments incorporating cognitive-behavioral interventions and

three of these studies specifically addressed the RP model.

First, a preliminary investigation compared cessation (aversion

and nicotine fading) and maintenance (group support, contingency

contracting and a structured cognitive-behavioral approach)

(Gregory, Etringer, & Lando, Note 12). In the cognitive-

behavioral maintenance condition, a situational smoking

questionnaire (Best & Hakstian, 1978; Appendix B) was utilized

to tailor treatment to the individuals. Interventions included

self-instructional training (D'Zurilla & Goldfried, 1971;

Meichenbaum, (1977) relaxation training, thought stopping, and

covert reinforcement. The bulk of these techniques were presented

after the quit date. Preliminary results included 76% abstinence

over all the groups at 2 months. This study suggested

that tailoring treatment and using cognitive-behavioral

interventions appears encouraging, although the study included

only 29 subjects and needs to be replicated.

In the second study, Boelens (1980) implemented the RP

maintenance package in the treatment of smoking. She compared

a multicomponent package which included contingency contracting,

self-monitoring, and relaxation; a self-cease group which received

no formal treatment; and a RP maintenance group which combined

the multicomponent interventions with the RP training. Both treatment groups demonstrated a sharp decrease in their smoking by the end of the induction phase of treatment, allowing a comparison of the maintenance packages. No significant differences emerged between the RP and the multicomponent treatment groups at the 6-month follow-up, although both groups reported significantly more abstinence than the self-cease group. Further, the self-efficacy scores decreased from the pretreatment assessment to the follow-up. This finding, contrary to expectations, could have been due to the use of a general self-efficacy scale. Boelens (1980) suggested using a scale which rates self-efficacy in specific smoking situations in future research.

Although Boelens' study (1980) was not supportive of the RP model, the results need to be interpreted with caution as attrition rates left the groups too small to conduct meaningful parametric tests (N = 6). Also, little attention was devoted to individualizing treatment and homework assignments. Boelens (1980) suggested assessing the high-risk situations earlier in treatment so that the maintenance interventions could be more closely tailored to the needs of the subject. Further, she stated that a more elaborate assessment protocol might prove useful.

Another preliminary study (Brown and Lichtenstein, Note 10) incorporated identification of high-risk situations, coping rehearsal, the AVE, balancing one's lifestyle, and self-rewards

into a RP maintenance package. A clinical trial which included nicotine fading and self-management techniques was successful with a reported abstinence rate of 46% at 6 months. However, a controlled investigation comparing this treatment with a discussion control group found that abstinence rates at 3 months were only 30% and no differences emerged between the groups.

Finally, Cooney et al. (Note 11) recruited 118 chronic heavy cigarette smokers and conducted a one-session cessation treatment using nicotine fading and smoke holding. Following this, the 54 abstinent subjects received a one-session maintenance treatment. The first maintenance condition included a programmed relapse in which subjects smoked one cigarette and were taught how to cope with the AVE. The second condition also included a discussion on coping with the AVE but did not include a programmed relapse. The third condition involved telling the subjects that it was impossible to cope after smoking and they should avoid the first cigarette. The final condition consisted of group support. Subjects in the controlled relapse groups reported an immediate increase in self-efficacy concerning coping with slips as compared to the subjects in the group advocating absolute abstinence. However, over a 24-week follow-up, subjects in the controlled relapse conditions tended to relapse earlier than those in the absolute abstinence condition. The authors concluded "There appears to be a paradox that controlled relapse treatment led to increased

self-efficacy but earlier relapse relative to absolute abstinence treatment" (Cooney et al., Note 11, p. 1). The authors further suggested the timing of the programmed relapse may be crucial as subjects in the controlled relapse groups may have a false confidence in their ability to smoke a cigarette and then quit. Finally, self-efficacy ratings were not predictive of outcome in this study.

The four studies comparing maintenance treatments and using the RP protocol were not definitive. First, the cessation techniques varied. Boelens (1980) used only a contingency contracting procedure, Gregory et al. (Note 12) compared satiation and nicotine fading, Brown and Lichtenstein (Note 10) used only nicotine fading, and Cooney et al. (Note 11) implemented a one session treatment using smoke-holding (Kopel et al., Note 6). Although the fading and aversion techniques have received empirical support (Foxx & Brown, 1979; Lando & McCullough, 1978), it was unclear which technique would be best to combine with a structured maintenance package.

Second, none of the studies conducted elaborate assessment of the smoker's needs to facilitate individualizing treatment. Third, the RP protocol was used only in two studies. In Boelens' (1980) study, the small sample size precluded meaningful conclusions concerning the treatment. Brown and Lichtenstein's research (Note 10) conflicted, with a positive outcome in a

clinical trials evaluation and no significant effects for the RP

treatment in the controlled study. This merits replication.

The one-session maintenance concerning the AVE in Cooney

et al.'s study (Note 11) did not include the entire RP

treatment and so conclusions from this study are difficult.

Finally, self-efficacy was measured only by Boelens (1980)

and Cooney et al. (Note 11). Boelens used a global measure

of self-efficacy and Cooney et al. asked subjects for a confidence

rating that they would immediately return to abstinence after

a lapse. Both of these measures were inadequate to assess

the subjects' self-efficacy about smoking in a variety of

situations. Clearly, however, these studies have provided the basis

for further research in the area of RP treatment, including

assessment of needs and individualizing therapy and measuring

changes in self-efficacy.

The present study. The present study incorporated both

the theoretical and empirical advances in the field of smoking

into a comprehensive treatment package. The study was a

2 (cessation) x 2 (maintenance) design. The two cessation

techniques were the satiation procedure, originally described

by Resnick (1968) and refined by Lando (1977), and the nicotine

fading procedure (Foxx & Brown, 1979). The two maintenance

packages were a group support/contingency contracting treatment

(Lando, 1976c), which has proven effective in several clinical

trials when combined with the satiation procedure (Lando, 1977; Lando & McCullough, 1978), and a RP protocol focusing on the relapse process and cognitive-behavioral skills training.

The RP maintenance package included an elaborate assessment battery (Horn & Waingrow, Note 8, Appendix A; Joffe et al., 1981, Appendix L) for tailoring treatment to the needs of the individual smoker. In addition, smokers were asked to identify their own high-risk situations and were taught a variety of cognitive-behavioral coping strategies to facilitate not smoking. Also, the treatment focused on preventing relapse through the presentation of relapse information and the use of the RP protocol (Marlatt, 1980; Marlatt & Gordon, 1980). Further, the study investigated the relationship of numerous variables to outcome. Specifically, self-efficacy, adherence to treatment interventions, attendance, and group cohesion were assessed. Finally, subjects were interviewed concerning the processes and situations surrounding relapses (Appendix W).

The following hypotheses were investigated. First, subjects in the RP group were expected to evidence a significantly higher long-term success rate than those in the group support/contingency contracting maintenance. Second, adherence to interventions (attendance, self-monitoring) was hypothesized to relate to successful outcome. Third, subjects in the RP group were expected to exhibit significantly higher self-efficacy scores than those in the group support/contingency contracting group.

Fourth, abstainers were anticipated to report significantly higher self-efficacy levels than those who relapsed. Finally, no prediction was made concerning the differential effectiveness of the nicotine fading and satiation cessation techniques. However, it was hoped that the nicotine fading plus the RP maintenance would be as effective as the satiation procedure. To date, the nicotine fading treatment has not been clearly established as equal to the aversion in effectiveness. If indeed the nicotine fading was proven as effective as the aversion treatment, the applicability of the smoking cessation treatment would be generalized to all smokers regardless of health concerns.

METHOD

Overview of the Study

Subjects

Eighty-eight subjects were recruited from the Salt Lake
City metropolitan area and the University of Utah. Recruitment
procedures included posters, advertisements in local newspapers,
public service announcements, and letters to businesses and
church organizations (Appendix C). Any smoker who wanted to
quit was eligible for this program upon meeting a few additional
criteria. First, subjects were required to pay a $10 fee for
the program plus a $10 refundable deposit which was designed to
encourage the returning of follow-up data. Second, subjects
were required to complete an informed consent form (Appendix D)
and a medical consent form (Appendix E). The latter form
was completed by the smoker's physician and contained an explanation
of the program and potential medical risks. Subjects with serious
health problems or who were unable to obtain the physician's
approval were assigned to the nicotine fading procedure and
their data were eliminated from the analysis.

Of the 88 subjects presenting themselves for treatment,
nine were eliminated. Five of the subjects were considered
drop-outs, as they attended two or fewer sessions. Four of
the subjects were treated with the nicotine fading procedure
but were deleted from the analysis because their health

problems precluded random assignments to the treatments. The
characteristics of the remaining 79 subjects are presented in
Table 1.

Therapists

The therapists, one female and one male, were both
experienced at conducting stop-smoking clinics. The author
had worked in this field for 5 years, while the other therapist
had 3 years of experience. Both were advanced doctoral students
with expertise in cognitive-behavioral interventions and
extensive familiarity with the smoking literature. The initial
data analyses included therapist as a factor.

Setting

The study was conducted through the counseling center at
the University of Utah. Classroom space was provided at
the University for holding the group meetings.

Design

The initial experimental design was a 2 x 2 x 2 factorial in
which the factors included treatment (satiation vs. nicotine
fading), maintenance (unstructured group support plus contingency
contracting vs. cognitive-behavioral relapse prevention), and
therapists. As no therapist effects were evidenced on the
smoking outcome measures, this factor was dropped from the analysis
leaving a 2 x 2 factorial. Subjects were assigned to treatment

Table 1

Subject Characteristics

	Maintenance		Relapse Prevention	
	Satiation	Fading	Satiation	Fading
Males	9	8	7	13
Females	9	11	11	11
Average Age	35.6	33.4	40.4	42.2
Average Years Smoking	17.5	16.9	20.6	22.4
Average Baseline Smoking Rate	29.9	27.7	26.8	25.8

groups on a random basis. As previously noted, the only exception to this was smokers with serious health concerns. These smokers were assigned to the nicotine fading treatments and excluded from the data analysis.

Procedure

Treatment was conducted in small groups of eight to 12 members. Each therapist conducted four treatment groups: nicotine fading plus group support and contingency contracting (e.g., Lando, 1977) (NF + M), aversion plus group support and contingency contracting (AV + M), nicotine fading plus a cognitive-behavioral relapse prevention package (NF + RP), and aversion plus a cognitive-behavioral relapse prevention package (AV + RP).

The entire treatment package occurred over a 10-week period. The first three weeks were devoted to the cessation techniques (nicotine fading and aversion). The remaining seven weeks constituted the different maintenance treatments. Table 2 delineates the timing of the sessions and the interventions and measures administered at each meeting. Subjects met on a weekly basis for approximately 60 to 90 minutes. The exceptions to this schedule occurred during the third and fourth weeks of treatment. At this time, subjects met for six consecutive week-nights. The sixth meeting was the quit date. The experimental conditions (NF + RP and AV + RP) did not differ from the established treatment formats (NF + M and AV + M) until the third

Table 2

Summary of Interventions

_____

Orientation

    Overview and rationale of treatment
    Measures

Week 1, Session 1: Cessation Treatment

NF Groups	AV Groups
Introductions	Introductions
Treatment rationale	Treatment rationale
Explain self-monitoring	Explain self-monitoring
30% reduction assignments	

Week 2, Session 2

NF Groups	AV Groups
Open discussion	No meeting
Review adherence	
60% reduction assignments	

Week 3, Session 3

NF Groups	AV Groups
Open discussion	Open discussion
Review adherence	25 minutes of intensive
Physiological information	smoking
90% reduction assignments	Physiological information

Week 3, Session 4

NF + M	AV + M
Open discussion	Open discussion
Overview of maintenance	25 minutes of intensive
	smoking
	Overview of maintenance

NF + RP	AV + RP
Open discussion	Open discussion
Overview of maintenance	25 minutes of intensive
Identify and discuss 4	smoking
high-risk situations	Overview of maintenance
	Identify and discuss 4
	high-risk situations

Table 2 (Continued)

_____

Week 3, Session 5

NF Groups
No meeting

AV + M
Open discussion
25 minutes of intensive
   smoking

AV + RP
Open discussion
25 minutes of intensive
   smoking
Share commonalities of
   4 high-risk situations
Introduce self-instructional
   training

Week 3, Session 6

NF + M
Open discussion
Focus on feelings surrounding
   quitting smoking

AV + M
Open discussion
Focus on feelings surrounding
   quitting smoking
25 minutes of intensive
   smoking

NF + RP
Open discussion
Share commonalities of 4
   high-risk situations
Introduce self-instructional
   training
Review rationalizations
   handout
Introduce problem-solving

AV + RP
Open discussion
25 minutes of intensive
   smoking
Review self-instructional
   training
Review rationalizations
   handout
Introduce problem-solving

Week 3, Session 7

NF + M
Open discussion
Focus on feelings surrounding
   quitting smoking
Review important suggestions

AV + M
Open discussion
Focus on feelings surrounding
   quitting smoking
Review important suggestions
25 minutes of intensive
   smoking

Table 2 (Continued)

NF + RP
Open discussion
Review problem-solving task
Focus on feelings surrounding
    quitting smoking

AV + RP
Open discussion
25 minutes of intensive
    smoking
Review problem-solving
    task
Focus on feelings surrounding
    quitting smoking

Week 4, Session 8: Quit Date

NF + M
Discussion focuses on quitting
Quit and discard cigarettes
Contingency contracts
Confidence questionnaire

AV + M
25 minutes of intensive
    smoking
Discussion focuses on quitting
Quit and discard cigarettes
Contingency contracts
Confidence questionnaire

NF + RP
Discussion focuses on quitting
Quit and discard cigarettes
Review coping strategies
Sign contract to limit use
Confidence questionnaire

AV + RP
25 minutes of intensive
    smoking
Discussion focuses on quitting
Quit and discard cigarettes
Review coping strategies
Sign contract to limit use
Confidence questionnaire

Week 4, Session 9: Maintenance Treatment

M Groups
Review successes
Troubleshoot problems
Contingency contracts

RP Groups
Review successes
Review coping strategies
Introduce urges material
Discussion focuses on urges
    worksheet

Week 5, Session 10

M Groups
Open discussion
Review successes
Troubleshoot problems
Contingency contracts
Collect 1 week follow-up

RP Groups
Open discussion
Review successes
Review coping strategies
Game plans
Collect 1 week follow-up

Table 2 (Continued)

Week 6, Session 11

M Groups	RP Groups
Open discussion	Open discussion
Review successes	Summarize relapse information
Troubleshoot problems	Review coping strategies
Contingency contracts	Introduce AIDS

Week 7, Session 12

M Groups	RP Groups
Open discussion	Open discussion
Review successes	Relapse fantasy
Troubleshoot problems	Discuss AVE and self-efficacy
Contingency contracts	Review coping strategies

Week 8, Session 13

M Groups	RP Groups
Open discussion	Open discussion
Review successes	Review successes
Troubleshoot problems	Review coping strategies
Contingency contracts	Troubleshoot problems
Collect 1 month follow-up	Collect 1 month follow-up

Week 9, Session 14

M Groups	RP Groups
Open discussion	Open discussion
Review successes	Introduce positive addictions
Troubleshoot problems	Discuss want/should ratio
Contingency contracts	Review strategies
	Troubleshoot problems

Week 10, Session 15

M Groups	RP Groups
Open discussion	Open discussion
Review successes	Review successes
Troubleshoot problems	Troubleshoot problems
Closure of the group	Closure of the group
Confidence questionnaire	Confidence questionnaire
Group cohesion measure	Group cohesion measure

week of treatment except for utilizing different self-monitoring techniques. The maintenance packages for the experimental and established treatment conditions were very different. An outline listing the specific interventions employed in the various groups is presented in Table 2.

Orientation. The experimenters explained that smoking is an overlearned habit. The leaders briefly described the satiation and nicotine fading procedures and provided an overview of the treatment package. Throughout the orientation and treatment sessions, the leaders emphasized the necessity of the smokers' determination to quit smoking. This determination was essential to the success of the treatment as no magic cures exist. The leaders also stressed the importance of active participation in the groups, attendance, group support, and implementation of the treatment techniques.

As this was a research project, the leaders explained the necessity of random assignment to treatment groups. Exceptions included the four smokers with health problems who were assigned to the nicotine fading treatments. The subjects were required to complete a number of questionnaires before the next meeting, including the: Horn-Waingrow scale (Appendix A), the confidence questionnaire (Appendix B), the informed consent form (Appendix D), the medical consent form (Appendix E), and the smoking history questionnaire (Appendix F). Finally, smokers were asked to pay a $10 fee and a $10 deposit, the latter to be refunded after the 6-month follow-up data were returned to the experimenter.

Treatment Packages

Cessation techniques

Nicotine fading. The rationale for the nicotine fading procedure

was based on minimizing the withdrawal symptoms from nicotine as

most of the nicotine had been withdrawn from the subjects' systems

prior to the quit date due to the changing of brands (Foxx & Brown, 1979).

Further, the subjects' ability to adhere to changing brands may have helped

insure the success of the groups. Also, some smokers have noticed

an increase in positive health signs as they changed brands, providing

further reinforcement of success expectations. Finally, the procedure was

nonaversive and applicable to all smokers regardless of health problems.

In the nicotine fading procedure, smokers changed their brands of

cigarettes to other brands with lower levels of nicotine over a three week

period. The decisions regarding brand changes were made by referring to

the latest Federal Trade Commission (FTC) listing (Appendix G). The

first week, smokers decreased the nicotine content of their baseline

brand by 30%. Subsequent reductions from baseline brand were 60% and 90%.

These changes were made during weeks two and three, respectively. At

the end of the third week, smokers quit smoking.

Aversion. The rationale for the intensive smoking group was based

on the concept of aversion. The therapists explained that many smokers

attempted to break the habit by decreasing the number of cigarettes

they smoked. In contrast to the anticipated result, the cigarettes

smoked became more reinforcing and it was more difficult to quit

smoking. The intensive smoking treatment required the smoker to attempt

to double his/her baseline smoking rate which decreased the reinforce-
ment value of the cigarettes and made it easier to quit. The subjects
were specifically encouraged to smoke when they did not want a cigarette.
Further, they participated in six clinic sessions during which they
engaged in 25-minutes of continuous smoking without participating
in any distracting activities. The groups met in small rooms to
maximize the aversiveness. The purpose of this technique was to assist
smokers in focusing their attention on the lack of pleasure derived from
pure smoking in the absence of outside stimulation. Subjects were
instructed to discontinue smoking in the event of dizziness, nausea,
or feeling ill both during the 25-minute sessions and in general. The
purpose in intensive smoking was not to smoke to the point of illness.
Finally, subjects were strongly encouraged to complete the entire week
of intensive smoking to maximize the benefits of this intervention.

Common treatment elements. Although the cessation treatments were
entirely different, the groups had some similar experiences and
assignments. First, the groups were conducted informally with emphasis
on open discussion and group support. Second, all groups were
required to self-monitor their smoking behavior throughout the cessation
treatment. Pocket-sized booklets were provided for this purpose. The
booklets were blocked off into 15-minute time intervals for easy
recording. Subjects were requested to record each cigarette smoked.
These data resulted in the establishment of a baseline smoking rate.
Finally, all groups received a presentation informing them of the
physiological aspects of smoking (Appendix H). This information was

presented in nontechnical language and was not intended as a scare tactic.

Maintenance treatments

The M package. This maintenance package has been proven effective in several investigations (e.g., Lando, 1977; Lando & McCullough, 1978). The treatment focused on unstructured group support plus contingency management as described by Lando (1976c). This maintenance treatment began during the third week with the presentation of an overview of the interventions following the quit date. In addition, a list of important suggestions for quitting (Appendix I) was presented and discussed during the third week of treatment. The discussion focused on generating alternatives to smoking and troubleshooting problem areas that the individuals presented. No cognitive-behavioral skills were taught to these groups.

During the maintenance phase of treatment, therapists encouraged and faciliated group discussion. The groups were conducted in an unstructured manner. Subjects discussed their successes at maintaining abstinence and their problems with relapse. These topics were reviewed on a weekly basis. Group members were encouraged to support each other and to assist in generating ideas that facilitated abstinence.

In addition to the group support and discussion, subjects completed contingency contracts (Appendix J) and self-management contracts (Appendix K). The contingency contracts covered the time interval between meetings and consisted of rewards for not

smoking and punishments for smoking. Subjects chose their own rewards and punishments and were encouraged to adhere to their contracts. Therapists stressed that rewards for not smoking were particularly important to enjoying life without cigarettes. Similarly, the punishments were intended to assist subjects in resisting urges to smoke.

The self-management contracts covered a one month period. This contract required subjects to pay a specified amount of money per cigarette smoked to an organization of their choice. Both the organization and the amount of money were determined by the subjects. The therapists informed the subjects that the contracts were intended to be a deterrent to smoking, yet realistic so that the subjects would indeed forfeit the money if they smoked.

The RP package. Although this was a more structured maintenance package, therapists encouraged open discussion during the sessions. The material was presented in a relaxed atmosphere with emphasis on group participation to maximize the effectiveness of the interventions. In addition, the written work, which was minimal, was completed during the meetings to increase adherence to the procedures. The written assignments were also integrated into the group discussions. Generally, the groups were approximately 60 to 90 minutes in length.

This maintenance package also overlapped with the cessation procedures. Subjects assigned to these groups had an additional self-monitoring assignment to facilitate the tailoring of treatment to their individual needs. Specifically, subjects

were asked to list the reasons that they smoked each cigarette during a three hour period each day. This time period was identified by red ink in their recording booklets. The time periods assigned across the different days were: 6:00 a.m. to 9:00 a.m., 9:00 a.m. to 12:00 p.m., 12:00 p.m. to 3:00 p.m., 3:00 p.m. to 6:00 p.m., 6:00 p.m. to 9:00 p.m., and 9:00 p.m. to 12:00 a.m. Subjects were asked to list the reasons on the back pages of their booklets. The reasons were categorized into the following classifications: S = stimulation, M = manipulation, N = negative affect reduction, A = addiction, PR = pleasurable relaxation, and H = habit. A description of each of these categories was given to the subjects (Appendix L). This procedure was developed by Joffe et al. (1981). The rationale for utilizing this intervention involved the identification of high-risk situations for each individual which would facilitate the tailoring of the treatment components.

During the third week of treatment, subjects were asked to identify four situations which they considered to be high-risk occasions for smoking. This was another part of the assessment procedure. Group discussion focused on the common and unique problem areas for the individual group members. The therapist provided feedback on the assessment devices (the Horn-Waingrow scales, the self-monitoring tasks, and the four high risk situations) to stimulate discussion in

in the group and to tailor the treatments that were later
presented.

The therapist also introduced a self-instructional training
approach (Meichenbaum, 1977). This was presented in two steps.
First, group members needed to identify self-statements which
encouraged smoking. In order to facilitate this, the rationaliza-
tions handout (Appendix M) was discussed. Subjects were encouraged
to add their own "smoke talk" to the list. Second, it was
necessary for the smokers to substitute positive coping statements
(Appendix N) for negative statements.

The next intervention was the problem-solving approach
(D'Zurilla & Goldfried, 1971). The outline for this presentation
is in Appendix O. Briefly, the therapists provided the format
and facilitated group discussion which focused on generating
alternative situations to smoking. Subjects were assigned to
write analyses of their own high-risk situations and to identify
alternatives to smoking.

On quit night, the discussion focused on the subjects'
feelings about quitting. In addition, the coping strategies
were reviewed. Subjects were required to sign a contract to limit
use of cigarettes (Appendix P). The therapists stressed that
future smoking behavior should be viewed as a lapse and
result in a learning experience rather than a failure. The
purpose of this contract was to assist individuals in coping with

urges to smoke and to restrict any smoking behavior to a lapse.
Further, the therapists stressed that this was not permission
to smoke or an invitation to resume smoking. Instead, it was
described as realistic to consider the possibility of smoking.
Many individuals feel that if they smoke a single cigarette,
they are doomed to return to the habit as they are weak
people. This maintenance approach was designed to avoid such
thinking and to teach people how to prevent their own relapses.

Early in the maintenance phase of treatment, the therapists
introduced and discussed the concept of urges (Salt Lake Veteran's
Administration, Note 13; Taylor & Lantinga, Note 14; Appendix
Q). Group members were encouraged to participate in the
discussion, resulting in the subjects' analyses of their
own urges to smoke. The therapists stressed the importance of
identifying and understanding the cognitions, emotions, and
situations accompanying urges. In addition, subjects listed the
short-term benefits of smoking versus the long-term consequences.
It was emphasized that this analysis was important to recall during
times when the subjects experienced urges to smoke. Finally,
the therapists accentuated the idea that individuals who actively
cope with urges do not smoke, whereas those who do not cope are
more likely to return to the habit.

Following the urges material, the subjects developed
game plans (Salt Lake Veteran's Administration, Note 13; Appendix

R) to cope with their urges in high-risk situations. This
material incorporated the self-instructional and problem-solving
techniques introduced earlier with the urges lecture. The work-
sheets were completed during the session and provided the
basis for discussion (Appendix Q). Thus, subjects received
extended practice in the use of cognitive-behavioral
coping skills aimed at not smoking.

During the maintenance phase of treatment, therapists
concentrated more specifically on the RP model (Marlatt, 1980).
They presented a summary of the relapse research, focusing
on situations in which relapses were common. Also, they emphasized
that active coping with urges decreases the rate of relapse.
Figure 1 (p. 28) was utilized to present an overview of the RP model.
Again, therapists described smoking behavior as a lapse and
stressed that it could be used as a learning experience.

A further extension of the self-instructional and problem-
solving techniques included the introduction of the concept of
AIDS. Therapists emphasized that relapses were often planned
by a series of apparently irrelevant decisions (AIDS). Discussion
focused on analyzing the thoughts and decisions that led to
high-risk situations. These decisions were described as cues to
begin coping techniques learned previously.

It should be noted that the timing of the interventions
was flexible to meet the individual's needs. For example,
an analysis of what occurs in the event of a relapse is a central

concept in the RP model. This topic was covered when group

members began to report relapsing. In addition, therapists

utilized guided imagery in structuring relapse fantasies for

the group members. This served as a stimulus for discussion

of expectations surrounding smoking. For example, one

individual may expect instant relaxation, while another may

expect to deal with crisis situations more effectively.

Instead of the anticipated results of smoking, therapists

focused on the realistic consequences. Specifically, the

cigarettes often did not provide the desired effects. This

discussion led into the introduction of the AVE which includes

both cognitive dissonance (Festinger, 1964) and a personal

attribution effect (Harvey et al., 1976). The therapists

also emphasized the relationship of the AVE to the individual's

self-efficacy (Bandura, 1977). To facilitate and clarify

the AVE, a worksheet was completed and discussed in the group

(Appendix S).

The final concepts the therapists introduced in this maintenance

package focused on the development of a healthier, more enjoyable

lifestyle. Many exsmokers have returned to the habit because

smoking was one of the few relaxing, pleasant activities in

which they engaged. Therapists stressed that in order to

stop smoking it was frequently necessary to make other life

changes. Specifically, group discussion focused on the development

of positive addictions (Glasser, 1976; Appendix T) to replace

smoking. To facilitate an analysis of one's lifestyle, the therapists explained the ratio of wants and shoulds. Many individuals are busy doing everything they should during their time, while they make little time available to experience some of the pleasures in life (the wants). Discussion focused on the development of a balanced lifestyle by monitoring the want/should ratio (Appendix U).

Measures

Assessment measures

Although subjects in all groups completed the Horn-Waingrow scale (Horn & Waingrow, Note 8; Appendix A), it was used for tailoring treatment only in the RP groups. This was a 23-item inventory which required smokers to rank their motives for smoking on a 5-point scale (1 = never, 2 = seldom, 3 = occasionally, 4 = frequently, and 5 = always). The scale classified the smokers' motives for smoking into the following categories: reduction of negative affect (6 items, score of 21 or more was high), addiction (5 items, score of 17.5 or more was high); habitual (4 items, score of 14 or more was high); stimulation (3 items, score of 10.5 or more was high), sensori-motor manipulation (3 items, score of 10.5 or more was high), and pleasurable relaxation (2 items, score of 7 or more was high).

Categories in which subjects received high scores highlighted

their motives for smoking. Consequently, concentrating on these

areas in the RP group facilitated the individualization of

treatment. For example, if a subject scored high on the reduction

of negative affect scale, the therapist focused on teaching

skills for the management of negative affective states. The

subjects in the groups reported more similarities than

discrepancies, facilitating the presentation of information

tailored to specific problems.

Dependent measures

Subjects in all groups monitored their smoking rates during

the cessation treatments. These data were used to establish

base rates of smoking and to check on the adherence to the

treatment in the AV groups. After the quit date, subjects

continued to monitor and report their smoking rates. Data

were collected concerning abstinence versus smoking, percentage

of baseline smoking rates, and brand of cigarettes smoked.

In addition, smokers provided the names of three people whom the

experimenters could contact to verify the subjects' self-reports.

The confidence questionnaire (Condiotte & Lichtenstein, 1981;

Appendix B) served as the measure of self-efficacy. It was

administered to all the subjects. It consisted of 49 situations

in which people smoke. Subjects were required to rate their

confidence levels in each situation by using a scale of 0 to

100 with 0 = certain failure and 100 = complete confidence they
could refrain from smoking. Analyses of the subscales imbedded
within the confidence questionnaire (Condiotte & Lichtenstein, 1981)
have resulted in the delineation of 8 subscales: restlessness
(12 items), intrapersonal negative mood (11 items), crutch (9 items),
time structuring (4 items), automatic (4 items), interpersonal
negative mood (3 items), self-image (3 items), and social (3
items).

Nine separate scores were calculated from this scale.
First, an overall measure of self-efficacy as related to smoking
was obtained by averaging across the 49 items. Mean scores
were also calculated on the remaining scales. This procedure was
developed by Condiotte and Lichtenstein (1981). This measure
was administered before treatment, on the quit date, and at the
termination of treatment.

Other dependent measures included the group cohesion
questionnaire (Appendix V) and attendance. The group cohesion
questionnaire consisted of 10 items concerning the group
atmosphere. Subjects rated each item on a Likert-scale of
1 to 7. The questionnaire was administered at the termination of
the treatment groups. In addition, attendance was used as both
a measure of cohesion and adherence to the treatment. Attendance
has previously been used to measure group cohesion (Etringer et al.,

Note 7). Further, most of the assignments were completed during the sessions, and so attendance was also a measure of adherence to the treatment.

Follow-up interviews

Smoking rate data (both abstinence and percentage reduction from baseline) were collected at 1 week, 1 month, 3 months, and 6 months after quit date. Subjects were initially contacted by mail and then by telephone to determine their smoking status. In addition, informants were asked to verify the smokers' self-reports. Approximately one-half of the informants were selected at random and contacted. Only two informants contradicted the subjects' self-reports and in both instances, the subjects reported smoking and the informants stated that the subjects were abstinent. Thus, the self-reports of the subjects appeared to be reliable.

Subjects who reported smoking at any time during the follow-up period were subsequently telephoned and interviewed concerning the circumstances surrounding their relapses (Appendix W). Of the 46 subjects who had relapsed by the 6 month follow-up date, 31 completed relapse interviews (67%).

RESULTS

Preliminary Analyses

Subjects

Subject characteristics are listed in Table 1 (p. 47).

Forty-one of the subjects were females, while 38 were males.

The mean age for the subjects was 38.17, the mean for the number

of years smoking was 19.56, and the mean baseline rate was 27.42

cigarettes per day. Analyses of variance indicated no significant

differences among the groups for number of years smoking, baseline

smoking rate, or self-efficacy (Condiotte & Lichtenstein, 1981)

on the first administration. However, analysis of variance

for age of subjects indicated that a significant difference existed

between standard M and RP subjects, F (1, 72) = 4.89, p <.05.

The breakdown of age across various groups revealed that subjects

in the AV-M and NF-M groups were younger than those in the AV-RP

and NF-RP groups.

Adherence

Subjects in the satiation groups increased their smoking

during the week of intensive smoking to 156% of their baseline

rates. This indicated good adherence to the satiation groups.

This degree of adherence was comparable to that found in other

studies utilizing the intensive smoking format (Lando, 1977, 1980).

In the NF groups, all subjects reported smoking the lower nicotine

brands they had been assigned. Weekly discussions indicated some

subjects occasionally smoked a higher nicotine cigarette, but this behavior was relatively infrequent.

Attendance was generally excellent, with an overall average of three absences per subject. However, an analysis of variance indicated a significant difference for the number of absences as a function of the maintenance treatment, F (1, 63) = 12.74, $p < .001$. The total number of absences for the AV-M and NF-M groups equalled 157, with a mean of 4.24 absences per subject. In contrast, the total number of absences for the AV-RP and NF-RP groups equalled only 92, with a mean of 2.19 absences per subject. This could have been due, in part, to the variety of new discussion topics in the RP groups.

In addition, the difference could have been caused by the different philosophies of the maintenance treatments concerning relapse. Specifically, the therapists in the RP groups viewed smoking a cigarette as a lapse and a learning experience, while they promoted the view of total abstinence in the M groups. Subjects in the M groups who did not relapse missed a mean number of 2.16 sessions after the quit date, while subjects in the RP groups who did not relapse missed only an average of 1.04 sessions. Perhaps more interesting is the finding that relapsers in the M groups missed an average of 4.83 sessions after the quit date, as contrasted to relapsers in the RP groups who missed only an average of 2.43 sessions during the maintenance treatment. Thus,

subjects who relapsed in the M groups missed twice as many sessions

during the maintenance phase of treatment as relapsers in the

RP groups.

Generally, subjects adhered to assignments made in the groups.

Assignments in the RP groups were completed during the sessions

so the excellent attendance rate indicated compliance with the

requirements. In the AV-M and NF-M groups, subjects lost interest

in the contingency contracts after approximately 2 weeks and in

most cases, these were discontinued. The therapists did encounter

resistance in the RP groups to the discussion of relapse fantasies

and completing the AVE assignment. Subjects interpreted these

exercises as the therapists' lack of confidence in the group

members' ability to abstain from smoking.

Smoking Assessment

Percentage reduction analyses

A split-plot analysis of variance was utilized to test for

the between-group differences in percentage reduction from

baseline smoking rate over the four follow-up periods (1 week,

1 month, 3 months, and 6 months). The percentage reductions

from baseline smoking levels are depicted in Table 3. No

main effects or interactions were obtained as a function of the

cessation treatments (AV and NF), although the combined percentage

reduction scores indicated that the NF groups evidenced slightly

higher percentage reduction rates from the 1 month through the

Table 3

Percentage Reductions from Baseline Smoking Levels

Group	Week 1	Month 1	Month 3	Month 6
NF-M	91.57	82.55	53.90	39.60
AV-M	96.98	81.36	61.67	49.21
NF-RP	94.46	77.88	74.12	64.75
AV-RP	100.00	71.16	63.01	48.29
Combined M Groups	94.21	81.97	57.68	44.28
Combined RP Groups	96.83	75.00	69.36	57.70
Combined AV Groups	98.49	76.26	62.34	48.75
Combined NF Groups	93.18	79.94	65.19	53.64
All Groups	95.60	78.27	63.89	51.41

6 month follow-up periods. Also, although no significant differences

emerged between the maintenance groups (M and RP), the RP groups

reported higher percentage reduction rates at both 3 and 6 month

follow-ups. No differences emerged between the therapists.

No main effects were found for the maintenance intervention.

However, a significant difference was evidenced for the maintenance

by time interaction, $F (1, 71) = 2.93$, $p < .05$. Comparing the

percentage reduction rates for the different maintenance treatments,

the RP groups relapsed at a slower rate over follow-up than the

M groups. In addition, a highly significant time effect was found,

$F (1, 71) = 49.42$, $p < .001$, indicating that all of the groups

increased their smoking rates over the follow-up periods. Despite

this increase in smoking over time, it should be noted that the

percentage reduction for all the groups combined at the 6-month

follow-up was still 51.41%.

Abstinence

The second measure of smoking was abstinence. These data

provide a more stringent and clinically meaningful outcome measure

of the smoking treatment's efficacy. In addition, abstinence was

the goal of the subjects in the present study. It was an exact

criterion and was not subject to inaccuracies in the subject's

self-monitoring as was the percentage reduction measure. Percent

of subjects abstinent by group and by combined maintenance treatments

(M and RP) and cessation treatments (AV and NF) are presented in

in Table 4.

Chi-square analyses on this dichotomous variable indicated a significant difference between the cessation treatments with the AV groups reporting initially higher abstinence rates than the NF groups at week 1. However, this difference favoring the AV cessation treatment was no longer evident at 1 month follow-up. No significant differences emerged between the maintenance treatments. The chi-square figures for the cessation treatments were: at 1 week $\chi^2(1) = 3.93$, $p < .05$, at 1 month $\chi^2(1) = .28$, at 3 months $\chi^2(1) = .004$, and at 6 months $\chi^2(1) = .06$. The chi-square figures for the maintenance treatments were: at 1 week $\chi^2(1) = .008$, at 1 month $\chi^2(1) = .37$, at 3 months $\chi^2(1) = 1.45$, and at 6 months $\chi^2(1) = 1.27$. Finally, the overall chi-square figures were: at 1 week $\chi^2(3) = 4.24$, at 1 month $\chi^2(3) = .85$, at 3 months $\chi^2(3) = 1.89$, and at 6 months $\chi^2(3) = 2.92$.

These results were consistent with the split-plot analysis of variance conducted on the percentage reduction data. When the maintenance groups were combined, the RP groups at 6 months reported a higher abstinence rate than did the M groups (47.62% as opposed to 35.14%), although this difference was not significant.

Nicotine content

The third assessment of smoking behavior focused on the nicotine content of cigarettes consumbed by relapsers. Specifically, an analysis of variance indicated that the nicotine content of cigarettes

Table 4

Percent of Subjects Abstinent by Group

Group	Week 1	Month 1	Month 3	Month 6
NF-M	84.21	73.68	42.11	26.32
AV-M	94.44	72.22	50.00	44.44
NF-RP	83.33	70.83	62.50	54.17
AV-RP	100.00	61.11	55.56	38.88
Combined M Groups	89.19	72.97	45.95	35.14
Combined RP Groups	90.48	66.67	59.52	47.62
Combined AV Groups	97.22	66.67	52.78	41.67
Combined NF Groups	85.72	72.09	53.49	41.86
All Groups	89.90	69.60	53.20	41.80

relapsers smoked at follow-up varied significantly with the cessation treatment, $F (1, 44) = 15.28$, $p<.001$. Subjects in the AV treatments began the program with a mean nicotine level of .92, while subjects in the NF groups began the program with a mean nicotine level of .98. At the 6-month follow-up, relapsers from the AV groups were smoking cigarettes with a mean nicotine level of .87, as contrasted with the NF subjects who relapsed to significantly lower nicotine content cigarettes (mean level of .48 at 6-month follow-up). This result was consistent with the theoretical basis of the different cessation treatments as the NF subjects switched to lower nicotine content cigarettes during the program.

Self-efficacy Analysis

The confidence questionnaire (Condiotte & Lichtenstein, 1981; Appendix B) was administered three times during the program (pretreatment, quit date, and at the termination of treatment). A split-plot analysis of variance was performed to assess between-group differences over time. No main effects for cessation, maintenance, or therapist were evident. However, several interactions attained significance. First, therapist by cessation by maintenance by time was significant, $F (2, 116) = 4.27$, $p<.05$. The two therapists had remarkably different impacts on the self-efficacy scores of the groups. Therapist one's groups reported increased self-efficacy scores throughout the treatment in three of the four groups. In contrast, therapist two's groups reported increases

in self-efficacy scores throughout the cessation portion of the

program but not the maintenance phase in three of the four groups.

Table 5 illustrates the mean group scores on the three administrations

of the self-efficacy measure and the abstinence rates for each

individual group. Interestingly enough, the two groups reporting

the highest abstinence rate at 6 months were therapist one's

NR-RP group and therapist two's AV-M group. The mean efficacy

scores for both of these treatment groups increased throughout

the course of treatment. However, it should be noted that

self-efficacy is a process measure and that these differences

were not reflected in the outcome data.

Second, therapist by maintenance was significant, F (1, 58) =

4.83, $p < .05$. Figure 3 illustrates the mean efficacy scores for

each therapist by maintenance group. Again, the pattern described

above was repeated. Therapist one's RP groups reported increases

throughout the treatment program, while the M groups merely

maintain their self-efficacy scores though the maintenance phase

of treatment. In contrast, therapist two's groups reported

increases in their self-efficacy scores to the quit date, followed

by a decrease during the maintenance treatment. Theoretically, the

RP treatment was designed to enhance the subjects' self-efficacy.

This increase during maintenance occurred for therapist one, but

not for therapist two. As will be discussed later, self-efficacy

was the best predictor for treatment success. It was possible that

Table 5

Self-efficacy and Abstinence by Groups

Therapist & Groups	Self-efficacy Scores[a]			Abstinence	
	Pre.	Quit	Term.	1 mo.	6 mo.
Therapist 1:					
AV + M	40.74	70.58	62.52	75%	38%
NF + M	38.67	72.17	77.57	78%	33%
AV + RP	48.78	55.83	82.00	60%	40%
NF + RP	49.29	77.25	93.16	83%	67%
Therapist 2:					
AV + M	42.79	85.99	95.95	70%	50%
NF + M	41.17	94.46	73.78	70%	20%
AV + RP	46.81	83.60	68.29	63%	38%
NF + RP	39.22	75.84	72.28	58%	42%

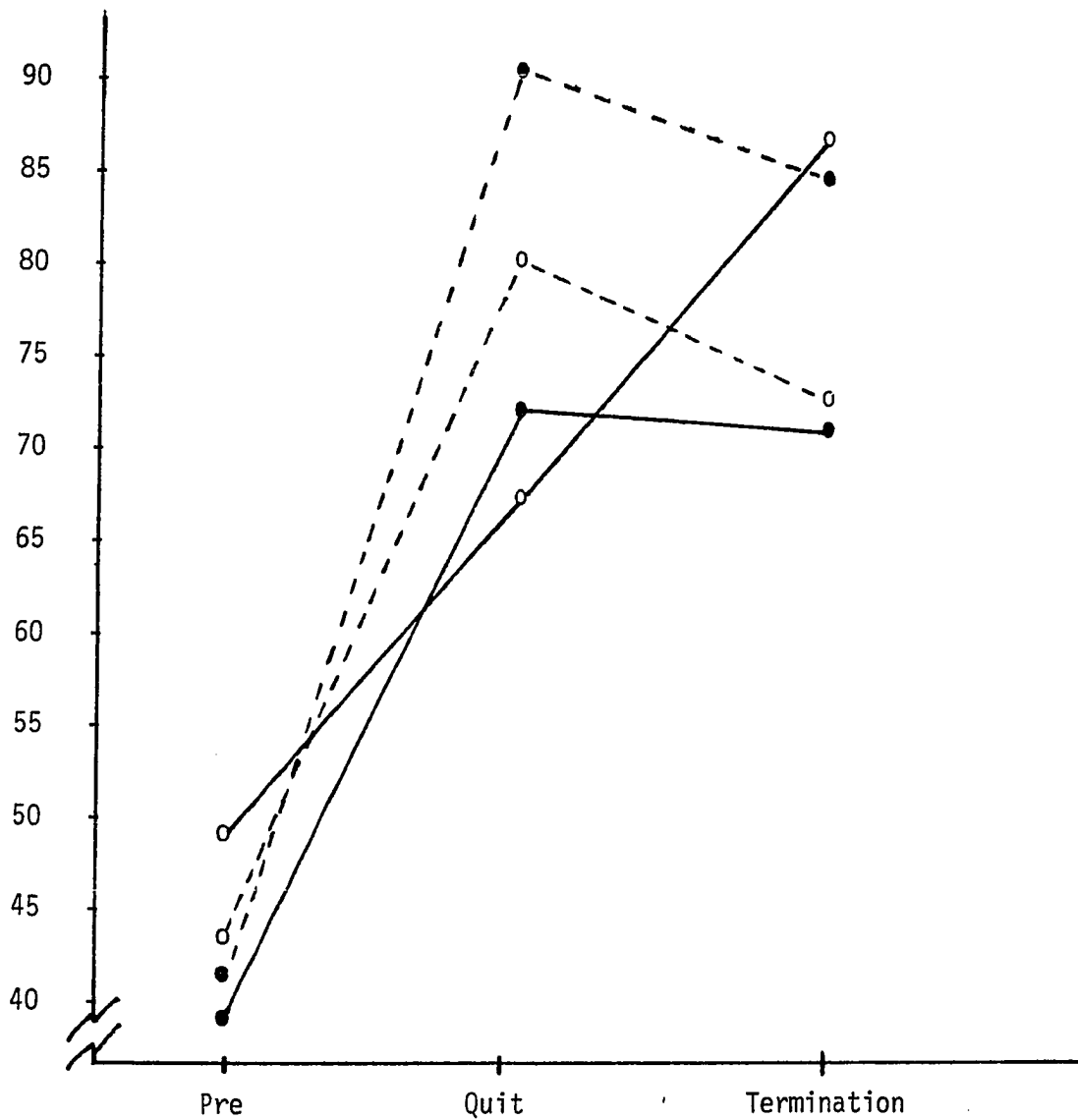[a]These are the mean scores for the individual groups.

Figure 3

Comparison of Mean Efficacy Scores Across Treatment Times for

Therapist and Maintenance Groups[a]

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[a]Therapist 1 was delineated by a solid line, therapist 2 by a broken line; RP groups delineated by o; M by ●.

the differences between therapists in implementing the RP treatment may have obscured significant differences between the maintenance treatments. However, the self-efficacy termination scores for both therapists were so similar that they may have precluded the differences on the outcome measures of smoking rate.

Third, therapist by time was highly significant, $F(2, 116) = 7.79$, $p < .001$. Figure 4 demonstrates the mean efficacy scores for each therapist over treatment time. Again, the same pattern emerged, with therapist one's self-efficacy scores peaking at the quit date and then decreasing during the maintenance treatment. However, the overall self-efficacy scores at the termination of treatment for the two therapists were close (therapist one's = 78.81, and therapist two's = 77.57).

Finally, a highly significant time effect emerged from the analysis, $F(2, 116) = 103.75$, $p < .001$. When the groups were collapsed across therapists, leaving the four basic treatment groups (NF-M, AV-M, NF-RP, and AV-RP), all of the group means of self-efficacy increased during the treatment program. Newman-Keuls comparisons were conducted to assess the nature of the differences in mean scores over time. These comparisons were chosen because the procedure was powerful and controlled for Type I error. Specifically, the comparisons indicate highly significant increases in the self-efficacy means both from the pretreatment assessment to the quit date, $p < .01$,
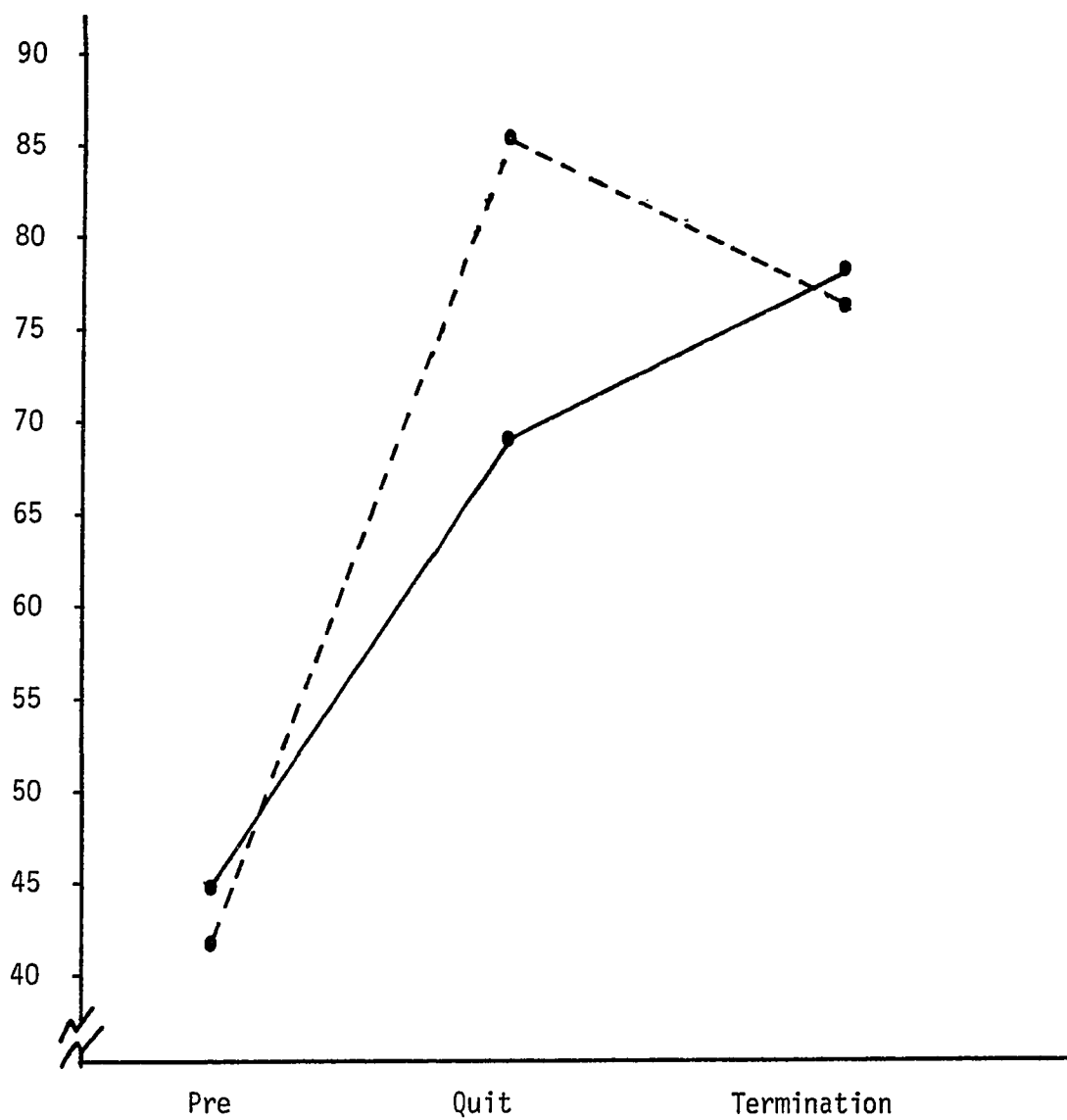
Figure 4

Comparison of Mean Efficacy Scores for

Therapists Across Time[a]

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[a]Therapist 1 was depicted by a solid line and therapist 2 by a broken line.

and from the pretreatment to the termination, p .01.

Predictors of Treatment Success

Correlational analysis

An initial correlational analysis, computed to assess the degree of relationship between abstinence at 6 months and percentage reduction at 6 months, was highly significant ($r = -.9586$, $p < .001$). Therefore, percentage reduction at 6 months was utilized as the outcome measure in further analyses. Pearson product-moment correlations were performed to assess the degree and direction of relationships between outcome at 6 months and several variables believed to have an impact on outcome. The correlations are listed in Table 6.

First, factors measuring group cohesion included the group cohesion questionnaire (Appendix V) and number of absences. Although the questionnaire did not correlate significantly with outcome at 6 months, number of absences was highly correlated with outcome ($r = -.37$, $p < .001$). In addition, number of absences could also be viewed as a measure of treatment adherence. Thus, the correlation of absences with outcome suggested that cohesion and adherence to treatment may have been related to outcome at 6 months. However, these conclusions are tenuous given that the cohesion questionnaire was not correlated with outcome at 6 months.

Table 6

Correlation Matrix

	Self-efficacy			Group Cohesion	Absences
	Pre.	Quit	Term.		
Percentage Reduction at 6 mos.	.12	.08	.68**	.17	-.37*

* Indicates p < .001

** Indicates p < .0001

Second, the three administrations of the confidence questionnaire (Condiotte & Lichtenstein, 1981; Appendix B) were included in the correlational analysis. The adminstration of this questionnaire at the termination of treatment evidenced the strongest relationship to outcome at 6 months (r = .68, $p < .001$), suggesting that subjects' self-efficacy at the end of treatment was an important factor in long-term abstinence.

A further correlational analysis was conducted to control for possible inflation in the original analysis due to the inclusion of subjects who had already relapsed before the termination of treatment. It was possible that subjects who had relapsed before the final self-efficacy measure would have scored much lower than nonsmokers on that measure and this would have resulted in a biased analysis. Therefore, this analysis excluded smokers who had relapsed during the maintenance treatment. The correlation of the termination self-efficacy scores for subjects not smoking during the maintenance phase of treatment with outcome at 6 months was also highly significant (r = .63, $p < .001$). This result strongly corroborated the prior analysis which suggested that the termination self-efficacy score was highly predictive of outcome at 6 months.

Regression analysis

A stepwise multiple regression was conducted to further assess the importance of a number of variables at predicting outcome at 6 months. However, the regression analysis did not differ from

correlational analysis as the self-efficacy termination score remained the best predictor of percentage reduction at 6 months. However, the regression analysis did indicate that the termination efficacy score was highly correlated with the changes in self-efficacy from pretreatment to termination (-.85) and with the changes in self-efficacy from quit date to termination (-.69), suggesting that these variables were excluded from the stepwise regression because they correlated so highly with the self-efficacy scores at termination. Thus, changes in self-efficacy over the time of treatment may also have been an important factor in treatment success. Finally, Figure 5 graphically illustrates the changes in mean self-efficacy scores for relapsers as opposed to nonsmokers at 6 months. Specifically, nonsmokers' self-efficacy scores increased throughout the treatment period, as contrasted with relapsers' scores which increased to the quit date and then decreased during the maintenance period.

Relapse Interviews

Of the 46 subjects who had relapsed by the 6 month follow-up, 31 completed relapse interviews (67%). Only 45% of the relapsers in the M groups completed the interviews, as compared to an 85% completion rate in the RP groups. The author attempted to contact all of the relapsers by telephone. The difference in the response rate was a function of persons who could not be found and incomplete forms. When considering these results, it should be noted that the
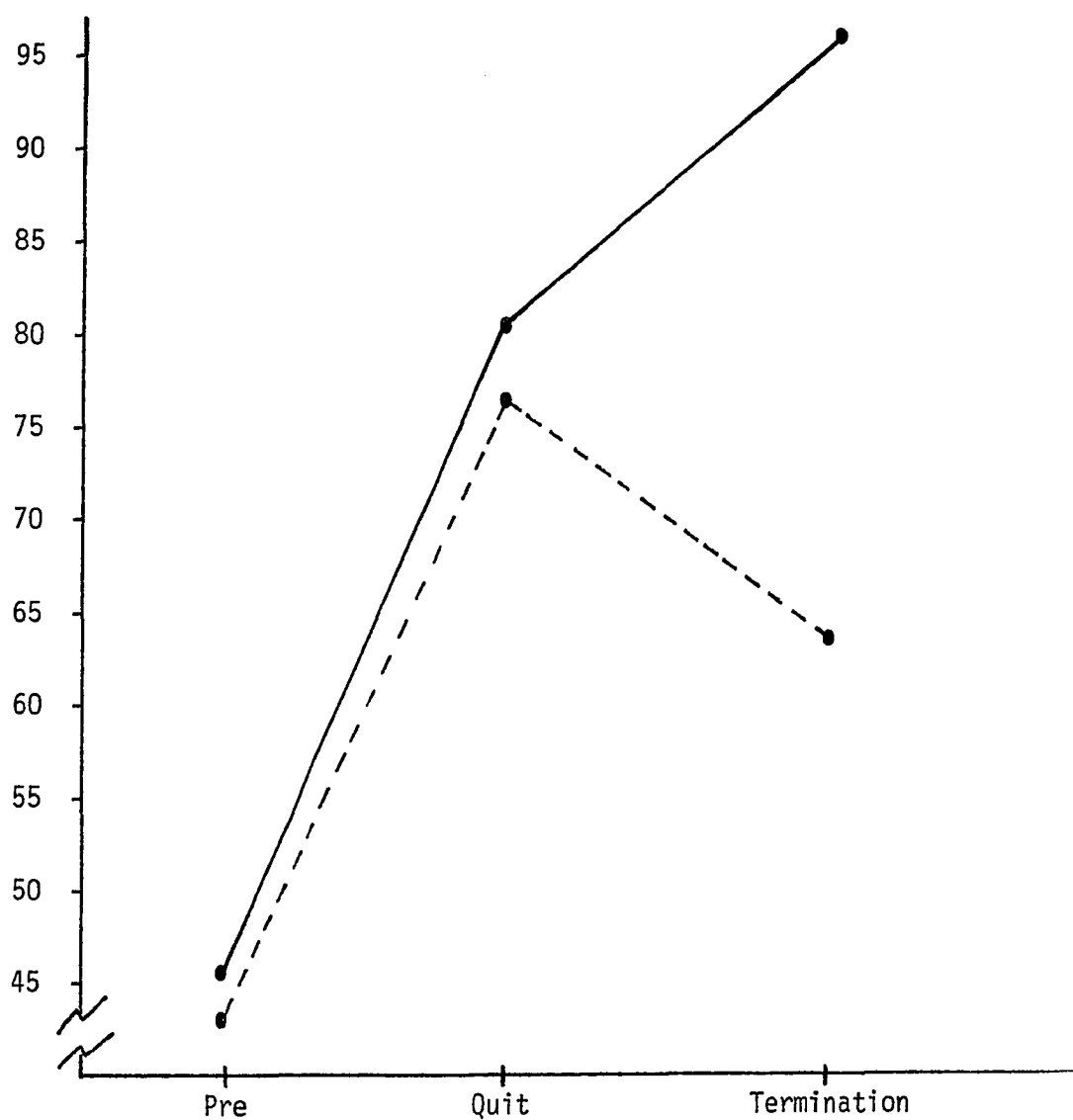
Figure 5

Comparison of Mean Efficacy Scores across Treatment Times for

Subjects Reporting Relapses or Abstinence at 6 Months[a]

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[a]Relapsers are represented by a broken line, nonsmokers by a solid line.

the sample size in the M groups may not be representative of that population.

Several areas of interest emerged from the relapse interviews. First, 58% of the subjects reported relapsing in the evening, whereas only 13% relapsed in the morning, and 29% relapsed in the afternoon. Second, the home environment was the most likely setting for a relapse (58%), followed by work (23%), and restaurants and bars (19%). Third, in 61% of the relapses another smoker was present, as contrasted to 39% of the situations in which the subject was alone or with a nonsmoker. This last result was consistent with other literature suggesting that the presence of other smokers is strongly associated with relapses (Shiffman, 1982).

Fourth, 84% of the subjects reported experiencing a negative affect state prior to relapse. Specifically, 12% of these subjects reported an angry interpersonal situation, 42% reported feeling anxious, and 46% reported they were depressed. Only 16% of the total relapse sample reported a positive mood state and all of these subjects were socializing and drinking alcohol. These results are also consistent with earlier reports in the literature concerning the strong relationship between smoking and negative affect states (Marlatt, 1980; Shiffman, 1982).

Fifth, the relapse interview contained questions about attempts to cope with urges after smoking a cigarette. In the RP groups, 59% of the relapsers stated they continued to try

to cope with urges, while 41% of the RP subjects made no further
coping attempts. In the M groups, only 33% tried to cope following
a relapse and 67% made no effort to cope. Although these data must
be interpreted with caution due to the small number of responses
from the M groups, they do suggest that more people in the RP
groups attempted to cope with urges following a lapse than did
subjects in the M groups.

Finally, the subjects who relapsed were asked to describe
the effects of that first cigarette on diminishing their confidence
levels. The data indicated that: 27% of the RP subjects and
11% of the M subjects stated it had little or no effect, 50% of the
RP subjects and 11% of the M subjects stated it had a moderate
effect, 18% of the RP subjects and 56% of the M subjects stated
it had a strong effect, and 5% of the RP subjects and 22% of the
M subjects stated it completely demolished their confidence in
their ability to abstain from further smoking. These data were
also consistent with the philosophies of the two maintenance
treatments. Subjects in the RP groups reported experiencing less
of a decrease in their confidence levels than did subjects in the
M groups. Subjects in the RP groups were exposed to information
about the AVE, were told that a lapse did not mean they had failed,
and exhibited fewer failure responses than did subjects in the M
groups.

DISCUSSION

Overview of the Hypotheses

Comparison of maintenance treatments

Although no significant differences emerged due to the maintenance treatments, the hypothesis that the RP program would be superior received partial support. When the maintenance groups were combined, the RP groups reported a higher abstinence rate than the M groups at 6 months, 47.62% as compared to 35.14%. Although these differences did not reach significance, they were in the predicted direction. Furthermore, the maintenance by time interaction in the split-plot analysis of variance indicated that the subjects in the RP groups relapsed at a slower rate than the subjects in the M groups.

Finally, the relapse interviews supported the effectiveness of the RP model. More subjects in the RP groups attempted to cope with urges to smoke than those subjects in the M groups. Also, RP subjects reported that the first cigarette had much less of a detrimental effect on their confidence levels than subjects in the M groups. Both of these findings supported the viability of the RP model. It would be interesting if future research focused more specifically on the actual smoking patterns of relapsers receiving different maintenance treatments to determine if the RP treatment had specific behavioral effects.

Thus, the outcome was in the expected direction but no significant treatment differences emerged. Several factors could have contributed to the lack of significant differences between the maintenance packages. First, the statistical power was severely limited by the number of subjects in the study (Cohen, 1977). Each of the four treatment conditions was represented by only two groups and total subject enrollment was only 79. Therefore, the results of the present study were not conclusive due to the limited statistical power. It is possible that replication of this study with a larger number of subjects might result in more conclusive findings. Replication is clearly indicated.

Second, the use of the M treatment package provided a stringent baseline for comparison of the RP treatment. The M treatment has been proven clinically effective in previous experiments and has been one of the most effective smoking treatments to date (e.g., Lando, 1977; Lando & McCullough, 1978). In addition, it should be noted that the overall percentage reduction from baseline smoking rates at 6 months was 51.41%. This rate was relatively high and demonstrated the effectiveness of all of the treatment groups. As average outcomes for one year follow-ups have usually been around 25% abstinence, the present study compares favorably to the established treatments (Lando, 1980).

Third, although a trend emerged supporting the superiority of the RP model, the effects may have been somewhat weakened

by the complexity of the format. Researchers have suggested that increasing the number of interventions during treatment can actually result in decreased effectiveness of the treatment (Hall, 1980; Lando, 1980; Lichtenstein & Danaher, 1976). In the present study, an effort was made not to overload subjects in such a manner. For instance, subjects in the RP treatment groups were allowed time for free discussion and the introduction of techniques were spaced to give the subjects time to comprehend the topics. Thus, although the concern about the complexity of the treatment package was warranted, no evidence of overloading the subjects was apparent.

Fourth, subjects exhibited mixed reactions to the presentation and discussion of the relapse fantasies and the AVE concept. Subjects who had relapsed prior to the discussion of the AVE found the experience appropriate and helpful. In contrast, subjects who had not smoked after the quit date were disconcerted when the therapists began talking about relapses and how to cope with them. Some subjects viewed this discussion as permission to smoke; some refused to participate; and some felt the therapists had lost confidence in them.

In light of these subject responses, the AVE may have undermined the goals of the RP treatment. Similar concerns were expressed by Cooney et al. (Note 11). Future research should investigate the efficacy of the AVE discussion and especially the timing of the AVE. As it did appear helpful to subjects who had relapsed, it is possible

that waiting until a relapse occurs before discussing the AVE
might be therapeutic. As this would be difficult to manage in
an experimental study, an alternative would be to place more
emphasis on the AVE discussion as being similar to a fire drill,
i.e., it is useful to have the practice and knowledge but
that does not mean that the fire (or relapse) will occur
(Marlatt, 1980).

Finally, the lack of significant differences between
the treatments could have resulted from the different styles
of the two therapists in implementing the maintenance treatments.
Although no main effects emerged for therapists on the outcome measures
or on the process variable of self-efficacy, numerous interactions
involving the therapist factor attained significance. The two
therapists had different impacts on the self-efficacy scores
across treatment times, with therapist one's groups reporting
continual increases in self-efficacy and therapist two's groups
increasing dramatically to the quit date and then decreasing
during the maintenance treatment. However, the termination scores
for the different therapists were similar. Given the high correlation
of the termination self-efficacy scores with outcome at 6 months
and of the termination scores with changes throughout the treatment,
the therapist differences evident in the interactions may have
contributed to the lack of significant main effects. Future
research should concentrate on the process of changing self-
efficacy reports of subjects to test the importance of this relationship.

Comparison of cessation treatments

No predictions were made concerning the differential effectiveness of the AV and NF cessation treatments, although it was hoped that the structured RP package would enhance the outcome of the NF groups. In the present study, no significant differences emerged between the AV and NF treatments. Both cessation treatments were effective in reducing or eliminating smoking over the 6 month follow-up period, with an overall abstinence rate of 42% at 6 months. The significant time effect found in the split-plot analysis of variance indicated that all groups did significantly relapse over the 6-month follow-up period.

The AV treatment has proven highly effective when part of a multicomponent treatment package (e.g., Lando, 1977, 1981). Although the initial study concerning the NF treatment reported a 40% abstinence rate at the 18-month follow-up, later investigators have not confirmed the efficacy of the treatment (e.g., Beaver et al., 1981; Lando et al., Note 5). At least one study (Etringer et al., Note 7) has demonstrated that the NF procedure could be as effective as the AV when implemented in the context of a highly cohesive group. The results of the present study suggested that the NF treatment was as effective as the AV when combined with a structured maintenance package. Thus, the NF treatment format's efficacy has been demonstrated

when supplemented with other process variables (cohesion) or with structured coping skills training.

A significant advantage to the NF treatment involves the decreased health risks during treatment which increases the applicability of the treatment to all smokers, regardless of health problems. Therefore, the increased effectiveness of the NF treatment when supplemented by a structured maintenance package has strong implications for further research and clinical practice.

A further advantage to the NF treatment is that relapsers from this cessation treatment resumed smoking a lower tar and nicotine cigarette than their baseline brand (Beaver et al., 1981; Foxx et al., 1981). Although some investigators have reported an increase in smoking rate among those who switch to lower nicotine cigarettes (Goldfarb et al., 1976), others have found no compensatory increases in smoking rates (Beaver et al., 1981; Cherry & Forbes, 1972). In addition, laboratory tests have indicated that smoking lower tar and nicotine cigarettes resulted in concomitant decreases in the intake of poisonous gases (Prue et al., 1980).

The present study found a highly significant cessation treatment effect on nicotine levels of cigarettes smoked by relapsers, with NF subjects returning to lower tar and nicotine cigarettes. Although the physiological effects of lower tar and nicotine cigarettes are still controversial, the present study was consistent

with the previous research findings that relapsers from NF

cessation treatments smoke lower tar and nicotine cigarettes.

Variables predicting success

The best predictor of treatment success at 6 months was the

last administration of the confidence questionnaire (Condiotte

& Lichtenstein, 1981; Appendix B) which occurred at the termination

of treatment. The additional correlational analysis which

excluded subjects who relapsed prior to the termination of treatment

reinforced the strength of the termination self-efficacy

scores as predictors of successful outcome. The present

study suggested that regular attendance might have increased

self-efficacy ratings as the two factors were highly correlated.

In addition, Figure 5 (p. 84) illustrated that continual

increases in self-efficacy ratings throughout the entire

treatment was associated with abstinence at the 6-month follow-up.

The interaction effects on the self-efficacy split-plot

analysis involving the therapist factor complicated the

interpretation of the results. Differences between the therapists

emerged only on a process variable. Investigation of therapist

variables in relation to process and outcome measures are in

beginning stages. Due to the difficulty in studying such factors,

a recent review (Parloff, Waskow, & Wolfe, 1978) described the

field as dealing with such simplistic, global concepts as to be

suffering from "possibly terminal vagueness" (p. 273) and concluded

they were unable to discern the therapeutically relevant factors. However, some evidence exists favoring the importance of verbal and nonverbal stylistic variables among therapists (Parloff et al., 1978). From the present study, the author is unable to reach conclusions about the causes or the effects of the differential impacts on self-efficacy ratings of the two therapists. Investigation of stylistic variables involved in these differences would have been worthwhile. For future research, investigating process variables might elucidate the reasons why many smoking studies do not result in differential effectiveness for the various treatments.

A second factor with a strong relationship to successful outcome at 6 months was the number of absences. Attendance to groups could be viewed as a measure of treatment adherence and/or as a measure of group cohesion. The findings in the present study, that number of absences was highly correlated with percentage reduction at 6 months, supported the hypothesis that treatment adherence would be related to long-term success. Interestingly, the RP group members missed significantly fewer meetings than the M group members, suggesting greater attention and adherence in the structured groups. This could have been caused by the presentation of different exercises every week in the RP groups, as opposed to group discussion in the M groups. Further analyses indicated that RP members who had relapsed also

attended more maintenance sessions than M members who relapsed. Thus, relapsers in the RP groups evidently understood the rationale underlying the RP model, i.e., that a lapse should be viewed as a learning experience rather than a failure.

The final variable included in these analyses was group cohesion. The cohesion questionnaire (Appendix V) and the number of absences were used in the correlational analysis to measure the cohesion of the groups. Both of these measures have been used in previous research to determine the degree of cohesion in smoking groups (Etringer et al., Note 7). That study found that highly cohesive groups were significantly more effective through 3 month follow-up than noncohesive groups (Etringer et al., Note 7). Longer term follow-up interpretations concerning cohesion were made difficult by an inordinate amount of life changes producing extreme stress for subjects in the AV groups. Thus, comparisons between the groups must be interpreted with caution.

The present study partially supported the relationship of group cohesion to treatment success. Specifically, number of absences was strongly related to outcome at 6 months. However, the cohesion questionnaire was not significantly related to long-term outcome. It was possible that the cohesion questionnaire was an inadequate measure of group cohesion in the present study. The scale consisted of only eight items and may not have been

sensitive enough to detect the cohesion processes. A scale
with more items might provide a better index of cohesion.
In the present study, the majority of the scores indicated
that most of the subjects perceived their groups as cohesive.

Future studies should continue to focus on cohesion
and its relationship to outcome. Additional measures of
cohesion could be used for more accurate assessment. For
example, Etringer et al. (Note 7) found that the Hill
Interaction Matrix (Hill, 1965) and the Comfortable Interpersonal
Distance Scale (Duke & Nowicki, 1972) were appropriate measures
for smoking studies.

Implications for the RP Model

Theoretical support

Strong theoretical support for the RP model emerged from
the relapse interviews. Situational variables surrounding the
relapse process which were identified as important in previous
literature were supported in the present investigation. For
example, the setting of the relapse and the finding that more
subjects relapsed while in the presence of another smoker than
while alone or with a nonsmoker were replicated in the
present study (Eisinger, 1971; Lichtenstein et al., Note 9;
Shiffman, 1982). In addition, the association of negative
affective states with relapses has been a central tenet in
the development of the RP model (Marlatt, 1980; Marlatt & Gordon,
1980). In the present study, 84% of the subjects who relapsed

reported a negative affect state prior to smoking.

Findings also supported the rationale behind the RP model that a lapse should be viewed as a learning experience and not as a treatment failure. For instance, 59% of the RP relapsers attempted to cope after the initial lapse, as contrasted to only 34% of the M relapsers. Further, RP relapsers missed fewer maintenance sessions than did M relapsers.

Another significant finding was that 75% of the RP members stated that smoking that first cigarette had little to moderate effects in decreasing their self-confidence, as opposed to 78% of the M members who reported that the cigarette had a strong effect or completely demolished their self-confidence in their ability to abstain from smoking. The decrease in self-confidence due to a smoking experience was a result of the AVE according to the RP model. Thus, RP members coping and not describing themselves as failures with no self-confidence could have been due to the presentation of the AVE information and the basic treatment rationale of the RP model. Future relapse research should also focus on the behavioral effects of self-confidence and coping and how they relate to further smoking.

In addition, the construct of self-efficacy operating as an underlying mechanism in behavior change also received support. Although the hypothesis that RP subjects would exhibit higher self-efficacy ratings due to the treatment was not supported, the hypothesis that relapsers would express lower self-efficacy

ratings was affirmed (Figure 5, p. 84).

In recent years, self-efficacy has received increasing attention in the field of smoking research. Although one study (Cooney et al., Note 11) reported that self-efficacy did not predict outcome, the majority of the literature has been positive. For example, DiClemente, (1981), comparing aversion therapy, behavioral management, and self-quitters, found that self-efficacy ratings after 4 weeks of successful abstinence were significantly related to abstinence after 5 months. Finally, the most conclusive study to date (Condiotte & Lichtenstein, 1981) demonstrated that termination self-efficacy scores predicted outcome at 3-month follow-up. The results of the present study indicated that termination self-efficacy scores predicted long-term success. The process variables influencing self-efficacy were probably important treatment ingredients.

Empirical support

The major finding that the RP treatment was not significantly more effective than the M treatment was consistent with previous research. First, Boelens (1980) found no significant differences at the 6-month follow-up period between an RP treatment and a multicomponent package. However, the results must be interpreted with caution due to serious methodological weaknesses in the study. Second, Brown and Lichtenstein (Note 10) conducted a clinical

evaluation of nicotine fading, self-management, and RP, and found a 46% abstinence rate at 6 months, but were unable to replicate this in a controlled study. In the latter, RP was not superior to a discussion control group (Brown & Lichtenstein, Note 10).

Although the empirical literature has not demonstrated the superiority of the RP model, it has not been extensively tested. The present study has reported the most promising findings to date. At 6 months, the overall abstinence rate was 42%, comparing favorably with existing literature (Lando, 1980). Thus, both maintenance packages were effective.

Concluding Remarks

Clerarly, the author must recommend replication. The present study suffered from limited statistical power (Cohen, 1977). Further, the interactions involving the therapist factor on the self-efficacy measure may have obscured treatment differences. Also, the complexity of the RP model may have been too demanding on the subjects. It would be useful to test the specific components of the RP model in different treatment packages to determine what interventions were the most effective. For example, the utility and timing of the AVE interventions should be tested. It could have been detrimental in the present study, considering the subjects' mixed reactions.

Finally, process variables have become increasingly important in psychological research. Smoking studies have just begun to focus on these variables. The present study indicated that self-efficacy was a powerful predictor of long-term outcome. Possible factors influencing self-efficacy could have been regular attendance, adherence, and therapist differences in implementing strategies and in their interpersonal styles, Future research should address the process variables operative within the cognitive-behavioral treatments to gain a better understanding of treatment with the goal of enhancing its effectiveness.

REFERENCE NOTES

1. Harris, D. E., & Lichtenstein, E. Contribution of nonspecific social variables to a successful behavioral treatment of smoking. Paper presented at the meeting of the Western Psychological Association, Anaheim, April, 1971.

2. Weinrobe, P. A., & Lichtenstein, E. The use of urges as termination criterion in a rapid smoking program for habitual smokers. Paper presented at the meeting of the Western Psychological Association, Sacramento, April, 1975.

3. Lando, H. A., McCormack, S., & McGovern, P. Physiological effects of satiation, rapid, and normal smoking. Paper presented at the meeting of the American Psychological Association, Montreal, September, 1980.

4. Lando, H. A., Shirley, R. J., Gregory, V. R., & McCullough, J. Broad-spectrum treatment in eliminating smoking: Preparation, aversion, and maintenance. Paper presented at the meeting of the American Psychological Association, New York City, April, 1979.

5. Lando, H. A., Etringer, B. D., McCormack, S., & Gregory, V. R. A comparison of nicotine fading and satiation in the elimination of smoking. Paper presented at the meeting of the Association for the Advancement of Behavior Therapy, Toronto, November, 1981.

6. Kopel S. A., Suckerman, K. R., & Baksht, A. Smoke holding: An evaluation of physiological effects and treatment efficacy of a new nonhazardous aversive smoking procedure. Paper presented at the meeting of the Association for the Advancement of Behavior Therapy, San Francisco, December, 1979.

7. Etringer, B. D., Gregory, V. R., & Lando, H. A. Influence of group cohesion on behavioral treatment of smoking. Manuscript submitted for publication.

8. Horn, D., & Waingrow, S. Behavior and attitudes. Unpublished manuscript, 1966.

9. Lichtenstein, E., Antonuccio, D. O., & Rainwater, G. Unkicking the habit: The resumption of cigarette smoking. Paper presented at the meeting of the Western Psychological Association, Seattle, April, 1977.

10. Brown, R. A., & Lichtenstein, E. Effects of a cognitive-behavioral relapse prevention program for smokers. Paper presented at the meeting of the American Psychological Association, Montreal,

September, 1980.

11. Cooney, N. L., Kopel, S. A., & McKeon, P. Controlled relapse training and self-efficacy in ex-smokers. Unpublished manuscript.

12. Gregory, V. R., Etringer, B. D., & Lando, H. A. A comparison of the effectiveness of a cognitive-behavioral maintenance package treatment. Unpublished manuscript.

13. Salt Lake Veterans Administration Medical Center. Alcohol dependence treatment unit manual, 1981.

14. Taylor, J. R., & Lantinga, L. J. Urge reduction training: A behavior therapy treatment strategy for substance abusers. Unpublished manuscript.

REFERENCES

Adesso, V. J., & Glad, W. R. A behavioral test of a smoking typology. Addictive Behaviors, 1978, 3, 35-38.

Ashton, H., Watson, D. W., Marsh, R., & Sadler, J. Puffing frequency and nicotine intake in cigarette smokers. British Medical Journal, 1970, 3, 679-681.

Bandura, A. Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 1977, 84, 191-215.

Beaver, C., Brown, R. A., & Lichtenstein, E. Effects of monitored nicotine fading and anxiety management training on smoking reduction. Addictive Behaviors, 1981, 6, 301-305.

Bernstein, D. A. Modification of smoking behavior: An evaluative review. Psychological Bulletin, 1969, 71, 418-440.

Bernstein, D. A., & Glasgow, R. E. The modification of smoking behavior. In O. F. Pomerleau and J. P. Brady (Eds.), Behavioral medicine: Theory and practice. Baltimore: Williams and Wilkins, 1979.

Bernstein, D. A., & McAlister, A. The modification of smoking behavior: Progress and problems. Addictive Behaviors, 1976, 1, 90-102.

Best, J. A. Tailoring smoking withdrawal procedures to personality and motivational differences. Journal of Consulting and Clinical Psychology, 1975, 43, 1-8.

Best, J. A., & Bloch, M. On improving compliance: Cigarette smoking. In R. B. Haynes and D. L. Sackett (Eds.), Compliance. Baltimore: Johns Hopkins University, in press.

Best, J. A., & Hakstian, A. R. A situation specific model for smoking behavior. Addictive Behaviors, 1978, 3, 79-92.

Best, J. A., Owen, L. E., & Trentadue, L. Comparison of satiation and rapid smoking in self-managed smoking cessation. Addictive Behaviors, 1978, 3, 71-78.

Best, J. A., & Steffy, R. A. Smoking modification procedures for internal and external locus of control clients. Canadian Journal of Behavioral Science, 1975, 7, 155-165.

Boelens, D. M. Relapse prevention in the treatment of cigarette
    smokers. Unpublished doctoral dissertation, University of
    Washington, 1980.

Bosse, R., Garvey, A. J., & Glynn, R. J. Age and addiction to
    smoking. Addictive Behaviors, 1980, 5, 341-351.

Brengelmann, J. C., & Sedlmayr, E. Experiments in the
    reduction of smoking behavior. In Steinfeld et al. (Eds.),
    Health consequences education, cessation activities, and
    governmental action. Washington, D.C.: U. S. Department
    of Health, Education, and Welfare, 1977.

Cautela, J. R. Covert sensitization. Psychological Reports,
    1967, 20, 459-468.

Cherry, W. H., & Forbes, W. F. Canadian studies aimed toward
    a less harmful cigarette. Journal of the National Cancer
    Institute, 1972, 48, 1765-1777.

Coan, R. W. Research strategy in the investigation of personality
    correlates. In S. V. Zagona (Ed.), Studies and issues
    in smoking behavior. Tucson, Arizona: University of
    Arizona Press, 1967.

Coan, R. W. The relationship between smoking and overall
    personality organization. In S. V. Zagona, (Ed.),
    Final report prepared for the National Clearinghouse for
    Smoking and Health. Tucson, Arizona: University of
    Arizona Press, 1969.

Coan, R. W. Personality variables associated with cigarette
    smoking. Journal of Personality and Social Psychology,
    1973, 26, 86-104.

Cohen, J. Statistical power analysis for the behavioral
    sciences. New York: Academic Press, 1977.

Condiotte, M. M., & Lichtenstein, E. Self-efficacy and
    relapse in smoking cessation programs. Journal of
    Consulting and Clinical Psychology, 1981, 49, 648-658.

Conway, J. B. Behavioral self-control of smoking through
    aversive conditioning and self-management. Journal of
    Consulting and Clinical Psychology, 1977, 45, 348-357.

Costa, P. T., McCrae, R. R., & Bosse, R. Smoking motives factor:
    A review and replication. International Journal of the
    Addictions, 18, 8-12, 1980.

Cummings, C., Gordon, J. R., & Marlatt, G. A. Relapse: Strategies
    or prevention and prediction. In W. R. Miller (Ed.), The
    addictive behaviors. Oxford, U.K.: Pergamon Press, 1980.

D'Zurilla, T. J., & Goldfried, M. B. Problem solving and behavior
    modification. Journal of Abnormal Psychology, 1971, 78, 107-126.

Dericco, D. A., Brigham, T. A., & Garlington, W. K. Development
    and evaluation of treatment paradigms for the suppression of
    smoking behavior. Journal of Applied Behavior Analysis, 1977,
    10, 173-181.

DiClemente, C. C. Self-efficacy and smoking cessation maintenance:
    A preliminary report. Cognitive Therapy and Research, 1981,
    5, 175-187.

Doll, R., & Hill, A. B. Mortality in relation to smoking: Ten
    years observations of British doctors. British Medical
    Journal, 1964, 1, 1339-1410.

Doll, R., & Peto, R. Mortality in relation to smoking: Twenty
    years observations in male British doctors. British Medical
    Journal, 1976, 2, 1525-1536.

Duke, M. P., & Nowicki, S. A new measure and social-learning method
    for interpersonal distance. Journal of Experimental Research
    on Personality, 1972, 6, 119-132.

Eisinger, R. A. Psychosocial peredictors of smoking recidivism.
    Journal of Health and Behavior, 1971, 12, 355-362.

Elliott, C. H., & Denney, D. R. A multiple-component treatment
    approach to smoking reduction. Journal of Consulting and
    Clinical Psychology, 1978, 46, 1330-1339.

Elliott, C. H., & Tighe, T. Breaking the cigarette habit: Effects
    of a technique involving threatened loss of money. Psychological
    Record, 1968, 18, 503-513.

Eysenck, H. J. Personality and the maintenance of the smoking
    habit. In W. Dunn (Ed), Smoking behavior: Motives and
    incentives. Washington, D.C.: V. H. Winston, 1973.

Festinger, L. Conflict, decision, and dissonance. Stanford: Stanford University Press, 1964.

Flaxman, J. Quitting smoking now or later: Gradual, abrupt, immediate, and delayed. Behavior Therapy, 1978, 2, 260-270.

Flaxman, J. Affect-management and habit mechanisms in the modification of smoking behavior. Addictive Behaviors, 1979, 4, 39-46.

Foxx, R. M., & Brown, R. A. A nicotine fading and self-monitoring program to produce cigarette abstinence or controlled smoking. Journal of Applied Behavior Analysis, 1979, 12, 111-125.

Foxx, R. M., Brown, R. A., & Katz, I. Nicotine fading and self-monitoring for cigarette abstinence or controlled smoking: A two and one-half year follow-up. The Behavior Threapist, 1981, 4, 21-23.

Frederiksen, L. W., & Martin, J. E. Carbon monoxide and smoking behavior. Addictive Behaviors, 1979, 4, 21-30.

Freedman, S., & Fletcher, C. M. Changes of smoking habits and cough in men smoking cigarettes with 30% NSM tobacco substitute. British Medical Journal, 1976, 1, 1427-1430.

Friedman, G. D., Dales, L. G., & Ury, U. K. Mortality in middle-aged smokers and nonsmokers. New England Journal of Medicine, 1979, 300, 213-217.

Frith, C. D. The effect of varying the nicotine content of cigarettes on human smoking behavior. Psychopharmacologia, 1971, 19, 188-192.

Gallup Opinion Index. Public puffs on after ten years of warnings. Gallup Opinion Index, 1974, 108, 20-21.

Glasser, W. Positive addiction. New York: Harper and Row, 1976.

Goldfried, M. R., & Davison, G. C. Clinical behavior therapy. New York: Holt, Rinehart, and Winston, 1973.

Goldfarb, T., Gritz, E. R., Jarvik, M. E., & Stolerman, I. P. Reactions to cigarettes as a function of nicotine and tar. Clinical Pharmacology and Therapeutics, 1976, 19, 767-772.

Hall, S. Self-management and therapeutic maintenance: Theory and research. In P. Karoly & J. J. Steffen (Eds.), Toward a psychology of therapeutic maintenance: Widening perspectives. New York: Gardner Press, 1980.

Hammond, E. C., Garfinkel, L., Seidman, H. M., & Lew, E. A. Some recent findings concerning cigarette smoking. In H. H. Hiatt, J. D. Watson, and J. A. Winsten (Eds.), Origins of human cancer: Book A, incidence of cancer in humans. New York: Cold Springs Harbor Laboratory, 1977.

Harvey, J. H., Ickes, W. J., & Kidd, R. F. New directions in attribution research. Hillsdale New Jersey: Lawrence Erlbaum, 1976.

Hill, W. F. The Hill Interaction Matrix method of studying interaction in psychotherapy groups. Los Angeles Youth Study Center, University of Southern California, 1965.

Holroyd, J. Hypnosis treatment for smoking: An evaluative review. International Journal of Clinical and Experimental Hypnosis, 1980, 28, 341-357.

Horn, D. Some factors in smoking and its cessation. In E. F. Borgotta & R. R. Evans (Eds.), Smoking, health, and behavior. Chicago: Aldine, 1968. (a)

Horn, D. The health consequences of smoking. In E. F. Borgatta & R. R.Evans (Eds.), Smoking, health, and behavior. Chicago: Aldine, 1968. (b)

Hunt, W. A., Barnett, L. W., & Branch, L. G. Relapse rates in addiction programs. Journal of Clinical Psychology, 1971, 27, 455-456.

Hunt, W. A., & Matarazzo, J. D. Three years later: Recent developments in the experimental modification of smoking behavior. Journal of Abnormal Psychology, 1973, 81, 107-114.

Ikard, F. F., Green, D., & Horn, D. A scale to differentiate between types of smoking as related to the management of affect. International Journal of the Addictions, 1969, 4, 649-659.

Ikard, F. F., & Tomkins, S. The experience of affect as a determinant of smoking behavior: A series of validity studies. Journal of Abnormal Psychology, 1973, 81, 172-181.

Joffe, R., Lowe, M. R., & Fisher, E. B., Jr. A validity test of the Reasons for Smoking Scale. Addictive Behaviors, 1981, 6, 41-45.

Kiesler, D. J. Some myths of psychotherapy research and the search for a paradigm. Psychological Bulletin, 1966, 65, 110-136.

Koenig, K. P., & Masters, J. Experimental treatment of habitual smoking. Behavioral Research and Therapy, 1965, 3, 235-243.

Kumar, R., Cooke, E. C., Lader, M. H., & Russell, M. A. H. Is nicotine important in tobacco smoking? Clinical Pharmacology and Therapeutics, 1977, 21, 520-529.

Lando, H. A comparison of excessive and rapid smoking in the modification of chronic smoking behavior. Journal of Consulting and Clinical Psychology, 1975, 43, 350-355.

Lando, H. Aversive conditioning and contingency management in the treatment of smoking. Journal of Consulting and Clinical Psychology, 1976, 44, 312. (a)

Lando, H. Self-pacing in eliminating chronic smoking: Serendipity revisited. Behavior Therapy, 1976, 7, 634-640. (b)

Lando, H. A manual for a broad-spectrum behavioral approach to cigarette smoking. JSAS Catalog of Selected Documents in Psychology, 1976, 6, 113-114. (c)

Lando, H. Successful treatment of smokers with a broad-spectrum approach. Journal of Consulting and Clinical Psychology, 1977, 45, 361-366.

Lando, H. Stimulus control, rapid smoking, and contractual management in the maintenance of nonsmoking. Behavior Therapy, 1978, 9, 962-963.

Lando, H. Behavioral treatments in the modification of smoking. In R. J. Daitzman (Ed.), Clinical behavior therapy and behavior modification. New York: Garland, 1980.

Lando, H. Effects of preparation, experimenter contact, and a maintained reduction alternative on a broad-spectrum program for eliminating smoking. Addictive Behaviors, 1981, 6, 123-133.

Lando, H., & McCullough, J. Clinical application of a broad-spectrum behavioral approach to chronic smokers. Journal of Consulting and Clinical Psychology, 1978, 46, 1583-1585.

Levenberg, S. B., & Wagner, M. K. Smoking cessation: Long-term irrelevance of mode of treatment. Journal of Behavior Therapy and Experimental Psychiatry, 1976, 7, 93-95.

Leventhal, H., & Avis, N. Pleasure, addiction, and habit: Factors in verbal report or factors in smoking? Journal of Abnormal Psychology, 1976, 85, 478-488.

Leventhal, H., & Cleary, P. D. The smoking problem: A review of the research and theory in behavioral risk modification. Psychological Bulletin, 1980, 88, 370-405.

Levinson, B. L., Shapiro, D., Schwartz, G. E., & Tursky, B. Smoking elimination by gradual reduction. Behavior Therapy, 1971, 2, 477-487.

Lichtenstein, E., & Danaher, B. Modification of smoking behavior: A critical analysis of theory, research, and practice. In M. Hersen, R. Eisler, & P. Miller (Eds.), Progress in behavior modification (Vol. 3). New York: Academic Press, 1976.

Lichtenstein, E., & Glasgow, R. E. Rapid smoking: Side effects and safeguards. Journal of Consulting and Clinical Psychology, 1977, 45, 815-821.

Lichtenstein, E., Harris, D. E., Birchler, G. R., Wahl, J. M., & Schmahl, D. P. Comparison of rapid smoking, warm, smoky air, and attention placebo in the modification of smoking behavior. Journal of Consulting and Clinical Psychology, 1973, 40, 92-98.

Lichtenstein, E., & Keutzer, C. D. Modification of smoking behavior: A later look. In R. D. Rubin, H. Fensterheim, A. A. Lazarus, & C. M. Franks (Eds.), Advances in behavior therapy, 1969. New York: Academic Press, 1971.

Lichtenstein, E., & Rodrigues, M. P. Long-term effects of rapid smoking treatment for dependent cigarette smokers. Addictive Behaviors, 1977, 2, 109-112.

Lichtenstein, K. L., & Sallis, J. F. Covert sensitization for smoking: In search of efficacy. Addictive Behaviors, 1981, 6, 83-91.

Lindsay, F. R. The use of contingency contracting and group membership in the induction and maintenance of smoking abstinence. Unpublished doctoral dissertation, University of Washington, 1978.

Marlatt, G. A. Relapse prevention: A self-control program for the treatment of addictive behaviors. In G. A. Marlatt, & J. R. Gordon (Eds.), Relapse prevention: A self-control strategy for the maintenance of behavior change. New York: Guilford Press, 1980.

Marlatt, G. A., & Gordon, J. R. Determinants of relapse: Implications for the maintenance of behavior change. In P. Davidson (Ed.), Behavioral medicine: Changing health and lifestyles. New York: Brunner/Mazel, 1980.

McKennell, A. C. British research into smoking behavior. In E. F. Borgatta, & R. R. Evans (Eds.), Smoking, health, and behavior. Chicago: Aldine, 1968.

McKennell, A. C. Smoking motivation factors. British Journal of Social and Clinical Psychology, 1970, 9, 8-22.

Meichenbaum, D. Cognitive-behavior modification: An integrative approach. New York: Plenum, 1977.

Murray, R. G., & Hobbs, S. A. Effects of self-reinforcement and self-punishment in smoking reduction: Implications for broad-spectrum behavioral approaches. Addictive Behaviors, 1981, 6, 63-67.

Parloff, M. B., Waskow, I. E., & Wolfe, B. E. Research on therapist variables in relation to process and outcome. In S. L. Garfield, & A. E. Bergin (Eds.), Handbook of psychotherapy and behavior change (2nd ed.). New York: John Wiley & Sons, 1978.

Pechacek, T. F. Modification of smoking behavior. In Smoking and health: A report of the surgeon general. DHEW Pub. No. (PHS) 79-50066. Washington, D.C.: USPHS, 1979.

Pechacek, T. F., & Danaher, B. G. How and why people quit smoking: A cognitive-behavioral analysis. In A. Kendall, & B. Holland (Eds.), Cognitive-behavioral interventions: Theory, research, and procedures. New York: Academic Press, 1979.

Pollin, W. Foreword. In M. E. Jarvik, J. W. Cullen, E. R.
Gritz, J. M., Vogt, & L. J. West (Eds.), Research on
smoking behavior. Washington, D.C.: NIDA Research
Monograph 17, 1977.

Pomerleau, O., Adkins, D., & Pertschuk, M. Predictors of
outcome and recidivism in smoking cessation treatment.
Addictive Behaviors, 1978, 3, 65-70.

Prue, D. M., Krapel, J. E., & Martin, J. E. Brand fading: The
effects of gradual changes to low tar and nicotine cigarettes
on smoking rate, carbon monoxide, and thiocyanate levels.
Behavior Therapy, 1981, 12, 400-416.

Prue, D. M., Martin, J. E., & Hume, A. S. A critical evaluation of
thiocyanate as a biochemical index of smoking exposure.
Behavior Therapy, 1980, 11, 368-379.

Resnick, J. H. Effects of stimulus satiation on the overlearned
maladaptive response of cigarette smoking. Journal of
Consulting and Clinical Psychology, 1968, 32, 501-505.

Russell, M. A. H. Cigarette dependence: Nature and classification.
British Medical Journal, 1971, 2, 330-331. (a)

Russell, M. A. H. Cigarette smoking: Natural history of a dependence
disorder. British Journal of Medical Psychology, 1971, 44,
1-16. (b)

Russell, M. A. H. Realistic goals for smoking and health: A
case for safer smoking. Lancet, 1974, 1, 254-257.

Russell, M. A. H. Low-tar medium nicotine cigarettes: A new
approach to safer smoking. British Medical Journal, 1976,
1, 1430-1433.

Russell, M. A. H., Armstrong, E., & Patel, U. A. Temporal
contiguity in electric aversion therapy for cigarette
smoking. Behaviour Research and Therapy, 1976, 14, 103-123.

Russell, M. A. H., Raw, E. J., & Jarvis, S. S. Clinical use of
nicotine chewing gum. British Medical Journal, 1980, 280,
1599-1602.

Schachter, S. Nicotine regulation in heavy and light smokers.
Journal of Experimental Psychology: General, 1977, 106,
5-12.

Schachter, S. Pharmacological and psychological determinants of smoking. Annals of Internal Medicine, 1978, 88, 104-114.

Schachter, S. Urinary pH and the psychology of nicotine addiction. In P. Davidson and S. Davidson (Eds.), Behavioral medicine: Changing health lifestyles. New York: Brunner/Mazel, 1980.

Schachter, S., Kozlowski, L. T., & Silverstein, B. Effects of urinary pH on cigarette smoking. Journal of Experimental Psychology: General, 1977, 106, 13-19.

Schmahl, D. P., Lichtenstein, E., & Harris, D. E. Successful treatment of habitual smokers with warm smoky air and rapid smoking. Journal of Consulting and Clinical Psychology, 1972, 38, 105-111.

Schwartz, J. L., & Rider, G. Smoking cessation methods in the U.S. and Canada: 1969-1974. In J. Steinfeld, W. Griffiths, K. Ball, & R. M. Taylor (Eds.), Proceedings of the 3rd world conference on smoking and health (Vol. 2). U.S. Dept. HEW, DHEW Pub. No. (NIH) 77-1413, 1977.

Shiffman, S. Relapse following smoking cessation: A situational analysis. Journal of Consulting and Clinical Psychology, 1982, 50, 71-86.

Suedfeld, P., & Ikard, F. F. Use of sensory deprivation in facilitating the reduction of cigarette smoking. Journal of Consulting and Clinical Psychology, 1974, 42, 888-895.

Tomkins, S. S. Psychological model for smoking behavior. American Journal of Public Health, 1966, 56, 17-20.

Tomkins, S. S. Psychological model for smoking behavior. In E. F. Borgatta, & R. R. Evans (Eds.), Smoking, health, and behavior. Chicago: Aldine, 1968.

Tooely , J. T., & Pratt, S. An experimental procedure for the extinction of smoking behavior. Psychological Record, 1967, 17, 209-218.

Turner, J. A. M., Sillett, R. W., & Ball, K. P. Some effects of changing to low-tar and low-nicotine cigarettes. Lancet, 1974, 2, 737-739.

United States Public Health Service. The smoking digest: Progress report on a nation kicking the habit. Bethesda, Maryland: National Institutes of Health, National Cancer Institute, Office of Cancer Communications, 1977.

United States Public Health Service. The health consequences of smoking: A reference edition. Atlanta, Georgia: CDC, 1978. HEW Publ. No. (CDC) 78-8357.

United States Public Health Service. Smoking and health: A report of the Surgeon General. Washington, D.C.: USPHS, 1979.

Wilson, G. T., & Davison, M. Aversion techniques in behavior therapy: Some theoretical and metatheoretical considerations. Journal of Consulting and Clinical Psychology, 1969, 33, 327-329.

Winett, R. A. Parameters of deposit contracts in the modification of smoking. Psychological Record, 1973, 23, 49-60.

ACKNOWLEDGEMENTS

APPENDIX A

HORN WAINGROW SCALE

HORN WAINGROW SCALE

Below is a list of 23 items regarding motives for smoking. Please rank how these items apply to your smoking habit using the following scale:

1 = never
2 = seldom
3 = occasionally
4 = frequently
5 = always

_____ 1. I smoke cigarettes to stimulate me, to perk myself up.

_____ 2. I've found a cigarette in my mouth and didn't remember putting it there.

_____ 3. When I am trying to solve a problem, I light up a cigarette.

_____ 4. When I smoke a cigarette, part of the enjoyment is watching the smoke as I exhale it.

_____ 5. I am very much aware of the fact when I am not smoking a cigarette.

_____ 6. Part of the enjoyment of smoking a cigarette comes from the steps I take to light it.

_____ 7. When I feel "blue" or want to take my mind off cares and worries, I smoke cigarettes.

_____ 8. I smoke cigarettes automatically without even being aware of it.

_____ 9. I smoke cigarettes in order to keep myself from slowing down.

_____ 10. I get a real gnawing hunger for a cigarette when I haven't smoked for awhile.

_____ 11. When I feel uncomfortable or upset about something, I light up a cigarette.

_____ 12. Handling a cigarette is part of the enjoyment of smoking it.

_____ 13. Between cigarettes, I get a craving that only a cigarette can satisfy.

_____ 14. I light up a cigarette when I feel angry about something.

_____ 15. I light up a cigarette without realizing I still have one burning in the ashtray.

_____ 16. I find cigarettes pleasurable.

_____ 17. When I feel ashamed or embarrassed about something, I light up a cigarette.

_____ 18. When I have run out of cigarettes I find it almost unbearable until I can get them.

_____ 19. Few things help better than cigarettes when I'm feeling upset.

_____ 20. I smoke cigarettes just from habit, without even really wanting the one I'm smoking.

_____ 21. Smoking cigarettes is pleasant and relaxing.

_____ 22. I do not feel contented for long unless I am smoking a cigarette.

_____ 23. I smoke cigarettes to give me a "lift".

HORN WAINGROW SCORING SHEET

1. Reduction of negative affect scale includes items:

   3. _____, 7. _____, 11. _____, 14. _____, 17. _____, 19. _____

   Total score = _____. A score of 21 or more is significant.

2. Addictive scale includes items:

   5. _____, 10. _____, 13. _____, 18. _____, 22. _____

   Total score = _____. A score of 17.5 or more is significant.

3. Habitual scale includes items:

   2. _____, 8. _____, 15. _____, 20. _____

   Total score = _____. A score of 14 or more is significant.

4. Stimulation scale includes items:

   1. _____, 9. _____, 23. _____

   Total score = _____. A score of 10.5 or more is significant.

5. Sensori-motor manipulation scale includes items:

   4. _____, 6. _____, 12. _____

   Total score = _____. A score of 10.5 or more is significant.

6. Pleasurable relaxation scale includes items:

   16. _____, 21. _____

   Total score = _____. A score of 7 or more is significant.

APPENDIX B

CONFIDENCE QUESTIONNAIRE

CONFIDENCE QUESTIONNAIRE

Below is a list of 49 different situations in which people smoke. Please designate the probability that you will be able to resist the urge to smoke in each situation. Use a 100-point probability scale with 100 meaning that you are confident that you will be able to resist smoking and 0 meaning that you are sure you will not be able to resist smoking. Use only 10-interval numbers in your rating. Finally, rate the situations according to your feelings at this time.

_____ 1. When you sit back and enjoy a cigarette

_____ 2. When you feel anxious

_____ 3. When you want something to do with your hands

_____ 4. When you simply become aware of the fact that you are not smoking

_____ 5. When you want to reward yourself for something you've done or tell yourself that you can have a cigarette if you complete some task

_____ 6. When you find a cigarette in your mouth and don't remember having lit it

_____ 7. When you are resting

_____ 8. When you want to keep yourself busy

_____ 9. When you feel depressed

_____ 10. When you want to cheer up

_____ 11. When you want to feel more mature and sophisticated

_____ 12. When you light up a cigarette to go along with some activity you are doing (for example, while fixing a bicycle, writing a letter, doing housework)

_____ 13. When you want to take a break from work or some other activity

_____ 14. When you realize you are lighting a cigarette even though you just put one out

_____ 15. When you feel tense

_____ 16. When you feel embarrassed

_____ 17. When you realize you won't be able to smoke for awhile

_____ 18. When you are worried

_____ 19. When you are waiting for someone or something

_____ 20. When you feel nervous

_____ 21. When you are trying to pass time

_____ 22. When you feel impatient

_____ 23. When you feel bored

_____ 24. When you are drinking coffee or tea

_____ 25. When you realize you have run out of cigarettes

_____ 26. When you want to have time to think in a conversation

_____ 27. When you feel uncomfortable

_____ 28. When you are angry with yourself

_____ 29. When you feel you need more energy

_____ 30. When you want to concentrate

_____ 31. When you want something in your mouth

_____ 32. When you want to fill a pause in a conversation

_____ 33. When you want to relax

_____ 34. When you want to keep slim

_____ 35. When you feel angry

_____ 36. When you feel annoyed

_____ 37. When you want to feel more attractive

_____ 38. When you feel tired

_____ 39. When you are drinking an alcoholic beverage

_____ 40. When you feel frustrated

_____ 41. When someone offers you a cigarette

_____ 42. When you feel restless

_____ 43. When you feel upset

_____ 44. When you see others smoking

_____ 45. When you are overly excited

_____ 46. When you want to avoid eating sweets

_____ 47. When you are in a situation in which you feel smoking is part of your self-image

_____ 48. When you have finished a meal or snack

_____ 49. When you feel oversensitive

CONFIDENCE QUESTIONNAIRE SCORING SHEET

1. Restlessness scale includes items:

   1. ____, 3. ____, 12. ____, 13. ____, 19. ____,

   22. ____, 30. ____, 33. ____, 42. ____, 44. ____,

   45. ____, 48. ____

   Total = ____, total divided by 12 = ____

2. Negative interpersonal mood scale includes items:

   2. ____, 9. ____, 15. ____, 18. ____, 20. ____,

   28. ____, 35. ____, 36. ____, 40. ____, 43. ____,

   49. ____

   Total = ____, total divided by 11 = ____

3. Crutch scale includes items:

   5. ____, 7. ____, 10. ____, 26. ____, 29. ____,

   31. ____, 34. ____, 38. ____, 46. ____

   Total = ____, total divided by 9 = ____

4. Time structuring scale includes items:

   4. ____, 8. ____, 21. ____, 23. ____

   Total = ____, total divided by 4 = ____

5. Automatic scale includes items:

   6. ____, 14. ____, 17. ____, 25. ____

   Total = ____, total divided by 4 = ____

6. Negative interpersonal mood scale includes items:

16. _____, 27. _____, 32. _____

Total = _____, total divided by 3 = _____

7. Social scale includes items:

24. _____, 39. _____, 41. _____

Total = _____, total divided by 3 = _____

8. Self-image scale includes items:

11. _____, 37. _____, 47. _____

Total = _____, total divided by 3 = _____

APPENDIX C

LETTER TO EMPLOYER

THE
UNIVERSITY
OF UTAH

LETTER TO EMPLOYER

Dear Employer:

Would you please announce to your employees our Stop-Smoking Clinics which will begin (date) at the University of Utah Counseling Center. These clinics are supported by a federal grant and are offered as a public service to interested individuals. Costs to participants include a nominal $10 fee and a deposit of $10 which is refunded following the conclusion of the program.

The clinics are based on over 10 years of clinical research and are among the most effective ever offered. It might be noted that our abstinence rates have been as high as 75% 6 months following the quit date. They in no sense represent a "magic cure", however.

The programs are comprehensive and include everything that can be found in commerical programs costing several hundred dollars. They are federally supported and are intended primarily as a public service.

Any of your employees who are interested should come to the orientation session (date). The session will be held in classroom 2214 at the Counseling Center in the Annex Building, Wing B. The session will begin at (time) and last approximately 1 hour. The entire program itself will last about 9 weeks, including a maintenance program. Sessions will generally be held in the evenings and a choice of meeting times will be available. During the program all partici- pants will undergo one week of intensive treatment during which they will be asked to attend sessions every weeknight. Most sessions will last approximately 1 hour.

We would appreciate anything you can do to call the clinic to the attention of your employees. All cigarette smokers who would sincerely like to quit are invited to the orientation session.

    An additional series of clinics will begin (date). If you
have any questions or would like further information about the program,
please call 581-6826.

<div style="text-align: center;">Sincerely,</div>

Vickie R. Gregory, M.S.
For: Dr. Harry A. Lando
Associate Professor of Psychology

APPENDIX D

INFORMED CONSENT FORM

INFORMED CONSENT FORM

Please read the following material carefully. It contains a general description of the research project and procedures, as well as a description of any potential discomforts, risks, and benefits that may be involved. Please feel free to ask any questions about the material contained here. Your participation in this project is entirely voluntary and you may withdraw at any time without any penalty.

The purpose of this project is twofold. The primary aim is to aid you in eliminating your smoking. To this end, you will be assigned to one of two treatment programs to be described below. These programs are among the most effective to be developed to date. Secondly, this is a research project aimed at developing the most effective smoking treatment possible. The reason for using two different treatments is to compare the relative effectiveness of the two most successful programs. These treatments will now be briefly described.

The first treatment is called intensive smoking and involves increasing your rate of smoking for a 1-week period. This procedure is aimed at helping you stop smoking by making the act of smoking and associated cues unpleasant. This procedure will involve some discomfort and possibly a degree of risk.

Discomfort. The procedure may cause you some discomfort and this in fact can be very helpful in making the treatment work. Different people react in different ways. If you are asked to increase your number of cigarettes, you will be expected to try to double your normal smoking rate for a period of 1 week. You will follow this procedure during the laboratory sessions and on your own outside of the lab. Irritation of the throat, chest, tongue, and eyes may occur. However, you are to discontinue smoking immediately in the event that you find yourself becoming nauseous.

Risk. Greatly increased smoking will greatly increase your intake of nicotine. The effect of this may be an increase in heart rate. This could conceivably be dangerous for persons with heart disease. This is why we asked you a number of questions about your medical condition, as well as asking all of you to obtain your physician's consent. If you do have known heart or vascular disease, then the intensive smoking procedures are not appropriate for you.

The second treatment is called nicotine fading, and involves
gradually decreasing the nicotine content of the cigarettes you smoke.
You will be asked to decrease the nicotine by successively switching
to lower tar and nicotine cigarettes. In this fashion the nicotine
in your system will be gradually reduced as will your physical
dependence on it. The aim is to make total abstinence easier by
reducing the degree of physical addiction. There may be some
discomfort involved in switching brands. The reduced nicotine intake
may result in some temporary physical changes (e.g., change in heart
rate, lung capacity, gastro-intestinal discomfort). Some participants
in past programs have also tended to increase the number of cigarettes
smoked in order to compensate for the reduction in nicotine intake
per cigarette. This may result in the same risk factors outlined
for the intensive smoking procedure. For these reasons, we ask that
participants in the treatment also have the physician's consent form
signed.

You will be assigned to the treatment conditions on a random basis,
unless a particular procedure is ruled out by your physician. We
believe, and research has documented, that the degree of discomfort
or risk involved in either procedure is quite small and is far
outweighed by the benefits of quitting. Far greater risk is involved
in continuing to smoke than in participating in either procedure.

Because of the research nature of this program, we will ask you
to fill out forms asking for demographic information and to keep
records of the number of cigarettes smoked. We will be asking for
your names and addresses in order to organize the data collection and
to facilitate mailing follow-up questionnaires. This information will
be kept strictly confidential and only the group leaders will have
access to it. This permission can be withdrawn at any time. Following
collection and analysis of all data, the written records will be
destroyed.

INFORMED CONSENT AGREEMENT

I have read the description of the smoking program and have had
the opportunity to ask questions of the leaders. I have read the
statements concerning the possible risks and discomfort involved. I
hereby agree to participate and to cooperate in returning information
on my smoking.

Date_____   Signature_____

Witness_____

APPENDIX E

MEDICAL CONSENT FORM

THE
UNIVERSITY
OF UTAH

MEDICAL CONSENT FORM

Dear Doctor:

_____ has volunteered to participate in a
research project aimed at comparing different methods of controlling
the smoking habit. Based on our previous research, we think there is
a very good chance that the project will help him/her to stop smoking.
Some of the procedures to be used, however, may involve a degree of
risk and it is in this regard that we have asked him/her to check
with you and secure your approval.

Some participants will be assigned to an aversive procedure we
call "excessive" smoking. The smoker is asked to greatly increase
his/her cigarette consumption. They will be expected to smoke at
least twice their usual number of cigarettes for a period of 1 week.
They will also smoke continuously for 25 minutes during each of
six laboratory sessions. However, smokers will be cautioned that
they should at no time smoke to the point of dizziness or nausea.
In the event of such symptoms, they are instructed to immediately
extinguish their cigarettes.

We have found this procedure to be effective as part of a long-
term program which is also oriented toward the maintenance of non-
smoking. By itself it is not sufficient. The purpose of excessive
smoking is to increase the unpleasantness of the act of smoking
itself and to increase the smoker's determination to quit. By
setting a specific target date for quitting at the end of the week
of excessive smoking, and then by immediately introducing a
comprehensive maintenance procedure, the long-term prospects for
abstinence are significantly increased.

Results of these methods have included abstinence rates as high
as 76% at the 6-month follow-up. We and other researchers have
used this procedure on many hundreds of persons without any known
ill effects. However, the procedure does lead to considerable nicotine
intake which will stress the cardiovascular system. Therefore, we
wish to exclude anyone with a history of heart disease, vascular
disease, or bronchitis.

About 90% of the nicotine in tobacco is absorbed into the body
when smoking. There is an immediate rise in heartbeats per minute
and arterial blood pressure. The production of epinephrine and
norepinephrine is stimulated by nicotine as is the production of
free fatty acids. These findings on human subjects are summarized
in The Heart, by J. Willis Hurst, M.D., (Ed.), McGraw-Hill, 1974.
In our own research we have found no more increase in heart rate with
excessive smoking than with normal smoking. We did, however, find
a significantly greater increment in carboxyhemoglobin levels. There
are no reported episodes of excessive smoking producing acute cardiac
or vascular symptoms in humans.

The second treatment to which the client may be assigned is
called nicotine fading, and involves gradually decreasing the nicotine
content of the cigarettes smoked. Clients will be asked to decrease
the nicotine by successively switching to lower tar and nicotine
cigarettes. In this fashion the nicotine in his/her system will be
gradually reduced as will physical dependence on it. The aim is to
make total abstinence easier by reducing the degree of physical
addiction. There may be some discomfort involved in switching
brands. The reduced nicotine intake may result in some temporary
physical changes (e.g., change in heart rate, lung capacity, and
gastro-intestinal discomfort). Some participants in past programs
have also tended to increase the number of cigarettes smoked in
order to compensate for the reduction in nicotine intake per cigarette.
This may result in the same risk factors outlined for the intensive
smoking procedure.

We ask that you review your information on your patient, conduct
any further examinations you may think necessary, and then indicate
whether you think this person has some condition that would contra-
indicate the use of excessive smoking. If there are medical grounds
for this person not undergoing either procedure, please indicate this.
Please feel free to contact our project if you have any questions.

Thank you.

Vickie R. Gregory, M.S., and Bruce D. Etringer, M.S.
University Counseling Center
University of Utah
Salt Lake City, UT   84112
581-6816

To my knowledge this patient has no medical contraindications to undergoing excessive smoking as described above.

Date _____ Signature _____, M.D.

Comments _____

_____

Because of medical contraindications, I would recommend the patient be assigned to the nicotine fading procedure.

Date _____ Signature _____, M.D.

Comments _____

_____

APPENDIX F

SMOKING STUDY QUESTIONNAIRE

SMOKING STUDY QUESTIONNAIRE

Dr. Harry A. Lando
Department of Psychology
Iowa State University
Ames, IA   50011

Instructions: Please provide as accurately as you can all the infor-
mation requested below. Print clearly, please.

1. a. Name _____

    b. Address _____ Zip code _____

    c. Phone (home) _____ (business) _____

2. a. Age _____ b. Weight _____ c. Height _____

3. Sex: M _____ F _____

4. a. Marital status: Single _____ Married _____

        Divorced _____ Widowed _____

    b. Number of children _____

5. Average number of cigarettes smoked per day _____

6. Kind of cigarettes usually smoked:

    a. Brand _____

    b. Filter _____ Nonfilter _____

    c. Menthol _____ Nonmenthol _____

    d. Hard pack _____ Soft pack _____

    e. Length: Regular _____ King _____ 100 mm _____

        120 mm _____

7. Do you sometimes smoke a pipe? Yes _____ No _____

    If yes, how often? _____

8. Do you sometimes smoke cigars? Yes _____ No _____

9. How many years have you been smoking? _____

10. a. How many times have you tried to stop smoking before? _____

    b. If you have tried before, what was the longest period of
       time that you were able to go without smoking? _____

    c. If you have tried before, why do you think you didn't succeed?

11. Why do you wish to give up smoking?

12. Has your family physician or any other doctor ever advised you
    to quit smoking? If so, please describe that person's advice.

13. Please describe any pressure or requests that you have had from
    family, friends, or co-workers to reduce your smoking or quit
    altogether.

14. Do you have a current health problem that makes it especially
    important that you give up cigarettes? If so, what is it?

15. Please identify other individuals in your family who currently
    smoke.

    If other people in your family do smoke, are they interested in
    quitting?

16. Among your friends would you say that: almost all of them

   smoke _____ the majority of them smoke _____ about half of

   them smoke _____ some smoke, but not very many _____ almost

   none of them smoke _____

17. Among your co-workers would you say that: almost all of them

   smoke _____ the majority of them smoke _____ about half of

   them smoke _____ some smoke, but not very many _____

   almost none of them smoke _____ not applicable _____

18. Do you drink coffee, tea, or cola? If so, approximately how
   many cups or glasses of each are you likely to average per day?

19. Do you drink alcoholic beverages? If so, in a typical week how
   much are you likely to drink?

   Beer _____

   Wine _____

   Hard liquor _____

20. Do you exercise on a regular basis? If so, please describe the
   activity and how often you are likely to engage in that activity
   in a typical week.

21. Approximately how many pounds over (or under) your ideal weight
   are you in your opinion? _____

   How much of a problem do you think weight gain is likely to be
   for you once you quit?

   a. a very serious problem _____

   b. a problem, but not too serious _____

   c. only a small problem _____

   d. no problem at all _____

22. Have you ever participated before in a special project or formal treatment designed to help you stop smoking? Please explain.

23. Describe any withdrawal symptoms that you experienced in previous attempts to quit and indicate how long these symptoms lasted.

24. How did you learn of this stop smoking clinic?

   a. Friend or family member _____   b. At work _____

   c. Radio _____ d. Poster _____ e. Newspaper _____

   f. Television _____ g. Doctor _____ h. Other _____

25. We plan to conduct long-term follow-ups on everyone who completes our program. Please list the names and telephone numbers of 3 people who know you very well. We would like to be able to contact these people to check on your smoking, especially if you should leave the area.

   1. _____

   2. _____

   3. _____

26. Have you suffered from any lung disorder, heart disorder, or any other chronic illness? If yes, please give details.

27. Are you currently taking medications (pills, injections, etc.)? If yes, give details.

28. Have you had a recent physical examination and/or chest X-ray?
    If yes, by whom and for what reasons?

29. Have you been hospitalized in the past 5 years. If yes, where
    and why?

30. Do you know of any other information that we should consider
    in assigning you to a particular stop smoking treatment?

Date _____

Signature _____

APPENDIX G

FEDERAL TRADE COMMISSION NICOTINE CONTENT REPORT

FEDERAL TRADE COMMISSION NICOTINE CONTENT REPORT

BRAND	TYPE[a]	NICOTINE[b]
Carlton	king size, hardpack	0.05
Benson & Hedges	reg. size, hardpack	0.1
Carlton	king size, menthol	0.1
Carlton	king size	0.1
Tareyton Ultra Low-Tar	king size, menthol	0.2
Now	king size, menthol, hardpack	0.2
Now	king size	0.2
Now	king size, menthol	0.2
Now	king size, hardpack	0.2
Triumph	king size, menthol	0.3
Iceberg 100's	100 mm., menthol	0.3
Lucky 100's	100 mm.,	0.3
Kent III	king size	0.3
Decade	king size, menthol	0.4
Decade	king size	0.4
True	king size, menthol	0.4
True	king size	0.4
Triumph	king size	0.4
Carlton 100's	100 mm., menthol	0.4
Doral II	king size, menthol	0.4
Carlton 100's	100 mm.	0.4
Doral II	king size	0.5
Pall Mall Extra Light	king size	0.6
Lark Lights	king size	0.6
Merit	king size	0.6
Lark Lights	100 mm.	0.6
Tempo	king size	0.6
Merit	king size, menthol	0.6
L & M Lights	king size	0.6
Tareyton Lights	king size	0.6
L & M Lights	100 mm.	0.6
American Lights	120 mm.	0.6
Lucky Ten	king size	0.7
Belair	100 mm., menthol	0.7
Parliament Lights	king size	0.7
Kool Super Lights	100 mm., menthol	0.7
Parliament Lights	king size, hardpack	0.7
Tareyton Long Lights	100 mm., filter	0.7

[a]All cigarettes are filter unless otherwise specified.

[b]Nicotine is measured by milligrams per cigarette.

BRAND	TYPE	NICOTINE
Arctic Lights	king size, menthol	0.7
Kent Golden Lights	king size, menthol	0.7
Kool Super Lights	king size, menthol	0.7
Real	king size, menthol	0.7
Merit 100's	100 mm.	0.7
Kent Golden Lights	king size	0.7
Viceroy Rich Lights	king size	0.7
Benson & Hedges Lights	100 mm., menthol	0.7
Multifilter	king size	0.8
Silva Thins	100 mm., menthol	0.8
Merit 100's	100 mm., menthol	0.8
Benson & Hedges Lights	100 mm.	0.8
Marlboro Lights	king size	0.8
Raleigh Lights	100 mm	0.8
Old Gold Lights	king size	0.8
Raleigh Lights	king size	0.8
American Lights	120 mm., menthol	0.8
Multifilter	king size, menthol	0.8
Newport Lights	king size, menthol	0.8
Vantage	king size, menthol	0.8
Viceroy Rich Lights	100 mm.	0.8
Kent Golden Lights	100 mm.	0.8
Vantage	king size	0.8
Belair	king size, menthol	0.8
Arctic Lights	100 mm., menthol	0.8
Marlboro Lights	100 mm.	0.8
True 100's	100 mm.	0.8
Kent Golden Lights	100 mm., menthol	0.8
Salem Lights	king size, menthol	0.8
True 100's	100 mm., menthol	0.8
Parliament Light 100's	100 mm.	0.8
Kool Milds	king size, menthol	0.8
Real	king size	0.9
Marlboro	king size, menthol hardpack	0.9
Kent	king size	0.9
Viceroy	king size	0.9
Salem Long Lights	100 mm., menthol	0.9
Camel Lights	king size	0.9
L & M	king size, hardpack	0.9
Alpine	king size, menthol	0.9
Tareyton	king size	0.9
Vantage	100 mm.	0.9

BRAND	TYPE	NICOTINE
Pall Mall Lights	100 mm.	0.9
Marlboro	king size, menthol	0.9
Doral	king size, menthol	0.9
Virginia Slims	100 mm., menthol	0.9
Chesterfield	king size	0.9
Kent	king size, hardpack	1.0
Tareyton	100 mm.	1.0
Eve	120 mm., hardpack	1.0
L & M	king size	1.0
Oasis	king size, menthol	1.0
Raliegh	king size	1.0
Virginia Slims	100 mm.	1.0
Doral	king size	1.0
Eve	120 mm., menthol, hardpack	1.0
DuMaurier	king size, hardpack	1.0
Saratoga	120 mm., menthol, hardpack	1.0
Silva Thins	100 mm.	1.0
Winston Lights 100's	100 mm.	1.0
L & M	100 mm.	1.0
L & M	100 mm., menthol	1.0
Kent	100 mm.	1.0
Eve	100 mm., menthol	1.1
Galaxy	king size	1.1
Eve	100 mm.	1.1
Philip Morris International	100 mm., menthol, hardpack	1.1
Benson & Hedges	100 mm., menthol hardpack	1.1
Winston Lights	king size	1.1
St. Moritz	100 mm., menthol	1.1
Marlboro	100 mm.	1.1
Camel Lights	100 mm.	1.1
Marlboro	100 mm., filter, hardpack	1.1
Spring 100's	100 mm., menthol	1.1
Viceroy	100 mm.	1.1
Chesterfield	100 mm.	1.1
Benson & Hedges	100 mm., hardpack	1.1
Raleigh	100 mm.	1.1
St. Moritz	100 mm., hardpack	1.1

BRAND	TYPE	NICOTINE
Philip Morris International	100 mm., hardpack	1.1
Marlboro	king size, hardpack	1.1
Salem	king size, menthol	1.1
Marlboro	king size	1.1
Saratoga	120 mm., hardpack	1.1
Kool	reg. size, nonfilter, menthol	1.1
Benson & Hedges	100 mm., menthol	1.1
Benson & Hedges	100 mm.	1.1
Lark	king size	1.2
Salem	king size, menthol, hardpack	1.2
Kent	100 mm., menthol	1.2
Kool	100 mm., menthol	1.2
Newport	king size, menthol, hardpack	1.2
Pall Mall	100 mm., menthol	1.2
Montclair	king size, menthol	1.2
Pall Mall	king size	1.2
Old Gold Filters	king size	1.2
Newport	king size, menthol	1.2
Lark	100 mm.	1.3
Kool	king size, menthol	1.3
Winston 100's	100 mm.	1.3
Kool	king size, menthol, hardpack	1.3
Twist	100 mm., lemon/ menthol	1.3
Pall Mall	100 mm.	1.3
Piedmont	reg. size, nonfilter	1.3
Long Johns	120 mm.	1.3
Tall	120 mm., menthol	1.3
Raleigh	king size, nonfilter	1.3
Philip Morris	reg. size, nonfilter	1.3
Benson & Hedges	king size, hardpack	1.4
Long Johns	120 mm., menthol	1.4
Winston	king size, hardpack	1.4
Max	120 mm., menthol	1.4
Chesterfield	reg. size, nonfilter	1.4
Camel	king size	1.4
Max	120 mm.	1.4
Old Gold 100's	100 mm.	1.4

BRAND	TYPE	NICOTINE
Winston	100 mm., menthol	1.4
Lucky Strike	reg. size, nonfilter	1.4
Picayune	reg. size, nonfilter	1.4
Winston	king size	1.4
Pall Mall	king size, nonfilter	1.4
Tall	120 mm.	1.5
Home Run	120 mm., nonfilter	1.5
Newport	100 mm., menthol	1.5
Salem	100 mm., menthol	1.5
Old Gold Straights	king size, nonfilter	1.6
Fatima	king size, nonfilter	1.6
Chesterfield	king size, nonfilter	1.7
Philip Morris Commander	king size, nonfilter	1.7
Herbert Tareyton	king size, nonfilter	1.7
English Ovals	reg. size, nonfilter, hardpack	1.8
More	120 mm.	1.8
Camel	reg. size, nonfilter	1.8
Half & Half	king size	1.8
More	120 mm., menthol	1.8
Players	reg. size, nonfilter, hardpack	1.9
Bull Durham	king size	1.9
English Ovals	king size, nonfilter, hardpack	2.4

APPENDIX H

PHYSIOLOGICAL INFORMATION

PHYSIOLOGICAL INFORMATION

Statistics

This information is not intended as a scare tactic. All of you realize that smoking is harmful to your health. What I want to do now is to give you some more information. Cigarette smoking is the leading preventable cause of death. Recent epidemiological and biomedical research has indisputably demonstrated that smoking is a significant causal factor in numerous serious diseases, including lung cancer, coronary heart disease, emphysema, chronic bronchitis, ulcers, and various other cancers. Investigators estimate that more than 37 million Americans will die prematurely as a result of smoking. The annual mortality rates directly attributable to smoking are staggering with: 80,000 deaths resulting from lung cancer, 22,000 deaths from other cancers, 19,000 deaths from chronic pulmonary disease, and perhaps 225,000 deaths from cardiovascular disease. Cigarette smoking by pregnant women, when compared to pregnant nonsmokers, has been found to result in a higher rate of stillbirths, babies with lower birth weights, and infants with higher late fetal and neonatal death rates.

Physiological effects

Nicotine is a naturally occurring substance found in tobacco. Within 7 seconds after inhaling nicotine, it affects the brain. At the neural level, it has a biphasic effect. Specifically, it initially stimulates neural transmission and then has a depressant effect as it builds up and blocks neural transmission. Although some experimentation has been done testing the usefulness of applying nicotine externally to bruises, it's therapeutic usefullness has not been established. In fact, it is used in insecticides.

The average cigarette contains about 2% nicotine. Cigars have 10 times this amount. In addition to nicotine, experimenters have isolated more than 500 compounds from cigarette smoke. Thus, the effects of cigarettes on different individuals is unpredictable. In addition, tolerance develops to the effects of nicotine the longer one smokes.

When you smoke, 10% of the nicotine from the cigarette is inhaled. Of this, 90% is absorbed into the blood stream. The carcinogenic effects of smoking are probably not due to nicotine, but to the other compounds in the cigarette. When you smoke: your heart rate increases, vaso-constriction of the blood vessels occurs (e.g. that is why people experience cold hands and possible numbness in their extremities), blood pressure increases, cardiac output increases, skin temperature decreases, and skeletal muscle tone decreases (e.g.

people who smoke wrinkle earlier and faster), alpha waves decrease, stomach contractions are inhibited, digestive processes slow down, the sensitivity of taste buds are decreased, and there is an increase in saliva.

The tars and carbon monoxide from cigarettes contribute to health problems. Shortness of breath is due to the inhalation of carbon monoxide while smoking. The carbon monoxide combines with the hemoglobin in the red blood cells to form carboxyhemoglobin. Basically, this decreases the ability of the blood to carry oxygen. All tobacco smoke contains carbon monoxide.

When a person quits smoking: the metabolic rate decreases, the heart rate decreases by about 3 beats per minute, there is a 10% reduction in oxygen consumption, blood pressure drops, and REM sleep increases. Possible withdrawal symptoms include: craving, irritability, restlessness, feelings of dullness, sleep disturbances ranging from drowsiness to insomnia, gastro-intestinal distrubances, anxiety, headaches, and impairment of concentration, judgment, and psycho-motor performance. Not all people experience withdrawal symptoms but it is important to know what they are. They can start from a few hours to a few days after quitting smoking and can last for a few days to a month. Few people that I have seen in these clinics experience these for a month.

The important thing to remember about stopping smoking is that your health begins to improve immediately. Unless you have damaged your lungs to the point of developing emphysema, they will begin to return to their healthy state. When you smoke, the cilia in the lungs are paralyzed. The function of the cilia is to cleanse the lungs through a sweeping action. So when you stop smoking, you may begin to cough up the tenacious sputa which has accumulated in your lungs. This is a sign that the cilia are working again and your lungs are cleansing themselves. People who stop smoking notice such things such as, food tasting, ability to walk faster, etc.

At this point, further questions are addressed.

APPENDIX I

IMPORTANT SUGGESTIONS

IMPORTANT SUGGESTIONS

1. Throw away all of your cigarettes. Do not leave them around to tempt you.

2. Use gum or lifesavers (or anything else you can think of) as substitutes. For calorie watchers, munch on celery or some other low calorie food. Drink liquids. Keep your mouth occupied without resorting to cigarettes.

3. Engage in moderate exercise. Fight the urge to smoke by taking a walk (leaving cigarettes behind). Do some gardening, play golf, swim, etc. If you resist that urge, it will pass. In situations where it is impractical for you to go outside and exercise (such as at work), immerse yourself in what you are doing. This will help you to keep your mind off cigarettes.

4. Take a few deep breaths. It is amazing how refreshing this can be in the absence of cigarette smoke. You can heighten the sensation of freshness by brushing your teeth, gargling with mouthwash, or consuming a mint.

5. Remember the positive aspects of nonsmoking. Notice how much more energy you seem to have, how much better your food tastes, and how much better and more healthy you feel.

6. Think back to the week of treatment and remind yourself of the distinct lack of pleasure that you derived from smoking. People often find that this suggestion is particularly helpful.

7. Remember your reasons for participating in treatment, as well as all of the effort you have made to break your smoking habit. Ask yourself if any cigarette can really be worth the risk of jeopardizing your goals.

8. Be good to yourself. Think about the satisfaction that comes from mastering the urge to smoke. Put aside the money that you would have spent on cigarettes. Do this each day. You will be surprised at how quickly it will add up! Use this money to buy yourself something that you really want (preferably something that you would not otherwise get).

9. Enlist the encouragement of your family and friends.

10. Avoid situations where possible in which you would be particularly tempted to smoke, at least for the first two weeks after quitting.

For some people this means temporarily giving up coffee or drinking. For situations which you cannot avoid, you might take one of the smoking substitutes suggested above.

11. Use these suggestions as you see fit. People usually find some suggestions to be more helpful than others. Apply these suggestions that best fit your situation. You might, for example, prefer to master situations in which you are tempted to smoke right from the outset. You should be the judge in each case.

12. Try to come up with additional ideas of your own to help you refrain from smoking. Thinking of such ideas can be a useful exercise in itself. Carry this page with you and as ideas occur to you, note them on the back.

APPENDIX J

CONTINGENCY CONTRACT

CONTINGENCY CONTRACT

Agreement

I will refrain from smoking for the following period: _____

_____

Consequences

If contract is kept: _____

_____

_____

If contract is broken: _____

_____

_____

Today's date _____   Signed _____

Review date _____   Witness _____

_____

APPENDIX K

SELF-MANAGEMENT CONTRACT

SELF-MANAGEMENT CONTRACT

I promise that for <u>each</u> cigarette I smoke between _____

and _____ I will forfeit the sum of $ _____ to be collected

by _____ within 48 hours of the time that I

smoke. I promise to honestly and accurately report all smoking.

Name _____   Date _____

Witness _____

_____

APPENDIX L

SELF-MONITORING REASONS FOR SMOKING

SELF-MONITORING REASONS FOR SMOKING

The reasons for smoking that you are to use for the self-monitoring exercise are defined as follows.

1. Stimulation = S. Stimulation smoking occurs when smoking gives you a sense of stimulation, helps you wake up, keeps you going, or assists you in organizing your energy.

2. Manipulation = M. Manipulation is the act of handling the cigarette or the steps involved in the process of lighting a cigarette, watching the smoke curl upward, or exhaling the smoke. If these things give you satisfaction and/or are gratifying, this should be listed as a reason.

3. Negative affect reduction = N. This is when smoking serves to reduce feelings of anger, distress, or pressure; smoking is specific to situations in which negative feelings are aroused; or smoking during moments of distress gives you a feeling of tranquility or helps you in handling a problem or crisis.

4. Addiction = A. This occurs when you experience a strong craving for a cigarette, feel that you must have one or the craving will be unbearable, or when you have felt you needed a cigarette simply because it's been awhile since the last one.

5. Pleasurable relaxation = P. This occurs when you smoke under pleasant circumstances, e.g. when relaxing at the end of a meal, during social conversations. List this if smoking increases your pleasure.

6. Habit = H. Habit should be recorded when smoking involves minimal awareness, it is not rewarding or satisfying, or you light up automatically.

Note. This list was adapted from the material in Joffe et al., 1981.

APPENDIX M

RATIONALIZATIONS

RATIONALIZATIONS

The following statements are rationalizations that people frequently use in returning to smoking. The purpose of this exercise is for you to become familiar with these thoughts and to use them as cues to implement coping strategies to avoid a lapse. In addition, it is important for you to add any of your own thoughts or statements that will facilitate returning to smoking.

1. I could think more clearly if I had a cigarette.

2. A cigarette sure would taste good.

3. I've been smoking for years, another day won't matter.

4. I'll just have one.

5. No one will know.

6. If I don't have a cigarette, I'll go crazy.

7. A cigarette would help me to relax and calm down.

8. With all these hassles, I really deserve a cigarette.

9. I can't stand the thought of never smoking again.

10. Maybe I'll just take one puff.

11. I wonder what a cigarette would taste like.

12. Smoking really wasn't so bad.

13. How come they can smoke and I can't?

14. I could get through this mess if I could only smoke.

15. I'm beginning to gain weight and I could lose it if I started smoking again.

16. I really enjoyed smoking. I liked the taste.

17. I can't stop smoking because I don't have any willpower.

18. I get so nervous when I don't smoke.

19. My friends say I am so irritable since I quit smoking.

20. I think I'll reward myself for a month of not smoking by having just one cigarette.

What are your rationalizations?

APPENDIX N

PHASES AND EXAMPLES OF COPING

PHASES AND EXAMPLES OF COPING

Stage of preparing for a stressor or craving

What is it I have to do?
I can develop a plan to deal with it.
Just think about what I can do about it. That's better than getting anxious.
No negative self-statements, just think rationally.
Don't worry. Worry won't help anything.

Stage of confronting and handling the stress or craving

Just "psych" myself up. I can meet this challenge.
One step at a time: I can handle the situation.
Don't think about the craving, just what I have to do. Stay relevant.
This craving is what they said I would feel. It's a reminder to use my coping exercises.
This craving can be an ally, a cue to cope.
Relax. I'm in control. Take a deep breath.

Stage of coping with the feeling of being overwhelmed

When the craving comes, just pause.
Keep a focus on the present. What is it I have to do?
I'll label my craving from 1 to 10 and watch it decrease.
Don't try to eliminate the craving entirely, just keep it manageable.
I can convince myself to do it. I can rationally reason the craving away.
It will be over shortly.
It's not the worst thing that can happen.
Just think about something else.
Do something that will prevent me from thinking about the craving.

Stage of reinforcing self-statements

It worked! I was able to do it!
Wait until the group hears about this.
It wasn't as bad as I expected.
I made more out of this than it was worth.
My ideas, that's the problem. When I control them, I can control the craving.

It's getting better each time I use the procedure.
I'm really pleased with the progress that I'm making.

Purposes of the self-statements

These self statements are designed to be models to aid you to:

a.   assess the reality of the situation,
b.   control negative, self-defeating ideas,
c.   acknowledge, use, and possibly relabel the craving you are experiencing,
d.   "psych" yourself up to perform the necessary tasks,
e.   cope with the cravings you may experience, and
f.   reinforce yourself for having coped.

Note.   This format was adapted from Meichenbaum (1977).

APPENDIX O

PROBLEM-SOLVING APPROACH

PROBLEM-SOLVING APPROACH

1. Recognize and label the problem situation.

    What is the situation?
    What is the usual response?
    What are you thinking/telling yourself?
    What do you feel like?
    Assess reality.

2. Identify alternate responses to the situation.

3. Evaluate the alternative responses.

4. Choose and implement an alternative.

5. Evaluate the alternative. Either continue to use it or choose an alternative.

APPENDIX P

CONTRACT TO LIMIT USE

CONTRACT TO LIMIT USE

    I, _____, realize that stopping
smoking is difficult. Further, I am aware that many people smoke
after they have quit. I want to quit smoking and am making a commit-
ment to do so. However, realizing the difficulty involved, I am
willing to agree to the following terms in order to facilitate not
smoking.

    1. I will delay smoking a cigarette for at least 20 minutes
        after the initial temptation or urge to smoke.

    2. Any lapse will involve only 1 cigarette.

    3. If I have 1 cigarette, I will delay any further smoking for
        at least 1 hour. During this time, I will engage in coping
        strategies designed to avoid smoking. I will also mentally
        review my reasons for not smoking and consider the long-
        term consequences of smoking.

    I also realize that these terms are not meant to give me per-
mission to resume smoking. This contract is in effect until _____.

Signed   _____

Date   _____

Witnessed by _____

                _____

APPENDIX Q

COPING WITH URGES

COPING WITH URGES

Definition

Urges consist of emotions, sensations, and cognitions which occur when a person experiences a strong impulse or need to smoke. Prior to cessation, an urge was the same thing as a cue to smoke. Now that you have quit smoking, you will experience an urge differently. It will become a cue to cope, rather than to smoke.

Smoking can be conceptualized as a chain of events. Initially, a cue to smoke is present. This leads to an urge, and then to smoking or coping. The model is diagrammed below.

CUE   URGE   SMOKE

                               COPE

Smoking cues

A cue for smoking can be anything that elicits a desire to smoke. To facilitate your recognition of urges, they will be divided into specific categories. First, internal cues include depression, irrational beliefs, anxiety, etc. Second, external cues come from the environment and may include presence of other smokers, "smoke talk", advertisements, life stressors, etc. Third, conditioning process cues are strong associations you have with cigarettes, e.g. smoking while drinking alcoholic beverages, after meals, etc. Finally, experiencing urges is a natural part of breaking the smoking habit.

Form A will be utilized to detail your own smoking cues.

The urge

Returning to the model described above, it is important to classify your urges. Again, urges consist of cognitive, affective, and physiological components.

Cognitive aspects of the urge include all the thoughts, beliefs, and mental imagery which relate to and encourage smoking. For example, the following statements are cognitive aspects of an urge: "I really need a cigarette", "if I can have just one cigarette, I will be able to cope with this situation", and "one cigarette won't matter". It is important to delineate your cognitions in your urge situations.

Affective aspects of an urge include the emotions one experiences during the urge. Examples involving the affective part of an urge include anxiety, fear, excitement, and guilt.

Finally, the physiological component of an urge consists of physical sensations during an urge. Examples include withdrawal symptoms, aching in the chest, and coughing.

Use Form B to describe these components in terms of your own urges.

Fluctuation of urges

Urges tend to vary among individuals. Some individuals have urges for cigarettes for a longer time period than others. Anniversaries of not smoking may be accompanied by urges. Many times ex-smokers attempt to reward themselves for a month of abstinence by having a cigarette.

It is important to remember that: urges will become less frequent as time passes, they are not fatal, the actual urge will pass, and you can cope.

Smoking pay-offs vs. long-term consequences

It is important to understand your pay-off for smoking. People have reasons for returning to smoking. What are your short-term pay-offs for smoking? In order to cope with these, it is important to realize the long-term consequences of smoking. In the midst of an urge, the long-term consequences become unclear. Recalling these is an effective coping mechanism to assist you in not smoking.

Use Form C to delineate these for yourself.

What to do when you have an urge

1. Recognize the urge--don't try to ignore it.
2. Relax. Tell yourself you can handle the situation.
3. Stop and anlyze the situation as in the self-instructional approach. What is the situation? What is the usual response? What are you thinking and telling yourself? How do you feel? Why do you want to smoke?
4. Think of the consequences (immediate vs. long-term).
5. Remember your alternatives.
6. Make your decision.
7. Reward yourself for not smoking.
8. Share the situation with someone who understands how difficult it is to stop smoking.
9. Consider the question, did you plan it unknowingly?

FORM A

Identifiable signs that indicate you are experiencing an urge to smoke.

<u>Internal</u>

<u>External</u>

<u>Conditioning</u>

FORM B

Detail the various aspects of *your own urges.*

Cognitive

Affective

Physical

FORM C

Detail the short-term pay-offs vs. the long-term consequences.

Short-term pay-offs   Long-term consequences

Note. This form was adapted from Salt Lake Veteran's Administration Hospital manual (Note   ) and Taylor and Lantinga (Note   ).

APPENDIX R

GAME PLAN WORKSHEET

GAME PLAN WORKSHEET

1. Describe the urge situation (when, where, who is with you) ____

   _____

   _____

2. How did you feel? _____

   _____

3. What did you think/tell yourself? _____

   _____

4. What did you do to avoid smoking? _____

   _____

5. What are some other alternatives you could use for similar situations in the future?

   Plan A: _____

   Plan B: _____

   Plan C: _____

Note. This material was adapted from the Salt Lake Veteran's Administration Hospital manual (Note 13).

APPENDIX S

ABSTINENCE VIOLATION EFFECT WORKSHEET

ABSTINENCE VIOLATION EFFECT WORKSHEET

The abstinence violation effect (AVE) is the feeling that once you have smoked a cigarette, you have blown it. You feel guilty, like a failure, ashamed, and a variety of other negative emotions. It leads to a decrease in self-efficacy and to continued smoking.

Components of the AVE

1. You smoke. You are in a high-risk situation (e.g. anxious, around other smokers, drinking alcohol, or experiencing negative emotions), you smoke and feel as though you have failed. You didn't deal directly with the problem. Instead, you had a cigarette.

2. You feel conflict. Your commitment to yourself, the group, and your contract said one thing and you behaved differently. Before you smoked the cigarette, you felt in control of your smoking. Now you question this. Your uncontrolled behavior (smoking) is in direct opposition to your self-image of an exsmoker.

3. You blame yourself. You believe that you failed because of some weakness within you, e.g. lack of willpower, inadequacies, weakness, or being addicted.

4. You feel terrible. You experience feelings like guilt, anger, or anxiety, because you did not control your urge to smoke

5. The stage is set. Experiencing these negative emotions and cognitions about smoking, the stage is set for continued smoking. You have failed and might as well give up your smoking program entirely. This would result in the loss of all the benefits you would have gained had you resumed not smoking.

How to break the AVE

Now that you are aware of the AVE, you can cope with the situation of a lapse. Here's how.

1. Use your analysis of high-risk situations. Specify the skills you need to learn to cope with these situations. Practice these skills whenever you experience the urge to smoke and remind yourself that in coping you are enhancing your

sense of self-efficacy.

2. If a lapse occurs and you smoke--don't be alarmed. Recall that many people experience setbacks.

3. Sit down and relax while you are planning what to do. Remember your contract limiting the extent of use.

4. Remind yourself that no one is perfect all the time. Just because you had a cigarette does not mean that you are a failure or weak. You do not have to give up your nonsmoking program.

5. Talk to someone who is sympathetic and helpful.

6. Go immediately back to your nonsmoking program. It is extremely important for you not to say, "I blew it, I'm weak, I might as well continue to smoke. I can't stop." You will only add to the problem by continuing to smoke.

If you smoke

Your success in this treatment will depend on your perseverance and your use of coping skills. Being human, it is possible that you will experience a lapse and smoke a cigarette. If you do, take 10 minutes out and remind yourself of the following facts.

1. To err is human. A lapse is not all that unusual. It does not mean that you have lost control or have no willpower. It does not mean that you are a treatment failure. It does not mean that all previous efforts to quit were in vain. It does not mean that further smoking is inevitable. Do not catastrophize.

2. It does mean that you need to be aware of your immediate thoughts and feelings. It does mean that you have to cope with your urge to smoke immediately.

3. Make a commitment to learn from this lapse.

4. Try not to feel guilty, frustrated, or angry. If these feelings persist, remember that they will pass. Remember that a lapse does not mean that you have to continue to smoke. Do not punish yourself.

5. Your goal remains the same: to avoid smoking a cigarette. Be aware of the cop-out in thinking "I have already blown it,

I'm weak, I might as well smoke". Remember, one smoke does not make a smoker.

6. To focus your attention away from the negative, destructive thinking and toward the positive, coping thoughts, complete the attached worksheet. Ask yourself, "What about this situation caused me to smoke?" "What do I need to learn or practice to avoid smoking in the future?" Remember your alternatives to high-risk situations.

Note. This material was adapted from Boelens (1980).

APPENDIX T

POSITIVE ADDICTIONS

POSITIVE ADDICTIONS

In order to develop or maintain a healthy lifestyle, it is important to relax, enjoy life, and be free of stress. To accomplish this, it is sometimes necessary to program these types of activities into one's lifestyle. Glasser (1976) has devised the following criteria for activities or behaviors that are positive addictions:

1. It is something noncompetitive that you choose to do and can devote approximately an hour to per day.
2. It is possible for you to engage in the activity easily and does not require a great deal of mental effort to do it well.
3. You can do it alone or with others. It should not depend on the presence of others.
4. You believe that it has some value for you (physical, mental, spiritual, etc.).
5. You believe that with persistence and practice, you will improve at this activity. This needs to be a subjective measure as you are the only one who should measure that improvement.
6. The activity must be one in which you can engage without criticizing yourself. If you can't accept yourself during this activity, it will not be addicting.

Take note of the possibilities generated by the group and add your own to the list.

Some examples include meditation, jogging, hobbies, reading.

APPENDIX U

WANT/SHOULD RATIO

WANT/SHOULD RATIO

Individuals differ in the amount of time they spend doing things that they want to do and things that they feel they should or have to do. Many people place priority on doing the activities they should do, leaving any pleasurable activities until the end of the day or even the end of the week. Many times, this type of lifestyle leads to feelings of deprivation, abuse, and depression. Researchers have found the lack of pleasurable activities is a major cause or factor in depression. Thus, emphasizing the shoulds in life to the detriment of the pleasurable wants results in a need for indulgence (e.g. eating, smoking) and/or depression (which is also a high-risk situation for many smokers). It is strongly suggested that you analyze your own lifestyle to determine if an imbalance exists. If so, it is important for you to plan pleasurable activities during each day. This is essential, not only to keep from resuming smoking, but to improve or maintain your mental health.

A worksheet is attached in order to facilitate your analysis. Choose one weekday and one day of the weekend and fill out the daily activity log. Also, include a pleasure rating where you rate these activities according to the fun you have. A should = 1 and a want = 7. If your ratio reflects that you spend most of your time in depressing, should, stressful activities, you need to be aware of the effects this can have on you. Make an effort to enjoy life. Plan pleasant events!

ACTIVITY LOG

Day 1 activity list and pleasure ratings

1. _____ P = _____

2. _____ P = _____

3. _____ P = _____

4. _____ P = _____

5. _____ P = _____

6. _____ P = _____

7. _____ P = _____

8. _____ P = _____

9. _____ P = _____

10. _____ P = _____

Day 2 activity list and pleasure ratings

1. _____ P = _____

2. _____ P = _____

3. _____ P = _____

4. _____ P = _____

5. _____ P = _____

6. _____ P = _____

7. _____ P = _____

8. _____ P = _____

9. _____ P = _____

10. _____ P = _____

APPENDIX V

GROUP COHESION QUESTIONNAIRE

GROUP COHESION QUESTIONNAIRE

Please rate each of the following statements on a scale of 1 to 7. The rating indicates your opinion about the statement. Please be honest.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

_____ 1. I feel the group should have met more often.

_____ 2. I dislike my group.

_____ 3. If most of the members of my group decided to dissolve the group by leaving, I would like an opportunity to dissuade them.

_____ 4. I feel that working with the smoking group has enabled me to quit smoking.

_____ 5. If I could have replaced members of my group with other "ideal group members" I would have (exclusive of group leaders). If yes, how many? _____

_____ 6. I felt like I was included by the group in the discussions and activities.

_____ 7. The length of the meetings should have been shorter.

_____ 8. Compared to other therapy groups, I would imagine this group worked well together.

_____ 9. The contracts were not useful.

_____ 10. The therapists were competent.

Please answer the following questions as honestly and completely as possible. We need your reactions and opinions in order to further improve our procedures.

11. How do you feel about your participation in, and contribution to the group work?

12. How do you feel about the group therapist?

13. Did you employ the techniques/suggestions from the group sessions? Please detail what you used to cope and if this was useful.

14. Any other reactions, suggestions, comments?

APPENDIX W

RELAPSE INTERVIEW

RELAPSE INTERVIEW

Background information

Client name _____

Group description _____

Date _____

Questions

1. When did you first begin to smoke again? _____
   (Fix a day/date or at least an approximate number of days after the quit date.)

2. When you smoked that first cigarette, what was happening? Can you describe the occasion?

   a. Day and time _____

   b. Place _____

   c. Who else was there _____

   d. Were they smoking? _____

   e. What were you doing? _____

   f. How were you feeling before you smoked? _____

      _____

   g. Where did the cigarettes come from? _____

   h. Had you thought about smoking before that occasion? _____

3. How did that first cigarette taste?

   a. _____ unusually good

   b. _____ pretty good

   c. _____ about the same as they used to

   d. _____ worse than usual

e. _____ really bad

4. Which of these statements best describes your emotional reaction after you smoked the first cigarette?

   a. _____ felt good to be smoking again

   b. _____ no particular feelings

   c. _____ felt a mild degree of guilt/regret

   d. _____ a lot of guilt/regret

5. How many cigarettes did you smoke the first time? _____

6. The next day (or after that first episode) did you continue to try to control your smoking? _____

7. a. How many cigarettes a day are you now smoking? _____

   b. What brand are you now smoking? _____

   c. How long (days/weeks) did it take you to go back to regular smoking? _____

8. Which of the following statements best describes how your confidence in your ability to resist smoking changed in the days/weeks/months prior to your starting to smoke again.

   a. _____ As time went on after quitting, I became more and more confident in my ability to resist smoking.

   b. _____ As time went on after quitting, I became slightly more confident in my ability to resist, but not a lot more confident.

   c. _____ Right up until the time I had that first cigarette in my mouth, my level of confidence was unchanged.

   d. _____ As time went on after my quit date, I became somewhat less confident in my ability to resist but not a lot less confident.

   e. _____ As time went on after my quit date, I became less and less confident in my ability to resist until I had very little confidence at all.

9. Which of the following best describes the effect of that first cigarette on your confidence in your ability to resist further cigarettes?

   a. _____ It had little or no effect on my confidence in my ability to resist. I felt in control over my smoking habit.

   b. _____ It had a moderate effect. . . It made me feel like I might be less able to resist.

   c. _____ It had a strong effect . . . It made me feel much less able to resist.

   d. _____ It completely wiped out my confidence in my ability to resist the urge to smoke. I realized at that point that I had no control any more. I was a smoker again.

10. What could your treatment program at the smoking clinic have included that could have helped you to remain abstinent?

11. Is there anything else about your starting to smoke again that you think might be important?