Positive versus negative self-monitoring in the self-control of smoking behavior

Joyce C. Walters

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POSITIVE VERSUS NEGATIVE SELF-MONITORING
IN THE SELF-CONTROL OF SMOKING BEHAVIOR

A Thesis
Presented to the
Faculty of
California State College
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Psychology

by
Joyce C. Walters
December 1976
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ABSTRACT

The purpose of this study was two-fold. The study was designed first to compare the effect on smoking reduction of two self-monitoring methods, negative monitoring versus positive monitoring; and second, to determine the effect on smoking reduction of teaching smokers a broad range of internal and external self-control techniques. Twenty-seven subjects were assigned to a minimum treatment control group, a self-control with negative monitoring condition, or a self-control with positive monitoring condition. There were eight 90-minute group treatment sessions for each experimental group during which subjects were exposed to a variety of self-control techniques including environmental programming, guided relaxation and imagery training. As predicted, the results showed that the experimental subjects in both groups significantly reduced their smoking frequency over the treatment period and maintained their reduction (with the exception of one deviant subject) at the 6-week follow-up. Contrary to prediction, subjects in the positive monitoring group did not reduce their smoking frequency more than subjects in the negative monitoring group.
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INTRODUCTION

Fifty-nine million people, of whom nine million are teenagers, smoked 607.2 billion cigarettes in 1975 (Low-Tar Smokes, 1976). Public dissemination of the physical dangers of smoking has had little impact upon its occurrence (DHEW, 1973). In view of the disability and premature death resulting from smoking and the millions of smokers who seek help in quitting, it is apparent that the search for effective methods of stopping smoking is an important area of investigation.

While researchers differ on the causes of persistent smoking (Bernstein, 1970b; Brecher, 1972; Hunt & Matarazzo, 1970), the view held generally by behavior modifiers is that smoking is a complex learned modifiable habit, triggered by a wide variety of internal and external cues, and maintained by immediately reinforcing consequences. According to Logan (1973), the habit of smoking is permanently learned as a result of overlearning, and even if the habit is extinguished, it is subject to spontaneous recovery and rapid relearning. Hunt and Matarazzo (1970) stress the highly overlearned and automatic nature of the habit (the two-pack-a-day smoker, for example, inhales 146,000 times a year). Smoking becomes linked with specific events in the smoker's
environment which then tend to cue the response, as, for example, after meals, with coffee, at times of stress or mental concentration, etc. (Shapiro, Tursky, Schwartz, & Shnidman, 1971). Immediate pleasurable consequences of smoking are varied, including the taste and smell of inhaled smoke, the satisfying effects of nicotine, relief from social anxiety, enhanced self-image, meeting a need for manipulatory activity, and the filling of time (Hunt & Matarazzo, 1970; Premack, 1970). The remote aversive consequences of smoking (illness, premature death, etc.) are largely ineffective in deterring the habit as they are so delayed as to be rarely experienced by most smokers (Ferraro, 1973).

Research, based on learning theory principles, has tried to alter the smoking habit by manipulating the cues that prompt its occurrence and/or changing the immediate reinforcing consequences of smoking from positive to aversive. Methods have included (a) desensitizing cues (Koenig & Masters, 1965); (b) transferring stimulus control of smoking to an artificial and thus manipulatable cue, such as a randomly-set kitchen timer (Shapiro, Tursky, Schwartz, & Shnidman, 1971); (c) pairing the smoking act with imagined nausea (Lawson & May, 1970) or electric shock (Chapman, Smith, & Layden, 1971); or (d) making the taste of cigarette smoke aversive through satiation smoking (Sushinsky, 1972), continuous smoking (Marrone, Merksamer, & Salzberg, 1970),
or rapid smoking combined with hot smoky air (Lando, 1975).

Ferraro (1973) believes that neither restriction of cues nor external punishment can be sufficiently comprehensive to maintain reduced smoking. Moreover there are drawbacks to punishment. Electric shock, for example, is unrelated to smoking behavior and may be extremely unpleasant and anxiety-producing (Grimaldi & Lichtenstein, 1969). Hot smoky air treatment has led to a high number of dropouts from treatment (Franks, Fried, & Ashem, 1966). Satiation smoking is contraindicated for subjects with certain health problems and may even be dangerous for healthy subjects (Houser, 1974).

A behavior modification approach to smoking which avoids the problems of aversive control is that of developing and reinforcing alternate behavior that is incompatible with smoking behavior (Whitman, 1969; Gutman & Marston, 1967; Keutzer, 1968) and/or teaching the smoker operant techniques of self-control (Marston & McFall, 1971; Ober, 1968). Behavioral change is believed to be more lasting when the subject perceives it as due to his own efforts rather than to an external source associated with one situation (Kazdin, 1975; Kolb, Winter, & Berlew, 1968). Additionally, the individual is the best potential observer and modifier of his own behavior (Mahoney, 1972), especially covert or private events (as, images, thoughts, and feelings) for which he alone can provide contingent consequences.
Despite the variety and ingenuity of behavior modification methods, they frequently have not been more successful in changing smoking behavior than placebo attention or supportive counseling control groups (Keutzer, Lichtenstein, & Mees, 1968). Research has shown that nonspecific factors (demand characteristics, social pressure, suggestion, and placebo effects), present in all treatments, lead to significant reduction in smoking rate over treatment (Bernstein, 1970b). In a review of eight major smoking studies, McFall and Hammen (1971) have shown the similarity of treatment outcomes. All treatment approaches resulted in end-of-treatment smoking rates of about 30-40% of baseline and 4-6 month follow-up rates approaching 75% of baseline. Abstinence rates (drop-outs were included in formation of the percentages) averaged 26% at end-of-treatment and 13% at 4-6 month follow-up.

Figures for abstainers show that two-thirds of abstinent smokers relapse within the first 3 months following end-of-treatment (Hunt & Matarazzo, 1973), and only 20-30% of abstainers are not smoking 9 to 18 months later (Hunt & Bespalec, 1974).

The major problem in controlling smoking is, therefore, not just achieving short-term treatment results but rather maintaining significant smoking reduction or abstinence over the long term (Bernstein, 1970b). Some researchers have suggested that permanent reduction or cessation of
smoking might best be achieved by training individuals
to monitor and control their own behavior (Ferraro, 1973;
Kazdin, 1975). Lando (1975) has questioned whether it is
realistic to expect short-term treatment to have a lasting
effect on such a well-established behavior as cigarette
smoking. Because of the frequency of relapse following
most treatments, he suggests that broad-spectrum approaches
be tried "before attempting to isolate specific treatment
components" (p. 354).

Drawing on the sources mentioned above, this study
is based on the rationale that self-control training is a
promising area for the achievement of long-term behavioral
change, and that a broad-spectrum program of training in
self-control might best enable smokers to avoid typical
smoking relapse following treatment. Such a broad program,
including methods of instruction, films, modeling (ex-smokers),
group interaction and booster calls, could impart a variety
of self-controlling techniques to aid smokers in modifying
their own internal and external environments both during
the active short-term treatment and, more importantly,
posttreatment.

In the following discussion, the concepts of self-
control and self-monitoring (the important first step in
self-control) will be reviewed, together with selected
smoking studies utilizing these techniques.
The Concept of Self-Control

Self-control has popularly been viewed as willpower or an inborn personality trait possessed in varying amounts by different individuals. Behaviorists, conversely, believe that self-controlling responses are learned behavior, subject to the same laws that govern the acquisition and maintenance of other behaviors (Bandura, 1969; Cautela, 1969; Kanfer & Karoly, 1972; Lopatto & Williams, 1976; Thoresen & Mahoney, 1974).

Self-control has been defined in numerous ways. Cautela (1969) defines self-control as a "response repertoire in which an individual can make responses to increase or decrease a response probability that is perceived as injurious to the individual himself or to others" (p. 324). Kazdin (1975) states that "self-control refers to those behaviors an individual deliberately undertakes to achieve self-selected outcomes" (p. 192). According to Thoresen and Mahoney (1974) "self-control represents a dynamic continuum wherein the person alters the external environment as well as his own internal environment to promote meaningful change" (p. 129). An important assumption of self-control is that internal actions (thoughts, images, and physiological responses) "obey the same laws or principles as external actions do" (Mahoney & Thoresen, 1974, p. 48). Hence "combinations of overt and covert events may function as antecedents, behaviors and consequences," and be jointly subject to self-
management (Thoresen & Mahoney, 1974, p. 130). The basic rationale of self-control is that since behavior and environment are reciprocally influential, an individual can learn to arrange his internal and external environment so as to prompt and maintain desired behavior.

Self-control procedures have been used primarily to regulate addictive behavior from which the individual derives immediate positive gratification and delayed aversive consequences. Since self-controlling responses are less immediately rewarding than the addictive behavior, it is essential that they are reinforced by self or others until the delayed benefits accruing from self-control can maintain their occurrence (Bandura, 1969).

The process of self-engineering includes a period of analysis and self-monitoring of the target behavior followed by active application of environmental planning and behavioral programming. Environmental planning refers to actions taken prior to the target behavior in order to influence the probability of its occurrence. These include rearranging external cues or prearranging interpersonal consequences for the behavior (contingency contracts). Behavioral planning occurs after the performance of the target behavior; it includes self-administration of rewarding or punishing consequences, whether imaginal, verbal or material. Additionally, the individual may control his behavior through combinations of the above methods, using such techniques as systematic
self-desensitization, self-instructions, self-modeling, and covert sensitization (Mahoney & Thoresen, 1974, Chapter 5). Thus the individual learns to "perform one behavior (a controlling response) which alters the probability of another behavior (a controlled response)" (Kazdin, 1975, p. 192).

Some practical advantages of self-control are (a) the individual has continuous access to all of his responses, particularly internal events; (b) he can practice self-controlling responses in real life situations; (c) he has the potential ability to apply behavior change procedures over the long term; and (d) he can apply self-control techniques to other problem behaviors. An important limitation is that an individual may not adhere to the contingencies of reward and punishment that he has arranged for himself (Bandura, 1969; Thoresen & Mahoney, 1974).

Use of Self-Control in Smoking Reduction

Outcome Studies

A number of studies have investigated operant self-control procedures as a treatment for smoking (Chapman et al., 1971; Guttman & Marston, 1967; Harris & Rothberg, 1972; Marston & McFall, 1971; Ober, 1968; Sachs, Bean & Morrow, 1970; Whitman, 1969; Pomerleau & Ciccone, Note 1). In these studies, self-control strategies have included (a) analyzing smoking behaviors in terms of controlling stimuli; (b) environmental restraints; (c) knowledge of
results through graphs; (d) making use of incompatible responses (relaxation to counteract tension, or behavioral rehearsal to counteract social pressure to smoke); (e) self-monitoring; (f) awareness of the ultimate aversive consequences of smoking; (g) hierarchical gradual smoking reduction; (h) social contracts.

Ober (1968), for example, compared the relative effectiveness of operant self-control, aversive conditioning (using a portable pocket-sized shock stimulator), transactional analysis, and a no-treatment control group in the modification of cigarette smoking. All experimental groups were given explanatory treatment manuals. The operant group received a self-control manual which presented detailed explanations of behavior analysis and learning principles, as applied to smoking; treatment sessions were devoted to application of these principles. The aversive conditioning group were also presented with a learning approach to smoking and instructed to self-administer shock when experiencing a desire to smoke. The transactional analysis group studied smoking games, analyzed interpersonal conflicts which made smoking reinforcing and stressed responsibility for one's actions and self-control over smoking. All three groups reduced their smoking significantly over the treatment period and were significantly lower than the no-treatment control group. No significant differences were found among treatments. Ober noted that the overall
smoking rates at the end-of-treatment and at 4-week follow-up did not differ statistically, suggesting that the effects of the experimental treatments (all utilizing a type of self-control) did not diminish after treatment.

An effective treatment for smoking reduction has been reported by Pomerleau and Ciccone (Note 1) who used an integrated sequence of self-control techniques. Subjects attended eight 90-minute group sessions, scheduled once a week, and five follow-up sessions staggered over the next nine months after treatment. Half of a pre-paid fee of $100 could be earned back by adherence to record-keeping assignments and attendance at sessions. During the first week, participants self-monitored their smoking and analyzed the context (time, mood, etc.) of each cigarette smoked. Over the next 3 weeks, smoking reduction was requested with the group goal of abstinence delayed until successful reduction had been obtained. During this period subjects learned techniques of physical relief and environmental control. On the day prior to the second month of treatment (when abstinence was requested), subjects could choose either to satiate their smoking behavior or to continue to gradually reduce their smoking rate. Additional techniques were then introduced, including pairing urges to smoke with individualized aversive images of the harmful effects of smoking, behavioral rehearsal of refusals to smoke, and encouragement of exercise and relaxation. The
posttreatment follow-up sessions provided group support for nonsmoking behavior. At the end of eight treatment sessions, 65% of the 48 smokers were abstinent. At 11.1 months after treatment, 46% were still abstinent and 35% were smoking at about half their original rate. These follow-up results compared against the average follow-up results, summarized by McFall and Hammen (1971), of 13% abstinent and smoking reduction of about 25%, suggest that an integrated behavioral self-control approach is highly effective in controlling smoking behavior.

**Self-Monitoring**

Because an individual's behavior is often nonconscious, poorly observed, and selectively-remembered, the process of systematic self-monitoring (discriminating and counting discrete public or private behavioral events) may have a dramatic effect, at least temporarily, on the individual's behavior.

Self-monitoring is a key first step in all self-control programs, whether used for assessment or as a behavior-change technique (Kazdin, 1974). When self-monitoring is used as an assessment technique, it is important to validate self-report data against independent measures to determine the consistency and accuracy of measurement. When self-monitoring is used as a behavior-change technique, however, reliability of measurement is less crucial since even inaccurate monitor-
ing appears to stimulate the self-regulatory process (Broden, Hall, & Mitts, 1971). In self-monitoring, the individual has access to the total population of instances in which the behavior is performed and to his own covert behavior of thoughts, images, and feelings. A feedback model of self-observation (Kanfer & Karoly, 1972) suggests that as a person attends to and collects data on an aspect of his behavior, he then analyzes and compares this information with cultural or self-imposed standards or goals. Any discrepancy noted is corrected by self-regulatory processes of self-reinforcement and self-punishment, thus bringing the behavior back into the acceptable range.

Some of the variables that need to be considered in doing self-monitoring research are selection of monitoring device and the timing, frequency, and focus of self-monitoring. With regard to smoking studies, monitoring devices used have been cards (Rutner, 1967), daily smoking record (Pomerleau & Ciccone, Note 1), 2x3 inch booklet (Marston & McFall, 1971), and wrist counters (McFall & Hammen, 1971). The device itself often becomes a discriminative cue that may influence the behavior being monitored (Thoresen & Mahoney, 1974). Timing of monitoring may take place prior to smoking (urges to smoke) or after smoking a cigarette (Karoly & Doyle, 1973); frequency of monitoring may be continuous or intermittent (Frederiksen, Epstein, & Kosevsky, 1975; Pyke, Agnew, & Kopperud, 1966); and the focus of monitoring may be smoking behavior, an
alternative behavior, or both simultaneously (McFall, 1970; McFall & Hammen, 1971). Thoresen and Mahoney (1974) have suggested that it may be more effective to monitor an alternate desirable response than the target behavior. It is also important to choose the behavior to be monitored that best relates to the presenting problem. Romanczyk (1974) found, for example, that self-monitoring daily weight did not result in weight loss whereas self-monitoring daily caloric intake was highly effective in producing weight loss.

Findings from research on effects of self-monitoring on behavior change have been inconsistent. Most studies have not separated the specific effects of self-monitoring from other treatment components, such as, instructions, attention, experimenter demand and contingent praise. Two studies that have isolated the self-monitoring component found it ineffective as a behavior-change agent. In a study by McNamara (1972) that evaluated different self-monitoring procedures to reduce nail biting, self-monitoring did not result in greater change in nail length than no-self-monitoring; since all groups improved in nail length, participation in the study appeared to contribute to change. Stollak (1967) compared two no-contact control groups in a weight-reduction study. One group monitored its eating habits and one did not. At the end of 8 weeks, no difference was found between the groups, indicating self-monitoring had no effect. Other studies, however, suggest the effectiveness of self-monitoring.
A study by Broden et al., (1971) found that self-monitoring reliably altered the behavior of two junior-high students; the student who self-recorded his attentive or inattentive behavior increased his attentiveness, and the student who monitored his frequency of "talking out" decreased this behavior. Similarly, in a study by Herbert and Baer (1972), two mothers who self-monitored the times they attended to appropriate behavior in their deviant children increased their attentive behavior, and one mother maintained her attentiveness at a high level by intermittent self-monitoring (on 3 days of the 21-day follow-up period).

Self-Monitoring in Smoking Reduction Studies

McFall (1970) studied the differential effects of two kinds of self-monitoring upon the smoking behavior of students who were not necessarily motivated to stop smoking. It was theorized that recording each smoking act might be perceived as a failure experience and thus be aversive, and recording each instance of resistance to temptation to smoke might be a success experience and thus be positively reinforcing. During the self-monitoring period (13 class days), one group of smokers was asked to monitor decisions to smoke while another group was asked to monitor the times smoking was considered but decided against. Both groups were unobtrusively observed by classmates before, during, and after the self-monitoring period. There was no
difference in smoking frequency between the groups prior to self-monitoring. It was found that the "decisions to smoke" group significantly increased its rate of smoking during the self-monitoring and post self-monitoring periods. The "decisions not to smoke" group conversely decreased its rate of smoking. McFall concluded that self-monitoring of smoking behavior altered that behavior so that focusing on smoking increased the frequency of smoking and focusing on not-smoking decreased smoking frequency. He suggested that the reactive effects of self-monitoring could be "intentionally incorporated into a treatment program ... to facilitate desired behavior change" (p. 142).

Another study (McFall & Hammen, 1971) compared four methods of self-monitoring (the study was somewhat confounded by self-instruction and imagery). All subjects submitted a baseline smoking record (72 hours) and were required to try to stop smoking immediately while following a specific method of self-monitoring. Subjects in the Minimal Self-monitoring group merely handed in written daily records of cigarette consumption. The subjects in the other three groups were provided with wrist counters. Subjects in the Negative Self-monitoring group recorded the daily total of cigarettes smoked by marking a "negative" point on the wrist counter each time they were unable to resist smoking a cigarette, simultaneously telling themselves, "I do not want to smoke." In contrast, subjects
in the Positive Self-monitoring group recorded a "positive" point on the wrist counter each time they successfully resisted the temptation to smoke. They also were to say to themselves, "I do not want to smoke" and refrain from smoking for at least 5 minutes. In the Fixed-Positive Self-monitoring condition, the requirements were the same as in the Positive group with the addition that subjects had to achieve 20 positive points on the counter per day, even if they had to imagine a temptation and resist it in their imagination. By the end of the 3-week treatment period, all four groups had significantly decreased their smoking rate but there were no differences between monitoring methods. A tendency was noted, however, for the more structured groups (negative and fixed-positive) to perform better.

The results of these two self-monitoring smoking studies are conflicting; McFall and Hammen (1971) found no difference between self-monitoring methods while McFall (1970) found that focus of self-monitoring was instrumental in changing smoking behavior.

In the McFall and Hammen (1971) study, it is apparent that subjects in the Positive and Fixed-Positive monitoring conditions were left to their own resources in overcoming temptations to smoke. A question remaining is what would be the effect of positive monitoring (resisting urges to smoke) if subjects were trained in techniques of self-control to use in counteracting smoking urges?
It was theorized that subjects positively monitoring their own self-control behavior in the control of smoking urges would more effectively curb their smoking than subjects negatively monitoring their daily consumption of cigarettes. Both McFall (1970) and Mahoney and Thoresen (1974) have suggested that monitoring a desirable behavior may be self-reinforcing (for example, feeling better about oneself for using self-control), tending to increase the probability of continued self-control behavior. Additionally, in positive monitoring, the attention of the subject is primarily focused on the urge to smoke, an antecedent of smoking behavior. It has been suggested (Thoresen & Mahoney, 1974) that self-change may be more effective when a behavior is observed early in the behavioral chain rather than after it has occurred (after smoking a cigarette).

It was therefore decided to test the relative effectiveness of positive monitoring (using self-control techniques to overcome urges to smoke) versus negative monitoring in smoking reduction. However, since the impact of self-monitoring alone is often of short duration (Kazdin, 1974), it was further decided to couple each self-monitoring method with training in a broad-spectrum of self-control in order to further the goal of long-term smoking reduction or abstinence.

Thus the main purpose of the study was to compare the two self-control groups (identical except for monitoring method) with each other to determine if positive monitoring
was more effective than negative monitoring in altering smoking behavior. And secondarily, the two self-control groups would be compared against a minimum treatment control group to evaluate the overall effect of self-control training on smoking reduction. It was hypothesized that:

1. For both self-control groups, there will be a significant reduction in the frequency of smoking from baseline to end-of-treatment, and from baseline to follow-up, with no such significant reduction in the control group.

2. The frequency of smoking reduction from baseline to end-of-treatment, and from baseline to follow-up will be greater for the self-control with positive monitoring group than for the self-control with negative monitoring group.
METHOD

Subjects

The subjects were 27 smokers (16 men and 11 women) recruited through posters, fliers, newspaper and radio publicity from California State College, San Bernardino, and the surrounding Riverside/San Bernardino area. The subjects averaged 36.7 years old and had been smoking for an average of 19 years.

Of those persons who attended the four informational orientation meetings, 30 persons committed themselves to participate in the study; however, seven subsequently withdrew prior to the start of treatment. Six subjects who did not attend an orientation meeting also joined the study. Two subjects dropped out of the study after one and two treatment sessions, respectively. Reasons for withdrawal included quitting smoking following the orientation meeting; not being able to meet required number of sessions; heavy school assignments; and transportation problems.

Potential subjects were given a choice of two scheduled treatment times and were grouped together on the basis of their time preference. Subjects who could attend either one of the two scheduled treatment times were assigned so as to balance both groups on estimated smoking frequency. The
assignment of treatment conditions to subject group was decided by a flip of a coin. The control group consisted of five subjects who had attended orientation but could not attend the treatment sessions, and four subjects who wanted to participate in the study but were unable to do so for scheduling reasons. Control subjects were promised the self-control manual and assistance in stopping smoking at the conclusion of the study. Nine subjects in each condition completed the study. The groups were comparable on age, sex distribution, and estimated smoking frequency (Table 1).

**Design**

A 3 x 3 mixed factorial design was used with treatment and time of assessment as the two independent variables. Three treatment groups were studied: self-control with negative monitoring; self-control with positive monitoring; and minimum treatment control. In each group smoking frequency was measured pretreatment, at end-of-treatment, and after 6 weeks. The dependent variable was the mean number of cigarettes smoked per day over a 6-day period, as reported by subjects in all conditions at the three times of test.

**Procedure**

**Intake Procedures**

Four standardized 90-minute orientation meetings were scheduled in the early afternoon and evening of two successive Mondays (one and two weeks prior to the start of treatment).
Table 1
Characteristics of Subjects in Control Group, Treatment Groups, and Total Sample

<table>
<thead>
<tr>
<th>Group</th>
<th>Sex M,F</th>
<th>Age Mean (SD)</th>
<th>Years Smoking Mean (SD)</th>
<th>Estimated cigarette use per day Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>5,4</td>
<td>36.3 (14.3)</td>
<td>18.5 (14.5)</td>
<td>25.5 (13.6)</td>
</tr>
<tr>
<td>Self-Control</td>
<td>5,4</td>
<td>37.0 (12.2)</td>
<td>18.6 (10.1)</td>
<td>31.1 (8.7)</td>
</tr>
<tr>
<td>Self-Control</td>
<td>6,3</td>
<td>36.8 (15.9)</td>
<td>19.8 (14.5)</td>
<td>27.1 (12.7)</td>
</tr>
<tr>
<td>Positive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16,11</td>
<td>36.7 (14.2)</td>
<td>19.0 (13.2)</td>
<td>27.9 (12.1)</td>
</tr>
</tbody>
</table>

*Indicates number of males (M) and females (F) in each group.
Prospective subjects were told that this was a study of the self-control of smoking and that they would be exposed to a broad spectrum of self-control techniques to help them analyze and control their smoking behavior according to their own goals. All subjects (both experimental and control) were required to furnish 6-day records of their smoking frequency at three assessment periods (pretreatment, end-of-treatment, and 6-week follow-up). Subjects were asked to smoke at their normal rates while recording their baseline (pretreatment) smoking frequencies. To verify the accuracy of their baseline data, they were to ask a friend or spouse to count the number of cigarettes in their packs at the beginning and end of the day and to sign the daily total on the record sheet. Experimental subjects were further required to attend a minimum of six of the eight treatment sessions; to submit a $10 deposit check, payable to the Heart Association of San Bernardino County and refundable upon completion of the attendance and assessment requirements regardless of success in the study; and to sign a contract agreeing to fulfill all requirements.

The subjects were then asked to fill out a questionnaire, designed for the study, to obtain demographic information and data concerning the subject's smoking history and current cues for smoking (Appendix A), and a smoker's self-test which probed the subject's knowledge and feelings about smoking (Appendix B). A set of six smoking frequency record sheets
(baseline) were distributed to subjects on which they were to check the hour they smoked each cigarette and the extent of their need to smoke it on a scale of 1 to 6, low to high need (Appendix C).

Finally, all subjects were shown a humorous film dramatizing the difficulties and benefits of quitting smoking as well as demonstrating traditional methods of stopping. The film, which was publicized, served a double purpose: to attract smokers to the orientation meetings and to stimulate interest among potential subjects who did attend (Appendix F).

Treatment Procedures

Both treatment conditions (self-control with negative monitoring, and self-control with positive monitoring) consisted of separate 90-minute group meetings held twice a week for 4 weeks. The groups were led by the author, a psychology graduate student and a nonsmoker, who was assisted by a male psychology student and ex-smoker. To compensate for absences at treatment sessions and to ensure that all subjects had at least six sessions, an additional group make-up session was held for each experimental group (5 days after the last regular treatment session), and individual treatment sessions (making up missed techniques) were also scheduled for some subjects as required.

Both experimental groups were treated identically in
that the same treatment techniques and exercises were prearranged and provided to both groups, although in separate sessions. Both groups were presented with a rationale for self-control based on learning principles which emphasized that smokers had learned to smoke and could also learn ways to engineer nonsmoking behavior through control of their internal and external environments. The only difference between the groups was in how they were to self-monitor during the treatment period.

**Self-monitoring instructions.** Subjects in the negative monitoring group were asked to monitor their undesirable smoking behavior by recording a "negative" point on a counter each time they yielded to an urge and smoked a cigarette (a decision to smoke). At the end of each day they were to record the cumulative total on a chart and bring the chart to the next treatment session.

Subjects in the positive self-monitoring group were asked to monitor their desirable nonsmoking behavior by registering a "positive" point on a counter each time they resisted an urge to smoke by employing a self-control technique (for example, sucking a clove, imagining healthy lungs, instructing self, "I don't need this cigarette," or any one of a variety of behaviors incompatible with smoking). Each day they were to mark on the chart the cumulative total of urges overcome (decisions not to smoke) and bring the
chart to the next treatment session. These subjects were furnished a "reminder" list of possible self-control measures (Appendix D).

At the first treatment session all experimental subjects received (a) a self-control manual, specifically designed for this study, which contained a summary of principles of behavioral change, techniques and examples of self-control applied to smoking behavior, and assignments to aid in the analysis of the subject's smoking habit (Appendix E); (b) a counter (subjects could choose between a grocery counter or a knitting counter; and (c) a recording chart.

Subjects were exposed at irregular intervals during the treatment sessions to (a) video tape interviews by the experimenter of successful ex-smokers, (b) a relaxation audio tape (Appendix F), and (c) antismoking films (Appendix F).

The procedure during all treatment sessions was as follows: After sign-in, subjects received instructions from the experimenter on self-control techniques, effects of smoking, content of cigarettes and pitfalls of cigarette advertising, and then worked briefly on assignments. A film (antismoking or health) or video tape (illustrating self-controlling techniques used by ex-smokers) was then shown and discussed in the group interaction that followed, during which, also, each person discussed his or her problems and goal, and charts were exchanged. Subjects customarily sucked on lollipops, chewed cloves, gum, or
Stim-U-Dents, thus practicing self-control (behavior incompatible with smoking) during the treatment sessions. Although it had been agreed that subjects could go to the far end of the large room to smoke, none ever left the group for that purpose. The last part of each session was devoted to learning to relax (self-controlling behavior incompatible with tension that leads to smoking) aided by a relaxation tape (Appendix F). When subjects were relaxed, the experimenter guided them in imagining the reparative benefits to their bodies of stopping smoking, and also, in vividly imagining themselves as nonsmokers both in the present and in the future (a self-modeling, self-control technique).

Follow-up Procedure

Follow-up phone calls. Following completion of the 4-week treatment period, experimental subjects (six in the negative monitoring group, five in the positive monitoring group) who expressed interest in further help, were phoned weekly by the experimenter for a period of 3 weeks in an effort to encourage continued use of self-control techniques, provide social support, and prevent relapse.

Feed-back booster session. At the conclusion of the 6-week follow-up assessment period, all subjects were invited to a feedback-booster session at which smoking records were collected, deposit checks returned, progress and experiences
discussed, and follow-up questionnaires distributed. Subjects who did not attend the meeting were mailed the questionnaires, together with stamped, addressed envelope. Experimental subjects were asked on the questionnaire to evaluate their progress in stopping smoking, the helpfulness of specific self-control techniques, and important factors that contributed to their smoking behavior change (Appendix G). Control subjects were asked on the questionnaire what effect being in the study had on their smoking behavior, whether they tried to quit smoking on their own, and if so, what methods they used (Appendix H).
RESULTS

The correlation between estimated smoking and baseline smoking was .55. Although subjects were assigned to treatment groups on the basis of their estimated smoking rates and the three groups did not differ on this measure, analysis of the subsequent baseline data revealed that the groups were no longer homogeneous. Baseline frequency of smoking was, therefore, used as the control condition within each treatment group. Estimate scores were not included in the analyses.

Figure 1 presents the subjects' mean smoking frequency at three assessment periods: baseline, end-of-treatment, and 6-week follow-up. Although a bar graph would more appropriately depict the discrete nature of the three assessment periods, a line graph is used in order to facilitate perception of changes in smoking frequency over time.

An analysis of variance was performed on the three treatment groups at the three assessment periods. This analysis is summarized in Table 2. The significance level for all comparisons is $p < .01$. Results from this analysis of variance indicated no significant differences in smoking behavior between the three groups at any of the times studied. There was, however, a significant main effect of time, $F(2, 48) = 14.29$, $MS_e = 60.37$. The overall smoking
Figure 1. Mean smoking frequency of control and treatment groups at three 6-day assessment periods: pretreatment, end-of-treatment, and 6-week follow-up.
Table 2

Summary of Analysis of Variance
Comparing Smoking Rates for Two Treatment Groups and the Control Group at Three Assessment Periods, Pretreatment, End-of-Treatment, and 6-Week Follow-up

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>9667</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between subjects</td>
<td>4111</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment group</td>
<td>340</td>
<td>2</td>
<td>170.00</td>
<td>1.08</td>
</tr>
<tr>
<td>Error&lt;sub&gt;b&lt;/sub&gt;</td>
<td>3771</td>
<td>24</td>
<td>157.13</td>
<td></td>
</tr>
<tr>
<td>Within subjects</td>
<td>5556</td>
<td>54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of test</td>
<td>1726</td>
<td>2</td>
<td>863</td>
<td>14.29 *</td>
</tr>
<tr>
<td>Treatment x Time</td>
<td>932</td>
<td>4</td>
<td>233</td>
<td>3.86 *</td>
</tr>
<tr>
<td>Error&lt;sub&gt;w&lt;/sub&gt;</td>
<td>2898</td>
<td>48</td>
<td>60.37</td>
<td></td>
</tr>
</tbody>
</table>

*<sub>p</sub> < .01
frequency was significantly greater prior to the beginning of treatment (20.7) than at the end-of-treatment (9.8) or at follow-up (12.47). There was additionally a significant interaction of time and treatment group $F(4, 48) = 3.86, MS_e = 60.37$ in that the frequency of smoking did not change over time for the control group but was reduced from baseline to end-of-treatment and follow-up for both treatment groups.

Because the variance among groups on the pretreatment baseline measure was nonhomogeneous ($F_{\text{max}} = 7.28, p < .05$), Tukey's a posteriori comparisons among means were made on each of the three treatment groups separately (Table 3).

Table 3

Pairwise Comparisons Among Means
Within Each Treatment Group
Using Tukey's Honestly Significant Difference Test

<table>
<thead>
<tr>
<th>Group</th>
<th>Baseline vs. Baseline</th>
<th>Baseline vs. Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>End-of-treatment</td>
<td>6-week follow-up</td>
</tr>
<tr>
<td>Control</td>
<td>.42</td>
<td>.54</td>
</tr>
<tr>
<td>Self-Control</td>
<td>6.48 *</td>
<td>6.17 *</td>
</tr>
<tr>
<td>Negative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Control</td>
<td>5.68 *</td>
<td>3.89</td>
</tr>
<tr>
<td>Positive</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Each group was compared against its own baseline as control.

*p < .01.
The baseline frequency of smoking for each group was used as each group's control. Table 3 indicates there was no change in smoking frequency over time for the control group. The negative monitoring group, however, significantly reduced its smoking frequency from baseline to end-of-treatment and follow-up. The positive monitoring group significantly reduced its smoking frequency from baseline to end-of-treatment, but its smoking frequency was not significantly different from baseline at follow-up. An examination of the follow-up scores of the positive monitoring group indicated that the nonsignificant finding was due to the highly deviant score (z = 5.62) of one subject. When the analysis was redone with that subject's score deleted, the remaining eight subjects in the positive group did achieve a significant reduction in smoking at follow-up (z = 5.35, p < .05).

To test the second hypothesis regarding whether the reduction in smoking frequency over time was greater for the positive monitoring group than for the negative monitoring group, t-tests were performed on the difference between baseline and end-of-treatment, and baseline and follow-up, for the positive monitoring group versus the negative monitoring group. Interpretation of this result should be cautious as the data were nonhomogeneous across groups, and the t-test is not a robust statistic under this condition. Contrary to prediction, no significant difference was found between the positive monitoring group (5.0) and the negative
monitoring group (10.0) at end-of-treatment, $t(16) = .30$, or at follow-up (9.6 vs. 10.8, respectively), $t(16) = 1.09$.

Table 4 presents the number of subjects in each group who succeeded in reaching smoking abstinence.

Table 4
Number of Subjects Achieving Smoking Abstinence at End-of-Treatment and 6-Week Follow-up

<table>
<thead>
<tr>
<th>Group</th>
<th>End-of-treatment n%</th>
<th>6-week follow-up n%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>1 (11)</td>
<td>1 (11)</td>
</tr>
<tr>
<td>Self-Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>2 (22)</td>
<td>3 (33)</td>
</tr>
<tr>
<td>Positive</td>
<td>4 (44)</td>
<td>3 (33)</td>
</tr>
</tbody>
</table>

*Numbers in parentheses indicate the percentage of subjects achieving abstinence.*

At end-of-treatment, one control subject, two negative monitoring subjects, and four positive monitoring subjects were abstinent; at follow-up, one control subject, three negative monitoring subjects, and three positive monitoring subjects were abstinent. There was no significant difference in abstinence rates between the negative monitoring group and the positive monitoring group at end-of-treatment ($\chi^2(1) = 1.77$) or at follow-up ($\chi^2(1) = 0$). Comparison of the combined treatment groups (six abstinent subjects)
with the control group (one abstinent subject) yielded a significant treatment effect ($x^2(1) = 5.39, p < .025$) at end-of-treatment which was maintained at the 6-week follow-up.

In order to evaluate which specific self-control techniques were most instrumental in bringing about smoking change, experimental subjects were asked, at the conclusion of the experiment, to rate twelve treatment components on a scale of 1 (minimally helpful) to 5 (very helpful). The elements rated were own commitment to change, therapist help, therapist booster calls, self-contract, group interaction, specific films, specific video tapes, self-monitoring chart, 6-day assessment smoking record, relaxation, imagery of self as nonsmoker, making changes in environment.

For the negative monitoring group, the mean rating of the combined components was 3.1. This group rated its own commitment to change as most helpful (4.3), followed by booster calls (3.8), imagery (3.5) and therapist help (3.4). Group interaction was rated as least helpful (2.1). Frequent absences among subjects in this group (16 overall) as opposed to 4 overall absences in the positive monitoring group may have prevented development of a group reinforcement process. Low ratings were also given to video tapes (2.7), self-monitoring chart (2.7) and relaxation (2.8).
The positive monitoring group perceived treatment components quite differently. Overall helpfulness of the combined components was rated somewhat higher (3.4). Most helpful to this group was the 6-day assessment smoking record (4.3) and making changes in the environment (4.3). Group interaction was rated 4.2. Attendance in this group was substantially more regular than in the negative monitoring group. Highly rated were own commitment to change (3.9), therapist help (3.9), a film, "The Embattled Cell" (3.7), and relaxation (3.6). Rated least helpful were the self-monitoring chart (2.4) and booster calls (2.9).

As one goal of self-control, subjects were encouraged to change their brand of cigarette to one of lower tar and nicotine. On the pretreatment questionnaire, only two of 18 experimental subjects were able to identify the tar/nicotine content of their cigarettes. During the study, two subjects in the negative monitoring group and five subjects in the positive monitoring group switched to a lower tar/nicotine brand. The result for one subject was that although he increased his smoking rate from 6.2 cigarettes per day at baseline to 15.8 cigarettes per day at follow-up, he actually decreased tar consumption by 70\% and nicotine consumption by 53\%, reporting a reduction in distressing physical symptoms.
In order to correlate various factors from the pre-treatment questionnaire with success in treatment, a success quotient, "degree of success," was determined for each experimental subject by dividing the difference between the number of cigarettes he smoked at baseline and at follow-up by his baseline rate. No significant correlations were found between degree of success and number of cues that triggered smoking ($r = .07$), number of prior attempts to stop smoking ($r = .14$), or degree of motivation to quit smoking ($r = -.20$).

A modest correlation ($r = .52$) was found between degree of success and the subject's pretreatment expectation of success in stopping smoking, self-assessed on a scale of 1 (minimal expectancy) to 7 (high expectancy). This finding was analyzed further by comparing the mean of the self-ratings of the six subjects who were successful abstainers at follow-up ($M = 6.33$) with the mean of the twelve subjects who were still smoking at follow-up ($M = 4.58$). A significant difference was found between these means, $t(16) = 2.16$, $p < .05$, two-tailed test.
DISCUSSION

The first hypothesis which predicted that the self-control groups will significantly reduce their frequency of smoking from baseline to end-of-treatment, and from baseline to follow-up, with no such significant reduction in the control group was generally supported. The control group did not vary its smoking rate over time. The negative monitoring group significantly reduced its frequency of smoking from baseline to end-of-treatment and follow-up. The positive monitoring group, although it significantly reduced its frequency of smoking from baseline to end-of-treatment, failed to maintain the reduction at the time of follow-up. Additional partial support for the hypothesis, however, is found in the reanalysis of the follow-up data, omitting the score of one highly deviant subject (abstinent for 12 days during treatment but later relapsing during an emergency situation). The remaining eight subjects in the positive monitoring group did significantly reduce their smoking frequency at follow-up.

As previously mentioned, diverse nonspecific treatments have been shown to significantly reduce smoking over the treatment period (Bernstein, 1970a). Therefore the more important result of this study is that, in addition to
significant smoking reduction over treatment, significant smoking reduction was maintained at follow-up for both self-control treatment groups (excepting one deviant subject). These results are in accord with Ober's (1968) study in which it was reported that diverse self-control conditions, including operant self-control, maintained significant smoking reduction during a 4-week follow-up interval.

At the feedback-booster session, several subjects reported that they had continued to implement self-control techniques during the follow-up interval. One subject, for example, who had not achieved abstinence at end-of-treatment, systematically followed the subgoals of his self-contract during the follow-up period and finally achieved abstinence just prior to the follow-up assessment.

On the follow-up questionnaire, subjects uniformly agreed that self-control techniques were facilitative in controlling smoking. They differed, however, on which techniques were most helpful and tended to depend on only a few preferred techniques. Both subjective reports and the data suggest that self-control techniques have potential for long-term maintenance of smoking reduction or abstinence.

The second hypothesis that the smoking frequency of the positive monitoring group would be significantly less than that of the negative monitoring group at end-of-treatment and at follow-up was not supported. Since comparison of the
two experimental groups at these assessment periods failed to indicate a significant difference, it is concluded that positive monitoring (emphasizing the development of nonsmoking behavior) did not lead to greater reduction in smoking frequency than negative monitoring. This finding should be interpreted cautiously. Since subjects in the negative monitoring group were more frequently absent from treatment sessions than subjects in the positive monitoring group, they received more individual and small group sessions, for make-up of prearranged techniques and exercises, but less regular group contact (highly rated by the positive monitoring group who met regularly). It is not possible to gauge the relative impact of increased individualized contact versus group support.

A possible explanation of the finding of no difference between monitoring methods is that although the two methods emphasize different aspects of smoking, they both stimulate awareness of smoking, and hence smoking change, about equally. Contrary to an underlying assumption of the study, subjects in the negative monitoring group did not perceive negative monitoring as "negative" or self-punishing. Instead, subjects tended to view negative monitoring of smoking in the overall context of their goals. Five of six subjects who filled out a "monitoring" questionnaire reported increased smoking awareness with the negative monitoring method, for such reasons as, "watching cigarette count
decline and trying to smoke less each day," and "more awareness of number of cigarettes smoked per day" or "pattern of smoking." It must be noted that the "negative" aspect was also entirely removed for the two subjects who achieved abstinence during treatment.

On the other hand, subjects in the positive monitoring group did not uniformly perceive positive monitoring as the equivalent of success experiences. Five of the eight positive monitoring subjects who filled out the monitoring questionnaire said they disliked the method for reasons of "preferring to see cigarette consumption decline," or "lack of feeling of accomplishment." The three subjects who liked positive monitoring reported reasons of "increased awareness of nonsmoking," perception that "urges are habit responses and not needs," and "thinking positive." Possibly monitoring an ambiguous internal event (overcoming urges to smoke) is somewhat frustrating and thus may be more aversive than monitoring a clear, though undesired, external event (smoking a cigarette). McFall and Hammen (1971) noted that the more structured groups, including negative monitoring, tended to be more successful in reducing cigarette consumption. Another objection to monitoring urges, reported by some subjects, was that when they were trying to reduce smoking, they didn't want to exacerbate awareness of urges to smoke as heightened awareness increased the difficulty of not smoking.
Strength of desire (motivation) to quit smoking was not found to be a predictor of future success in decreasing cigarette consumption or achieving abstinence. This is similar to a finding by Wagner & Bragg (1970) but contrary to findings of McFall & Hammen (1971). A better indicator was expectation of success in stopping smoking. Subjects who achieved abstinence at follow-up had previously rated their expectancy of success significantly higher than had those subjects who failed to stop smoking at follow-up.

Contrary to the experimenter's expectation that follow-up calls by the experimenter would be uniformly supportive, the effect of booster calls was mixed; the negative monitoring group judged them as quite helpful, while the positive monitoring group rated them of little assistance. Although individual subjects welcomed and benefited by the calls, others viewed the calls as intrusive for reasons that they perceived the booster calls as a "reminder" or cue for smoking, or did not wish to further alter their smoking behavior subsequent to treatment. It is interesting that subjects in a study with a significant outcome at the 6-month follow-up (Schmahl, Lichtenstein, & Harris, 1972) rated supportive phone calls over the 6-month period (performed by an unknown clerical assistant) as the least important treatment component. Nevertheless, irrespective of popularity, the writer believes that follow-up phone
calls contributed to maintenance of smoking behavior change and are deserving of further investigation.

Some limitations of the study are (1) the reliability of the assessment data was limited by noncompliance of half of the subjects in having their smoking data verified and signed by a friend or spouse, suggesting caution in the interpretation of the results; and (2) the 6-week follow-up, although suggestive of a trend, is an insufficient period of time for a thorough evaluation of the long-range effect of training smokers in self-control techniques.

**Future Research**

Although this study did not find positive monitoring to be more advantageous than negative monitoring, subjective data from subjects suggests that there are specific advantages to both methods of monitoring. Thus an area of future investigation might be to determine the efficacy of dual monitoring, recording both cigarettes smoked and urges overcome, thus providing the satisfaction of reducing smoking in accordance with a structured goal while also focusing awareness on the necessary development of nonsmoking behavior. This is in accord with the suggestion of Kazdin (1974) that "simultaneously monitoring target and incompatible responses may be more effective in facilitating behavior change than observing either response alone . . . . [providing] the opportunity for both self-reinforcement and self-punishment" (p. 240).
With regard to negative monitoring, a research question arising from this study which merits investigation is whether number of cigarettes smoked is the most relevant behavior for self-monitoring. It may be that monitoring daily consumption of tar/nicotine would have more impact since subjects were only minimally aware of the quantity of poisonous substances they were ingesting daily. Further, subjects might be encouraged to think in terms of a continuum of success rather than an all or none criterion, so that even if abstinence were not achieved, a reduction in tar, nicotine, and carbon monoxide (Ross, 1976) would be felt as an achievement, providing subjects with "the reinforcement value of partial success" (Hunt & Matarazzo, 1970, p. 77). The goal of smoking reduction, after all, is to reduce its harmful effects which are directly attributable to the quantity of ingested tar, nicotine, and gasses, and only indirectly to the number of cigarettes smoked (Low-tar Smokes, 1976).
APPENDIX A

PRETREATMENT QUESTIONNAIRE

Name (Print) ___________________________ Phone ___________ Home

Address _______________________________ ___________ Bus.

______________________________________

Student ______ Townsperson ______ Male ( ) Female ( )

Age _______ Height _______ Weight _______

Marital Status: Single ( ) Married ( ) Widowed ( )

Divorced/Separated ( )

Circle highest completed school grade:
1 2 3 4 5 6 7 8 9 10 11 12 College 1 2 3 4 +

Have you had a physical examination by a physician in the last year? yes ( ) no ( )

Check any health conditions you have now or have had:
Heart disease ( ) Lung cancer ( ) Emphysema ( )
Other disease related to smoking ( ) specify __________

What is the general condition of your health?
Fair ( ) Good ( ) Excellent ( )

Do you have any health problems that would prevent your participating in this study? ______________________

How often do you feel tense or anxious?
Seldom or never ( ) Often ( ) Sometimes ( ) Constantly ( )

How do you presently handle feelings of tension or anxiety?
______________________________________

______________________________________

Have you systematically practiced body relaxation?
yes ( ) no ( ) How? ________________________
How much do you drink? Coffee _______ Alcohol_______

Do you make sure that you get a nutritious diet? Yes () No ()
Sufficient exercise? Yes () No ()

Are you concerned about your weight? Yes () No ()

Are you worried that you might gain weight if you stop smoking? Yes () No () Somewhat ()

**Smoking History**

Give number of cigarettes you smoke per day (accurate estimate) ________________

What brand of cigarettes do you most frequently smoke?________

Do you inhale? Yes () No () I inhale deeply ( )

Do you know the tar and nicotine content of your cigarette brand? No () Rough idea () Yes () It is ______mg.tar
It is ______mg.nicotine

How old were you when you started smoking regularly?________

How many years have you been smoking?_______________

How many times have you made a serious attempt to stop smoking?_______________ or none ()

When did you last try to stop smoking?_______________

What is the longest single period of time you stayed away from cigarettes? years ______ months ______ weeks ______
days _______ none ____

How did you feel during this period of abstinence?_____________________________

______________________________

What prompted you to start smoking again?_____________________________

Did your parents smoke? Mother_______ Father _________

How do you feel about your (future) children smoking?_____________________________

______________________________

Do you feel you would like to set an example of nonsmoking for your (future) children?_____________________________

______________________________
Is anyone close to you currently smoking? Spouse ______ Friend ______ Does this make it extra hard for you to stop?
Do you wish you had never begun to smoke? Yes ( ) No ( ) Undecided ( )
What is your main reason for wanting to give up smoking?
What is the main obstacle that prevents you from stopping smoking?
If there were a pill that would permanently remove your DESIRE to smoke, would you take it?
Yes ( ) Undecided ( ) No ( )
How much do you want to quit smoking? (Circle one)
1 2 3 4 5 6 7
Extremely want to quit
Just barely want to quit
How successful do you expect to be in quitting smoking? (Circle one)
1 2 3 4 5 6 7
Very slight hope of success
Greatly expect success
How difficult do you expect it to be for you to give up smoking?
1 2 3 4 5 6 7
Slightly Difficult
Extremely Difficult
What is your expectation of your future? Don't know ( ) OR Expect to be a smoker ( ) or nonsmoker ( ) at end of study?
Expect to be a smoker ( ) or nonsmoker ( ) 6 weeks after study?
Expect to be a smoker ( ) or nonsmoker ( ) 6 mos. after study?
Expect to be a smoker ( ) or nonsmoker ( ) 1 year after study?
Do you presently also smoke a cigar ( ) cigarillo ( ) pipe ( )?

Have you ever tried to persuade someone not to smoke?________
or helped someone to stop smoking?__________________________

Check which responses apply to your smoking habit:

I smoke because:

_____ automatic act
_____ escape (momentary)
_____ associate w/eating
_____ associate w/alcohol
_____ stimulant for fatigue
_____ relaxation (alone)
_____ relaxation w/others
_____ something to occupy
    my hands
_____ enjoyment of smoke,
    sensation in lungs

I smoke because (fill in other)

If you stop smoking, what positive results do you expect?

If you stop smoking, what negative results do you expect?
## APPENDIX B

### FOUR SMOKER'S SELF-TESTS

U.S. Department of Health, Education, and Welfare
Publication No. 74-8716 (December 1973)

## TEST 1

**DO YOU WANT TO CHANGE YOUR SMOKING HABITS?**

For each statement, circle the number that most accurately indicates how you feel. For example, if you completely agree with the statement, circle 4, if you agree somewhat, circle 3, etc.

*Important: Answer every question.*

<table>
<thead>
<tr>
<th>Statement</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Cigarette smoking might give me a serious illness.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. My cigarette smoking sets a bad example for others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. I find cigarette smoking to be a messy kind of habit.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Controlling my cigarette smoking is a challenge to me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Smoking causes shortness of breath.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F. If I quit smoking cigarettes it might influence others to stop.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. Cigarettes cause damage to clothing and other personal property.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Quitting smoking would show that I have willpower.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. My cigarette smoking will have a harmful effect on my health.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J. My cigarette smoking influences others close to me to take up or continue smoking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. If I quit smoking, my sense of taste or smell would improve.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. I do not like the idea of feeling dependent on smoking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### HOW TO SCORE:

1. Enter the numbers you have circled to the Test 1 questions in the spaces below, putting the number you have circled to Question A over line A, to Question B over line B, etc.
2. Total the 3 scores across on each line to get your totals. For example, the sum of your scores over lines A, E, and I gives you your score on Health—lines B, F, and J give the score on Example, etc.

<table>
<thead>
<tr>
<th>Totals</th>
<th>A + E + I = Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>B + F + J = Example</td>
<td></td>
</tr>
<tr>
<td>C + G + K = Esthetics</td>
<td></td>
</tr>
<tr>
<td>D + H + L = Mastery</td>
<td></td>
</tr>
</tbody>
</table>

Scores can vary from 3 to 12. Any score 9 and above is high; any score 6 and below is low. Learn from Part 2 what your score means.
TEST 2

WHAT DO YOU THINK THE EFFECTS OF SMOKING ARE?

For each statement, circle the number that shows how you feel about it. Do you strongly agree, mildly agree, mildly disagree, or strongly disagree?

*Important: Answer every question.*

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Mildly Agree</th>
<th>Mildly Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Cigarette smoking is not nearly as dangerous as many other health hazards.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>B. I don’t smoke enough to get any of the diseases that cigarette smoking is supposed to cause.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>C. If a person has already smoked for many years, it probably won’t do him much good to stop.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>D. It would be hard for me to give up smoking cigarettes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>E. Cigarette smoking is enough of a health hazard for something to be done about it.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>F. The kind of cigarette I smoke is much less likely than other kinds to give me any of the diseases that smoking is supposed to cause.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>G. As soon as a person quits smoking cigarettes he begins to recover from much of the damage that smoking has caused.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>H. It would be hard for me to cut down to half the number of cigarettes I now smoke.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I. The whole problem of cigarette smoking and health is a very minor one.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>J. I haven’t smoked long enough to worry about the diseases that cigarette smoking is supposed to cause.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>K. Quitting smoking helps a person to live longer.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>L. It would be difficult for me to make any substantial change in my smoking habits.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

HOW TO SCORE:

1. Enter the numbers you have circled to the Test 2 questions in the spaces below, putting the number you have circled to Question A over line A, to Question B over line B, etc.
2. Total the 3 scores across on each line to get your totals. For example, the sum of your scores over lines A, E, and I gives you your score on Importance—lines B, F, and J give the score on Personal Relevance, etc.

<table>
<thead>
<tr>
<th>Totals</th>
<th>Importance</th>
<th>Personal Relevance</th>
<th>Value of Stopping</th>
<th>Capability for Stopping</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A + E + I</td>
<td>B + F + J</td>
<td>C + G + K</td>
<td>D + H + L</td>
</tr>
</tbody>
</table>

Scores can vary from 3 to 12. Any score 9 and above is high; any score 6 and below is low. Learn from Part 2 what your scores mean.
**TEST 3**  
**WHY DO YOU SMOKE?**

Here are some statements made by people to describe what they get out of smoking cigarettes. How *often* do you feel this way when smoking them? Circle one number for each statement.

*Important: Answer every question.*

<table>
<thead>
<tr>
<th>Statement</th>
<th>Always</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. I smoke cigarettes in order to keep myself from slowing down.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>B. Handling a cigarette is part of the enjoyment of smoking it.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>C. Smoking cigarettes is pleasant and relaxing.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>D. I light up a cigarette when I feel angry about something.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>E. When I have run out of cigarettes I find it almost unbearable until I can get them.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>F. I smoke cigarettes automatically without even being aware of it.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>G. I smoke cigarettes to stimulate me, to perk myself up.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>H. Part of the enjoyment of smoking a cigarette comes from the steps I take to light up.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I. I find cigarettes pleasurable.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>J. When I feel uncomfortable or upset about something, I light up a cigarette.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>K. I am very much aware of the fact when I am not smoking a cigarette.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>L. I light up a cigarette without realizing I still have one burning in the ashtray.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>M. I smoke cigarettes to give me a &quot;lift.&quot;</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>N. When I smoke a cigarette, part of the enjoyment is watching the smoke as I exhale it.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>O. I want a cigarette most when I am comfortable and relaxed.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>P. When I feel &quot;blue&quot; or want to take my mind off cares and worries, I smoke cigarettes.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Q. I get a real gnawing hunger for a cigarette when I haven't smoked for a while.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>R. I've found a cigarette in my mouth and didn't remember putting it there.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**HOW TO SCORE:**

1. Enter the numbers you have circled to the Test 3 questions in the spaces below, putting the number you have circled to Question A over line A, to Question B over line B, etc.

2. Total the 3 scores on each line to get your totals. For example, the sum of your scores over lines A, G, and M gives you your score on Stimulation—lines B, H, and N give the score on Handling, etc.

<table>
<thead>
<tr>
<th>Totals</th>
</tr>
</thead>
</table>

- **Stimulation**
- **Handling**
- **Pleasurable Relaxation**
- **Crutch: Tension Reduction**
- **Craving: Psychological Addiction**
- **Habit**

Scores can vary from 3 to 15. Any score 11 and above is high; any score 7 and below is low. Learn from Part 2 what your scores mean.
TEST 4
DOES THE WORLD AROUND YOU MAKE IT EASIER OR HARDER TO CHANGE YOUR SMOKING HABITS?

Indicate by circling the appropriate numbers whether you feel the following statements are true or false.

**Important: Answer every question.**

<table>
<thead>
<tr>
<th>Statement</th>
<th>true or mostly true</th>
<th>false or mostly false</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Doctors have decreased or stopped their smoking of cigarettes in the past 10 years.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>B. In recent years there seem to be more rules about where you are allowed to smoke.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>C. Cigarette advertising makes smoking appear attractive to me.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>D. Schools are trying to discourage children from smoking.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>E. Doctors are trying to get their patients to stop smoking.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>F. Someone has recently tried to persuade me to cut down or quit smoking cigarettes.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>G. The constant repetition of cigarette advertising makes it hard for me to quit smoking.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>H. Both Government and private health organizations are actively trying to discourage people from smoking.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I. A doctor has, at least once, talked to me about my smoking.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>J. It seems as though an increasing number of people object to having someone smoke near them.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>K. Some cigarette commercials on TV make me feel like smoking.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>L. Congressmen and other legislators are showing concern with smoking and health.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>M. The people around you, particularly those who are close to you (e.g., relatives, friends, office associates), may make it easier or more difficult for you to give up smoking by what they say or do. What about these people? Would you say that they make giving up smoking or staying off cigarettes more difficult for you than it would be otherwise? (Circle the number to the left of the statement that best describes your situation.)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3 They make it much more difficult than it would be otherwise.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 They make it somewhat more difficult than it would be otherwise.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 They make it somewhat easier than it would be otherwise.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 They make it much easier than it would be otherwise.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HOW TO SCORE:**

1. Enter the numbers you have circled on the Test 4 questions in the spaces below, putting the number you have circled to Question A over line A, to Question B over line B, etc.
2. Total the 3 scores across on each line to get your totals. For example, the sum of your scores over lines A, E, and I gives you your score on Doctors—lines B, F, and J give the score on General Climate, etc.

<table>
<thead>
<tr>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>M</td>
</tr>
</tbody>
</table>

**Scores can vary from 3 to 6: 6 is high; 5, high middle; 4, low middle; 3, low. Learn from Part 2 what your scores mean.**

Do not turn the page until you have finished all four tests.
APPENDIX C

ASSESSMENT SMOKING RECORD SHEET

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date</th>
<th>Total</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>a.m.</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>p.m.</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 to 6—low to high need for cigarette

Verified

Note. Modified from the "score card" in the American Cancer Society booklet "If You Want to Give Up Cigarettes."
APPENDIX D

POSITIVE MONITORING GROUP

"REMINDER" LIST OF SELF-CONTROL TECHNIQUES

Instructions

Monitor on your counter each time you resist an urge to smoke by substituting a self-control measure.

The purpose of this monitoring is to focus on and increase your nonsmoking behavior.

Each day chart the cumulative total of the times you applied a self-control measure. Bring your chart each week to group sessions and show your progress to others.

It would also be worthwhile to record in a small diary all other self-control measures you use (not directly related to overcoming an urge), as, for example, helping a buddy, daily relaxation, avoiding smoking situations, sitting in nonsmoking areas, observing and talking with ex-smokers, practicing refusing a cigarette, etc.

Possible Self-Control Measures to Overcome and Urge

1. Take deep breath, tell self, "Calm," "Relax."

2. Drink glass of water or fruit juice.

3. Present image to self (aversive image of bad results if smoke and/or positive image of good results if don't smoke this cigarette).

4. Tell self positive statement important to you, "I choose not to smoke this cigarette."

5. Break cigarette in half, throw it away.

6. Substitute carrot, celery, gum, mint, clove, bit of ginger, fruit, toothpick, lollipop.
7. Keep hands busy with other activity, as puzzle, craft, pencil, knitting, etc.

8. Try a nicotine replacement, as lobeline sulphate tablet if approved by doctor.

9. Instead of smoking after meal, brush teeth or use breath inhaler.

10. Run or exercise.

Experiment with your own unique methods of self-control and add them to this list:

11. 

12. 

13 

14. 

15. 
APPENDIX E

SELF-CONTROL MANUAL

Introduction

Was your first experience in learning how to smoke unpleasant? What kept you trying and finally succeeding? Was it the reward of acceptance by your friends, an enhanced self-image, a technique for overcoming social anxiety?

You received some reward for learning to smoke! In the same way you can reward yourself for learning to not smoke!

You can apply tested principles of behavior modification to bring about changes in your own behavior. No one else is better equipped than you to monitor and change your behavior because only you have continuous access to your thoughts, feelings and images, as well as your outward behavioral acts.

If you learn and practice self-management skills, you can reapply them when necessary, to maintain your nonsmoking behavior over the long-term. A smoker who quits smoking always needs to be vigilant against relapse.

Overview

Self-management of your smoking behavior begins with self-observation. You need to observe and record the frequency of your smoking, the cues that prompt it, and the needs it serves.

Next, it is very important to discover what rewards are powerful for you. You can use these rewards to strengthen your nonsmoking behavior.

You can write a contract with yourself (or another person) setting down a series of small-step goals and the reward to follow each accomplishment. By this means you are shaping your behavior toward a final goal of abstinence.

If you cannot determine a reward which is more powerful than the pleasure derived from smoking the cigarette, it may be necessary to apply self-punishment (as a temporary measure).
There are many ways that you can manipulate your environment to make it easier for you to become a nonsmoker. You can avoid cues to smoke, rearrange cues, break chains of behavior. The best self-control is not that which challenges temptation but rather that which avoids it.

If your smoking habit is deeply embedded in the structure of your life, you may find it useful to analyze and make changes in the following areas: smoking behavior (cues and consequences), feelings, sensation, images, self-talk, relationships and environment -- as they pertain to maintaining your smoking.

Motivation

You can learn to increase your motivation to stop smoking. Once you come to a clearcut decision to quit, stopping will be much easier. Psychologically, you will have eliminated the conflict between your reason and your desire. Physically, it has been found that people who are determined to quit (no conflict) have an easier time of it so far as withdrawal symptoms are concerned.

Some ways to increase your motivation to stop smoking are:

1. Do not defend yourself against learning the facts of damage caused by smoking. Teach the facts to someone else.

2. Have a pulmonary test of your lung capacity.

3. Dwell on a list of important reasons (to you) of why you should quit smoking. Repeat these reasons to yourself and others frequently.

4. Associate with others who want to quit, and back each other up.

5. Use imagery while relaxed. See yourself clearly as a nonsmoker, see your body getting back to normal. Tell yourself, "It is easy to give up cigarettes."

Remember the principle of reinforcement of desired behavior. Reward yourself when you increase your motivation to quit smoking.

You want to achieve an attitude about smoking that finds nothing desirable about it. It is a poison!
Consequences of Smoking

Self-control of smoking involves a choice between alternatives that have conflicting consequences.

For example, you can choose to smoke, not to smoke, or chew gum.

If you smoke, you get immediate satisfaction, but you run the risk of long-term penalties of ill health, premature death, etc.

If you don't smoke, you get immediate deprivation, while your probable benefits of longer life, etc. are far in the future.

You can see that your smoking behavior is maintained by its immediate pleasant consequences. The bad consequences are generally too far away to have much effect.

As a self-manager of your behavior, you need to bring those long-term consequences sharply into the present moment.

How? By a picture, or by an image (that is important to you). One smoker drew a picture of himself lying in a coffin (bad image). His positive image was a drawing of himself pounding his healthy chest, like Tarzan.

You can also ruin the immediate positive consequences of smoking a cigarette by smoking a few puffs from a cigar prior to smoking the cigarette. Or you can punish your smoking the cigarette by forcing yourself to rapidly smoke two or three more right afterwards.

Rewards (Positive Reinforcers)

A positive reinforcer is anything that will increase the occurrence of a behavior that it reinforces.

Reinforcers can be things, people, or activities. Since everyone is different, things that are highly reinforcing to you may not reinforce another person.

You need to discover what rewards you! And how powerful a particular reward is for you. Ask yourself, "Do I really think I will resist an urge to smoke, to gain this _____?" (reward).

For example, Ed was strongly reinforced to stop smoking when his friend offered him $1,000. to quit. Actually, this
was a bet; he would have had to pay his friend $1,000 if he smoked even once during the following year. He stopped cold a habit of smoking 30 strong cigarettes a day and won the $1,000. Although he has not smoked for three years, he would not chance smoking one for fear of possible relapse.

$1,000 is a really potent reinforcer. How much would it take for you to quit smoking?

Behavior that you want to encourage should be immediately rewarded. If you can't present yourself with the actual reward, you can give yourself a point or token to tide you over. For example, each time you refrain from smoking, you could put money into a jar. Eventually, you will have a sum that can purchase a desired item.

You can give yourself immediate rewards of an image of improved health, or self-talk, as "I'm doing fine:" or you can ask someone to pay attention to you when you are not smoking and to praise you.

When you are attempting to strengthen a new behavior by rewarding it, make sure that you choose reinforcers that are unique to you, accessible to you, and potent for you. Answering the questions that follow will help you make up a list of reinforcers. When your nonsmoking behavior is strong, seek out natural reinforcers in your environment to replace these contrived ones.

**How to Determine What Reinforcers are Effective for You**

1. What kinds of things do you like to have?
2. What are your major interests?
3. What are your hobbies?
4. What people do you like to be with?
5. What do you like to do with those people?
6. What do you do for fun, for enjoyment?
7. What do you do to relax?
8. What do you do to get away from it all?
9. What makes you feel good?
10. What would be a nice present to receive?
11. What kinds of things are important to you?
12. What would you buy if you had an extra five dollars? Ten dollars? Fifty dollars?
13. What would you hate to lose?
14. Of the things you do every day, what would you hate to give up?
The principle to remember in using one of your unique reinforcers is that you must first perform the desired behavior in order to obtain the reinforcer. You will thus strengthen the behavior, make it more likely to occur again.

Shaping

Shaping a new behavior is an important part of your self-management.

You shape a behavior by requiring yourself to perform only a small bit of the new behavior and immediately reward it.

When successful, you take another small step and reward that. You gradually move up, level by level, until you reach your final goal.

You might shape substitute behaviors for smoking in this way.

There are two simple rules: (1) Start where you are, and (2) make your steps very small. Shaping should feel easy and successful.

Should you cheat by taking a reward when you have not deserved it, you may need to ask another person to control your reward and give it to you upon reaching your agreed-upon goal.

Contracts

A contract made with self or other is a method of clarifying what you want to accomplish, specifying all the details and responsibilities and consequences.

You can choose to make your contract public and thus make yourself subject to the influence of others in fulfilling your self-contract.

See Example 1 for an example of a self-contract involving another person.

See Example 2 for an example of a simple contract with self.

An example of a highly successful contract is that of a black woman who wanted to overcome an addiction. She
EXAMPLE 1: SELF-CONTRACT WITH OTHER

GOAL: To quit smoking. Date: ______________________

Self: ______________________ Other: ______________________

Agreement

Self: I agree to smoke only during the first 15 minutes of any hour (1:00 to 1:15, 2:00-2:15, etc.). If I do not want a cigarette during an interval, I will wait for the next hour interval before I smoke.

Other: Jane P. (my roommate) agrees to praise me whenever she sees me not smoking and to refuse to talk to me while I am smoking.

Consequences

Provided by Self (if contract is kept) If I stick to the above agreement, at the end of each week (ending Sat. at 6 p.m.), I will reward myself with a movie.

(if contract is broken) If I do not keep the agreement during a particular week, I will do my roommate's laundry that Sat. evening (no movie).

Provided by Other (if contract is kept) Jan will (1) praise me for not smoking, (2) ignore me when I am smoking, and (3) do my laundry each week that I keep the contract.

(if contract is broken) For each week that I fail to keep the contract, Jane is authorized to (1) insist that I do her laundry, and (2) limit my access to her stereo albums.

Signed ______________________

Review date ______________________

Witness ______________________

Note. From "Self-Control Applications: Behavioral Programming." In M. J. Mahoney and C. E. Thoresen (Eds.), Self-Control: Power to the Person, 1974.
EXAMPLE 2: CONTRACT WITH SELF

Date __________________

My plan is to gradually reduce my smoking, both in tar/nicotine content and number of cigarettes smoked per day, and then go cold turkey.

If I have difficulty at any step, I will continue at that step until successful before going on to the next step. I will make sure that my scheduled rewards are powerful reinforcers to me. I reserve the right to change my treatment plan at any time.

My baseline smoking is 30 cigarettes per day.
I am smoking Benson & Hedges 100's (18 mg.tar and 1.1 mg. nicotine)

Level 1
Goal Change to Marlboro Lights
(13 mg. tar, .8 mg. nicotine)
Reward Art Book

Level 2
Goal Cut down to 15 Marlboro Lights
Reward Spouse take me out to dinner and show

Level 3
Goal Change to Now cigarettes
(2 mg. tar, .2 mg. nicotine)
Reward: Weekend trip

Level 4
Goal Go cold turkey
Reward New skis for self and spouse

Signed __________________

Witness (if desired) ___________
arranged, via a legally binding document, to contribute $30.00 to the Ku Klux Klan for each time she used drugs. Because this consequence was so unthinkable for her, she was able to successfully refrain from using the drug.

Another example: A smoker contracted with himself that he would have to tear up a dollar bill for each cigarette he smoked above his self-allowed, gradually-decreasing limit. He kept this rule for 50 days at which point he ceased to smoke and has not smoked for two years.

Another smoker, who had been smoking for 20 years, decided to change her behavior. She first kept a record of her smoking and found she smoked an average of 8.4 cigarettes a day, with a range of 0 to 20. She then contracted with herself that she would have to contribute 25 cents to charity for each cigarette she smoked. In the third stage of her program, she continued to require herself to pay 25 cents to charity plus she was not allowed to buy cigarettes but could only bum them.

You will have to determine whether rewards or punishments will work best for you in stopping your smoking habit.

Self-punishment

Self-punishment has the disadvantage of suppressing an undesired behavior but not teaching a desired behavior. Also it may produce negative reactions in yourself, as, for example, dislike, anxiety, anger, depression. It is best used as a temporary device, in the expectation that your changed behavior will bring positive reinforcers from yourself and others.

The best form of self-punishment is removal of a positive reinforcer that you are normally accustomed to receiving. Ask yourself, "What would I hate to lose?" or "What would I hate to give up (of the things you do every day)?" For example, "if I don't meet my goal, I can't go to my regular Saturday night movie, or see my regular TV program."

You may need to resort to self-punishment because the reinforcement of smoking a cigarette may be greater than any reward you can provide for yourself. One way to punish smoking directly, is force yourself to satiate. Thus, if you have smoked a cigarette you didn't authorize, you can smoke two or three more immediately, puffing rapidly.
A good method to use, just before quitting smoking entirely, is to satiate smoke—smoke double or triple the number of cigarettes you customarily smoke. This over-exposure to smoking may make it so sickening, you will be ready and glad to quit. Follow up by rewarding yourself for achieving your goal of abstinence.

Whenever you use self-punishment, be sure that the results will eventually lead to positive reward.

Environmental Cues—How to Deal with Them

You already cue yourself in many small ways. You set your alarm clock to cue your waking up behavior. You make a list to cue your performance of chores. You set out a letter to cue yourself to mail it.

You need to discover what cues you to smoke! Observe your behavior as you smoke a cigarette. What cued you to reach for it? Was it a situation (other smokers), a feeling (bored or nervous)?

Observe and write down the events that occurred just before you smoked.

1. What were the physical circumstances of the last few minutes?
2. What was the social setting?
3. What behavior of other people occurred?
4. What did I think, feel, or say to myself?

After you have identified your cues to smoke (external or internal), you can start to deal with them.

Avoid Cues: Avoid smoking situations, cigarette machines, remove ashtrays, don't buy cartons of cigarettes, don't open your cigarette package. After quitting, don't smoke even one cigarette, as it will be a cue for another one.

Counter Cues to Smoke: If you recognize a cue to smoke as, for example, tension or anxiety, you can counter it with a prelearned technique of deep breathing and relaxation. If you are cued to smoke at the end of a meal, you can counter it with brushing your teeth.
Change Cues: Decide to smoke according to the clock. For example, allow yourself to smoke only during the first fifteen minutes of each hour. Allow yourself to smoke only in one particular chair. Eventually, banish this chair to a remote unattractive area, as the basement. One man discouraged his smoking by allowing himself to smoke only in the bathroom. Post signs that remind you of your important reasons for not smoking. Draw a picture that cues you to your most vital benefit of quitting and place it in the cellophane wrap of your cigarette package.

Breaking up Chains of Behavior:

Smoking a cigarette may be the final step in a chain of your behaviors. At the end of the chain, your impulse to smoke may be especially strong.

Try to interrupt your smoking chain early in the chain. Break your habitual behavior by deliberately doing things differently.

For example, you can smoke your cigarette in your unaccustomed hand. Or you can set it down between puffs and imagine what damage it is doing. You can carry around your cigarette package but refuse to open it.

Look for an early weak link in your chain of behaviors leading to smoking the cigarette. Interrupt it. Scramble the chain. If you have an urge to smoke, engineer a pause of several minutes. Use this time to find an alternative (for example, create an image, self-instruct, put a clove in your mouth, etc.). The pause is a new behavior that can cue a change in your habitual smoking behavior.

Increase Cues for Nonsmoking Behavior

Deliberately build up stimuli that signal nonsmoking. Establish a rule of no smoking in your house.

Seek out nonsmoking areas of public buildings.

Banish all reminders of smoking, have teeth cleaned, clothes cleaned.

Keep sugarless gum, raisins, breath spray, mints, toothpicks, cloves, fruit juices, carrots, etc., close at hand to cue you to alternative behavior.

Associate with nonsmoking friends. Seek their support and praise. Always reward your desired behavior in manipulating cues in your environment.
Self-Instructions or Self-Talk

Although we may not always be aware of it, we do talk to ourselves and put labels on our experiences.

Self-instruction means systematically telling yourself "reminders" that can serve to cue you to action. You do this just before or during a problem situation.

For example, you might say "calm, relax," in a stressful situation (having previously practiced saying these words in the relaxed state); or "I don't need this cigarette," or "I control my life and I choose not to smoke this cigarette."

Self-Modeling

This is an important technique which you can use to practice behaviors you want to encourage, by imagining yourself doing them. It serves as a rehearsal, done in your mind. Strongly imagine, for example, that you have discarded all your cigarettes, chosen to quit smoking, and are telling your friends, "I no longer smoke." Make a list of problem situations and imagining yourself solving them by a change in your behavior.

Imagery

Closely allied to self-modeling is development of imagery. We often have fleeting images but generally are only dimly aware of them.

Select images that are uniquely meaningful to you, that have impact and importance.

One smoker who wanted to overcome urges to smoke called to mind the image of a man with emphysema (he had seen in a film) who no longer had breath enough to blow out a match. This image reminded him sharply of the long-range consequences that could occur from smoking.

Upon resisting an urge to smoke, a rewarding image can be imaged, as, for example, the blue eyes of a loved one that you will have longer years to enjoy.

You can imagine that as you smoke, you are becoming sick and vomiting; as you put out the cigarette and turn away, imagine feeling instantly better.
You can use imagery to develop a new concept of yourself as a nonsmoker. (Undoubtedly, at this time you imagine yourself as a smoker). It will probably feel uncomfortable to deliberately imagine yourself in this new role, but it may be the first step in changing yourself over. It might be interesting to write a scene in which you star as a nonsmoker, or a dialog in which you reject temptation.

**Modeling**

Become more aware by observation of smokers, ex-smokers, and nonsmokers.

What do you dislike about the behavior of smokers? Talk to ex-smokers. How did they accomplish stopping smoking and how do they feel about it now?

Observe nonsmokers. How do they cope with tensions and stress. What do they do for relaxation? How do they handle boredom?

By observing models of people who have achieved the goals you want, you can observe behaviors you may wish to adopt.

**Incompatible Behaviors**

Through shaping processes, you can encourage behaviors that are incompatible with smoking, that is, behavior you can't easily do at the same time as smoking. For example, behavior incompatible with smoking is running, taking a shower, relaxation, chewing gum, swimming, sucking a lollipop, keeping hands busy.

Learning how to relax is incompatible with tension and stress (that often cues smoking).

**Planning your Total Treatment**

It may be worthwhile to analyze your smoking behavior in seven areas of your life and to make systematic changes in each area. See the example on the next page for how you might do this.
Example: How You Might Analyze Your Smoking Behavior and Plan Your Own Treatment

<table>
<thead>
<tr>
<th>Modality</th>
<th>Problem</th>
<th>Proposed Treatment</th>
</tr>
</thead>
</table>
| Behavior | Smoke 60 cig/day  
Cough in morning  
Short of breath | Observe and record my smoking  
Determine cues to smoke  
Avoid and rearrange cues  
Determine goals and rewards  
Have pulmonary test of lungs |
| Feelings | Enjoy smoking  
Conflict about quitting  
Worried about what smoking is doing to me  
Feel I can't quit tried countless times  
Fear won't be successful  
Afraid "go bananas" if I quit | Recognize my pleasure in smoking but come to firm decision to quit.  
Bolster decision with facts, imagery, and support of others.  
Try nicotine substitute - Ask doctor about Vitamin B,A,diet. |
| Sensation | Enjoy handling cigarettes  
Enjoy inhaling the smoke  
Like to blow smoke-rings  
Like the taste  
Bothers my nose  
Pain in chest | Find substitutes for sensory pleasure - possible occasional cigar or pipe.  
Puzzles, pencil, knitting, etc. |
| Imagery | I view myself as a smoker. When I smoke, I imagine myself as sophisticated. | Practice daily relaxation and imagery.  
Prepare image of bad result from smoking, and good result from not smoking.  
Imagine self as nonsmoker. |

*Note: Modification of "Modality Profile" (Lazarus, 1973).*
<table>
<thead>
<tr>
<th>Modality</th>
<th>Problem</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-talk</td>
<td>I &quot;should&quot; stop smoking. Smoking is a dirty habit.</td>
<td>Write out statements to myself</td>
</tr>
<tr>
<td></td>
<td>What's wrong with me that I can't stop?</td>
<td>Post around house, as &quot;I choose to be a nonsmoker.&quot;</td>
</tr>
<tr>
<td></td>
<td>I can't quit smoking.</td>
<td>&quot;I control my life,&quot; &quot;I choose to have good lungs again.&quot;</td>
</tr>
<tr>
<td></td>
<td>I don't want to hear what smoking might be doing to me.</td>
<td></td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Smo king with others is a satisfying social ritual.</td>
<td>Find other social rituals.</td>
</tr>
<tr>
<td>Relationships</td>
<td>Persons close to me are smokers.</td>
<td>Begin to cultivate the friendship of nonsmokers.</td>
</tr>
<tr>
<td></td>
<td>I smoke when the boss yells.</td>
<td>Ask for support from smoking spouse.</td>
</tr>
<tr>
<td>Environment</td>
<td>I seek out smoking sections of buildings</td>
<td>Practice new behavior for use with boss.</td>
</tr>
<tr>
<td></td>
<td>I buy cartons.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I buy high tar/nicotine cigarettes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TV promotes smoking -- beginning to hate it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coffee breaks induce smoking.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Look for nonsmoking areas.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy single packs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy lower tar/nicotine brand.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seek out ex-smokers to learn how they did it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wife and I make contract to limit TV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avoid coffee break or take coffee outside.</td>
<td></td>
</tr>
</tbody>
</table>
ASSIGNMENT

Analysis of Cues Observe your smoking carefully, looking for cues that trigger your smoking.

Situations?
1. 
2. 
3. 

Feelings?
1. 
2. 
3. 

Thoughts?
1. 
2. 
3. 

ASSIGNMENT

Write a script of yourself as a NONSMOKER.

Write a dramatic scene, with dialog, in which you can experience yourself as a nonsmoker, and can anticipate the benefits of stopping.

Where are you - with whom - what are you doing? How are you presently enjoying the flavor of food, scent of flowers? Now that you are a nonsmoker, what do you say to your old smoking buddies, and they to you? How do you feel about yourself now? Make the scene enjoyable and worth achieving.
ASSIGNMENT - Evaluation of Consequences from Smoking

Positive Consequences (Immediately rewarding)

<table>
<thead>
<tr>
<th>What I Now Get From Smoking</th>
<th>What I Could Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

Bad Consequences of Smoking

<table>
<thead>
<tr>
<th>Immediate</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
</tbody>
</table>
ASSIGNMENT

Self-Talk

What have I been telling myself about my smoking habit?

What do I wish now to tell myself? These are my self-instructions:

1.
2.
3.

Imagery

Think up two images - vivid and important to you:

The bad image -- the worst thing that might happen if you continue to smoke. Draw it or cut out a picture and paste in.

The good image -- a clear image of the most important benefit to you of stopping smoking. Draw it or describe it.

Rewards

List some rewards that you can use to reinforce desired behavior. Have a mix of little rewards and big rewards, internal and external rewards.

1. 6.
2. 7.
3. 8.
4. 9.
5. 10.
ASSIGNMENT - Fill in the Practical Savings of Becoming a Nonsmoker.

Time Saved
- By not shopping for cigarettes
- By not lighting up and smoking.
- By not cleaning ashtrays.
- Other

Money Saved
- By not buying cigarettes
- By not burning things
- By reducing doctor's visits
- Other

Health Saved
- By improving lung capacity and heart function
- By not reducing life span
- By having better health over life span
- By restoring taste and smell
- Other

Estimate time saved
How can you use this time rewardingly?

Estimate money saved
How can you use this money rewardingly?

Estimate health benefits over lifetime
How can you use this vigor and more healthful life rewardingly?

Circle one:
I expect to feel proud and in control of myself once I achieve and maintain my goal of nonsmoking -- both for myself and as a model to others.

1  2  3  4  5  6  7 slightly glad extremely glad
QUIT DAY

If you choose to taper off before Quit Day, try the following procedures:

1. Ask yourself, "Do I really need this cigarette?"

2. Decide to smoke only on the even or odd hours of the clock.

3. Practice deliberately doing without a particular cigarette for which you have great need -- this is practice in abstinence.

4. Switch brands every week for three weeks prior to Q-day - choosing brands you dislike.

5. Satiate smoke - smoke double or triple your average daily rate - for one day before quitting, so that smoking will be nauseating and easy to give up.

When you choose to quit smoking, do it deliberately with thought and planning. Choose a week that will be as free as possible of tension-producing problems. On Quit Day, decide to quit for just one day at a time. Don't think about the future. Just get through the day. Then next day do the same. Meanwhile avoid smoking situations wherever possible. Substitute other activities to fill the time formerly taken up with smoking. Avoid boredom.

Thought Control - Prethink a number of exciting memories. When an urge to smoke occurs, switch immediately to one of those exciting memories and dwell on it.

Delaying Tactics - stall your urge to smoke. You have put off smoking before for urgent reasons. You can do it again - meanwhile busy yourself with preplanned activities.

Smoking Relapse - A failure or two is just an interruption along the path of forming a new habit. It is normal, to be expected. Concentrate on your successes. It is the overall picture of your smoking, the accumulated effect, that is important.

On Quit-Day:

1. Banish cigarettes, ash trays, matches, lighter.

2. Stock fruit juices, fruit, sugarless gum, celery, carrots, dried fruits, cloves, etc.
3. Consider adding wheat germ to your diet—to provide extra Vitamin B for a steadying effect on nerves during abstinence from nicotine.

4. Provide fun reading material, puzzles, toothpicks.

5. Avoid rushing in the morning to avoid tension.

6. Get out for entertainment in the first week—frequent nonsmoking areas.

7. Sleep a lot (sleeping is incompatible with smoking).

8. Drink 6-8 glasses of water a day, plus fruit juices. Loma Linda University advises nothing but fruit for first 24 hours of abstinence to detoxify. Helps kidneys flush out residual nicotine.

9. Refrain from alcohol or drugs which lower motivation.

10. Use deep breathing exercises several times a day to help banish a craving to smoke. Consider that when you inhale, you breathe in deeply, so that taking a deep breath of good air should help.

11. Exercise. Especially walk 10-15 minutes after each meal if possible.

12. Try contrasting hot-cold showers or friction baths.
BIBLIOGRAPHY
Self-Control Manual


Lazarus, A. A. Multimodal behavior therapy: Treating the "basic id." Journal of Nervous and Mental Disease, 1973, 156, 404-411.


APPENDIX F

LIST OF FILMS AND AUDIO TAPE

Tape

Films
Shown at Orientation: Let's Call It Quits (28:10 min.) Available American Cancer Society
Shown during Treatment Sessions:

The Embattled Cell (21½ min.) Presents dynamics of cell behavior, normal and cancerous, within the human lung. Available American Cancer Society.

A Breath of Air (21 min.) Presents problems associated with smoking. Available American Cancer Society.

Barney Butt (12½ min.) Cartoon character pointing up connection between smoking and heart disease. Available San Bernardino County Heart Association.

Heart - How It Works (11 min.) Available San Bernardino County Heart Association.

The Human Body: Circulatory System. (14 min.) Available San Bernardino County Heart Association.
APPENDIX G

FOLLOW-UP QUESTIONNAIRE (EXPERIMENTAL SUBJECTS)

Now that 6 weeks have passed, I am curious to know what sticks in your mind regarding the stop-smoking program in which you invested considerable time, energy, and effort. Please be honest—to help others in future programs.

What is your overall impression? ____________________________

What did you achieve on a continuum of success?

I quit smoking ____________________________
I changed my pattern of smoking ____________________________
I did not change brands but reduced smoking from _____________

to ________________
I switched brands from _____________ to ________________
and reduced smoking from _____________ to ________________

As it seems to you now - rate the following according to helpfulness to you in stopping smoking from 1 (minimally helpful) to 5 (very helpful)

<table>
<thead>
<tr>
<th>Minimally Helpful</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapist influence and help</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Therapist booster calls (If did not receive, write N.A.)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Self-contract - specific plan &amp; goal</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Group interaction</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Film &quot;Let's Call It Quits&quot; - Orientation</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Film &quot;Embattled Cell&quot;</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Video Tape (Ed who won $1000 bet - not smoked for 3 years)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Video Tape (Pat - stopped smoking for husband - not smoked 15 yrs.)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Keeping Chart - Monitoring on Counter</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6-Day Assessment Smoking Records</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Relaxation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Imagining: Self as Non-smoker</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Making changes in environment (change brands, Nicoban, cloves, restrict smoking environment, etc.)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
If you were successful in achieving your goal, how do you feel now?

If you were not successful in achieving your goal, or you achieved it but relapsed, how do you feel now?

Do you intend to try again?

What kept you from succeeding this time?

Do you view your effort as a failure? A partial success? A step in the right direction?

Are you disappointed or angry? Did you feel you wasted your time?

What suggestions do you have to help smokers stop smoking?

What do you think should be incorporated into a stop-smoking program?

Do you think self-control techniques are on the right track?

Do self-control techniques need to be practiced more?

Do self-control techniques need to be monitored to be sure they are being used?

What would help smokers come to a firm decision to quit smoking?

If you have not achieved success in quitting smoking, do you now have a clear goal in mind, or are you still ambivalent about whether you will or won't quit?
The three most important factors in order of importance that helped me reduce smoking or quit smoking were:

1. most important ______________________

2. ______________________

3. ______________________

The three things that turned me off or interfered with my progress were:

1. ______________________

2. ______________________

3. ______________________

If you have reduced smoking, changed brands, or quit smoking, what differences, if any, do you notice in your

weight ______________________

health ______________________

If you have noticeably improved your smoking pattern or stopped smoking, who gives you positive reinforcement for your effort?

No one ( ) or ______________________

Have you helped anyone to reduce smoking, change brands, or quit smoking -- during or since the stop-smoking program?

Who? ______________________

How? ______________________

If you have not met your goal, do you plan to enter another stop-smoking program? ______________________
FOLLOW-UP QUESTIONNAIRE (CONTROL SUBJECTS)

How did you feel, being in the control group of a stop-smoking study? Be honest. Did you feel bored, left-out, disappointed, that it was a nuisance with little reward? Did you have any positive feelings? Please state the variety of reactions you may have had.

________________________________________________________________________

What effect did participating in a stop-smoking study (in the control group) have on your smoking behavior?

________________________________________________________________________

Did you try to stop smoking -- all on your own?_________

________________________________________________________________________

If you did try to stop smoking, what methods did you use? ____________________________________________________________

________________________________________________________________________

What is your present goal with regard to smoking?

________________________________________________________________________

What brand of cigarettes do you smoke? _______________________

Did you change brands during the study?______________________________

________________________________________________________________________

Now that the study is completed, please indicate if you wish help in stopping smoking.

________________________________________________________________________

I want to thank you very much for participating in the study. I will be sending you a copy of the results when completed.
REFERENCE NOTE

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