

AN ABSTRACT OF THE THESIS OF

Douglas L. Flow for the degree of Doctor of Philosophy  
in Education presented on February 6, 1980

Title: A Comparison of Two Smoking Cessation

Techniques Conducted in an Occupational Setting

Abstract approved: **Redacted for Privacy**  
Gordon W. Anderson

The purpose of this research was to evaluate the effectiveness of two smoking cessation programs -- one group and one self-help -- which were developed and are currently employed by the American Cancer Society.

The research was conducted in a work setting, and all subjects were employees of the State of California's Resource Agency who expressed a desire for assistance in giving up cigarette smoking. Through a randomizing process, 218 subjects were assigned to either a Group Treatment, a Self-help Treatment, or a nontreated Control.

The research was divided into two parts: (1) an experimental component which compared the effects of two smoking cessation techniques, and (2) a descriptive component which sought to identify correlates of change in smoking behavior from a preselected list of personal and demographic characteristics.

Within the experimental component, the following null hypotheses were tested:

1. There will be no significant difference in mean smoking behavior among smokers assigned to Group Treatment, Self-help Treatment, and smokers assigned to a Control.
2. There will be no significant difference in mean smoking behavior between smokers assigned to Group Treatment and smokers assigned to Self-help Treatment.

Analysis of variance was used to examine treatment effectiveness. A four-month follow-up revealed that all subjects receiving treatment demonstrated a significantly greater reduction in smoking activity than subjects assigned to a nontreated Control ( $p < .01$ ,  $F = 22.17$ ). Of the two treatments, subjects assigned to the Group Treatment exhibited a greater reduction in smoking activity than subjects assigned to the Self-help Treatment ( $p < .01$ ,  $F = 10.75$ ). With regard to 100 percent abstinence, the Group Treatment demonstrated clear superiority (40 percent) over the Self-help Treatment (18 percent) and the Control (5 percent) when measured at the four-month follow-up.

In the descriptive portion of the research, eight variables were identified as correlates of change in smoking behavior. The strongest correlation was demonstrated by the baseline variable at both the one-month ( $r = .68$ ) and four-month ( $r = .64$ ) follow-up measurements.

Smokers who reported more ease in "picturing themselves as nonsmokers" or reported more confidence "that they would not be smoking five years hence" did significantly better at both the one-month and four-month measurements. In general, smokers did better who reported more "stop-smoking willpower," more "confidence about stopping," or perceived an "improved health status from quitting." Contrary to previous research, there was no significant difference in smoking behavior between sexes.

The study demonstrates the practicality of conducting a smoking cessation program in a work environment. However, improved treatment methodologies and long-term maintenance of nonsmoking behavior are cited as specific areas in need of further research.

A COMPARISON OF TWO SMOKING CESSATION TECHNIQUES  
CONDUCTED IN AN OCCUPATIONAL SETTING

by

Douglas L. Flow

A DISSERTATION

submitted to

Oregon State University

in partial fulfillment of  
the requirements for the  
degree of

Doctor of Philosophy

Completed February 6, 1980

Commencement June 1980

APPROVED:

Redacted for Privacy

---

Professor of Health  
in charge of major

Redacted for Privacy

---

Head, Department of Health

Redacted for Privacy

---

Dean of the School of Education

Redacted for Privacy

---

Dean of Graduate School

Thesis is presented February 6, 1980

## TABLE OF CONTENTS

	<u>PAGE</u>
CHAPTER 1      INTRODUCTION	
Background to Study	1
Need for Study	7
Statement of the Problem	9
Source of Data	10
Research Design	10
Limitations	11
Assumptions	13
Definitions of Terms	13
Organization of Subsequent Chapters	14
CHAPTER 2      REVIEW OF THE LITERATURE	
History of Smoking Research	16
Smoker Characteristics	18
Predictors of Treatment Outcome	21
Natural History of Smoking Behavior	24
Cessation Programs and Treatment Techniques	38
Cessation Programs in the Work Environment	49
CHAPTER 3      RESEARCH DESIGN AND METHODOLOGY	
Population Characteristics	52
Characteristics of the Subjects	53
Randomization and Treatment Assignment	56
Treatment Description	56
Measurement Procedures	57
Baseline, Dependent, and Independent Variables	59
Reliability	62
Questionnaires	63
Treatment Administration	65
Treatment of Data	69
Analysis of Data	70
Statistical Hypotheses	72
Summary	73

CHAPTER 4	RESULTS	
	Effectiveness of Randomization	75
	Reliability of Dependent Measurements	79
Part I	Experimental Component	81
	Effectiveness of Treatment	81
	Comparison of Groups on the Dependent Variables	86
Part II	Descriptive Component	94
	Examination of Potential Correlates of Change	94
	Summary	99
CHAPTER 5	SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	
	Summary	100
	Conclusions and Discussion	101
	Recommendations	105
BIBLIOGRAPHY		111
APPENDIX		123
Appendix A	Smoker Questionnaire	124
Appendix B	Smoker Profile	126
Appendix C	Group Treatment Outline	133
Appendix D	Self-help Kit Treatment Outline	149
Appendix E	Letter Approving Program Implementation	173
Appendix F	Letter Approving Release Time for Participating Employees	175
Appendix G	Organization Chart for Resources Agency, State of California	177
Appendix H	HEW Human Subjects Experimentation Form	179
Appendix I	National Smoker Test	188
Appendix J	Breakdown of Variables X, Y1, and Y2 by Subjects and Groups	194

## LIST OF TABLES

	<u>Page</u>
Table 1 - Individual Traits and Group Characteristics which Distinguish Smokers from Nonsmokers	19
Table 2 - A Smoking Continuum Model	26
Table 3 - Portrait of Smoker Types	33
Table 4 - Subject Profile	54
Table 5 - Relapse Rate Over Time	58A
Table 6 - Source of Data by Treatment	68
Table 7 - Baseline Variable (X) Broken Down by Treatment	75
Table 8 - Analysis of Variance of the Group Treatment, Self-help Treatment, and Control on the Baseline	76
Table 9 - Means, Standard Deviations, and F Ratios of the Numerical Independent Variables for the Group and Self-help Treatments	77
Table 10 - Chi-Square Results for Categorical Independent Variables	78
Table 11 - A Comparison of the Baseline and Follow-up Measurements of the Control Group as a Reliability Check of Self-reported Data	80
Table 12 - Baseline and Dependent Variables: Means and Standard Deviations	82
Table 13 - Dependent Variable C3 Broken Down by Group	83
Table 14 - Analysis of Variance of the Group Treatment and Self-help Treatment on Y1	87
Table 15 - Analysis of Variance of the Group Treatment, Self-help Treatment, and the Control on Y2	88
Table 16 - A Scheffe' Comparison of the Means on Y2	89



Table 17 - Analysis of Variance of the Group Treatment and Self-help Treatment on C1	91
Table 18 - Analysis of Variance of the Group Treatment, Self-help Treatment, and Control on C2	92
Table 19 - Analysis of Change Within Groups At the Four-week and Sixteen-week Measurements	93
Table 20 - Correlation and Significance of Potential Correlates of Change	95
Table 21 - Chi-Square Examination of Potential Correlates of Change	98

# A COMPARISON OF TWO SMOKING CESSATION TECHNIQUES CONDUCTED IN AN OCCUPATIONAL SETTING

## CHAPTER I

### INTRODUCTION

During the past twenty-five years, the harmful effects of cigarette smoking have become increasingly apparent; animal studies, clinical data, and public health statistics all support the relationship between smoking and disease. Despite the convincing health data, and the large scale anti-smoking crusades, some fifty million Americans continue to smoke. In an attempt to understand the dynamics of smoking behavior, researchers have conducted numerous studies; however, the dynamics of smoking behavior remain disturbingly enigmatic. Moreover, although there are a number of smoking cessation programs being offered, the effectiveness of such cessation activities remains in doubt.

### Background to Study

On January 11, 1964, the first Surgeon General's Report on Smoking and Health was published. Reaction was immediate and worldwide. That document represented the first comprehensive study to establish a link between

cigarette smoking and lung cancer. Exactly fifteen years later the Surgeon General's office submitted a second report. According to Joseph Califano, then Secretary of Health, Education, and Welfare, "This document reveals with dramatic clarity, that cigarette smoking is even more dangerous -- indeed, far more dangerous -- than was supposed in 1964" (U.S. Public Health Service, 1979:1).

The initial 1964 Surgeon General's Report on Smoking estimated that cigarette smoking was responsible for some 250,000 premature deaths each year in the United States. Given today's population, researchers calculate that this figure would now be closer to 400,000. The relationship of tobacco and lung cancer has been well established; however, Horn (1966) in examining several years of Public Health data, notes that lung cancer accounted for only one-eighth of smoking-related deaths. Moreover, according to Horn, other long-term morbidity/mortality trends have begun to appear. These range from cancer of various sites -- such as malignancies of the larynx, oral cavity, bladder, pancreas, stomach, and kidney -- to non-cancerous disorders of the cardiopulmonary system such as chronic bronchitis, emphysema, ischemic heart disease, and cerebral vascular accidents. Though statistically less significant, other smoking-related health conditions include gastric ulcers, peripheral vascular disease, loss of teeth, and tobacco amblyopia (Diehl,

1969). Recently, British research has revealed that smokers who take oral contraceptives have an increased risk of myocardial infarction (San Francisco Chronicle, 1978).

Currently there are more than fifty million smokers in America. By sex, 39 percent of men and 29 percent of women smoke (National Cancer Institute, 1977). Despite negative health evidence, Americans consume some 625 billion cigarettes per year -- more than they did prior to the initial Surgeon General's Report in 1964 (Wong, 1978). However, according to the American Cancer Society, even though fifty million Americans smoke cigarettes, thirty million have stopped since the major anti-smoking campaigns began in the 1960's. In verification, the American Cancer Society (1978) provides data which indicates that approximately 42 percent of the adult population smoked in 1964 compared to the current estimate of 35 percent. While these data do appear encouraging, they are somewhat overshadowed by the recent reports which show that although fewer Americans are smoking, per capita consumption has increased (U.S. Public Health Service, 1979).

Although, historically, most investigations have concerned themselves with the direct effects of smoking on the smoker, more recent studies have begun to investigate the secondhand effects of smoke on others (Committee on Agriculture, 1978) as well as the effects of

cigarette consumption on the unborn child (Center for Disease Control [CDC]: May 6, 1977). It has been demonstrated that there is a significantly lower delivery weight for the offspring of smoking mothers (Butler, et. al. 1972); moreover, recent findings of mutagenic cells in the urine of male smokers have lead some authorities to suspect a correlation between smoking and birth defects (National Cancer Institute, 1977). In recognition of these smoking-related health problems, the World Health Organization has stated that

. . . smoking-related diseases are such important causes of disability and premature death in developed countries that the control of cigarette smoking could do more to improve health and prolong life in these countries than any other single action in the whole field of preventive medicine (World Health Organization [WHO], 1975: 114).

In recent years, preliminary studies have begun to investigate the economic impact of the smoking employee (Johnston, 1976; Kristein, 1977). According to a national health survey begun in 1964, smokers spend one-third more time away from their jobs than do nonsmokers. It is estimated that over eighty-one million lost work days can be attributed to smoking-related health problems. In addition, smoking-related health problems are responsible for an estimated 306 million days of restricted work activity (Kristein, 1977). The intensity of the habit corresponds positively to days lost. Employees who smoke one-half pack a day lose nine-tenths of a day more per

year than do nonsmokers, and two pack-a-day smokers exceed nonsmokers by three lost work days per year (Health, Education, and Welfare [HEW], 1976).

Luce and Schweitzer (1977) estimate that in 1976 cigarette smoking cost the United States economy \$27.5 billion, of which \$19 billion was related to production losses. A. T. Roth (1969), former president of the Franklin National Bank, during testimony to a congressional committee, presented data which suggests that smoking in the work place results in a \$3 billion loss in productivity due to greater inefficiency, errors, and time lost to the ritual of smoking. Smoking employees also contribute to excessive hospitalization and worker compensation expenses, as well as to inflated insurance premiums (Kristein, 1977). The implications of the aforementioned data for employers and managers is obvious and is rapidly gaining attention (National Interagency Council on Smoking and Health, 1979).

In a recent Wall Street Journal article, Kelleher (1978) describes a variety of efforts by business and industry to encourage their smoking employees to abandon their smoking habit. Included in these efforts were "stop smoking" clinics, monetary bonuses, and pay increases. Employers reportedly hoped for enhanced productivity as well as a reduction in cleanup and maintenance costs attributed to smoking employees. Efforts are continuing;

several other exploratory programs have either been completed or are currently under way (Danaher, 1978). Of specific concern to public health officials and policy makers are those smoking employees who -- via the work setting -- are exposed to known carcinogens (Hoffman and Wynder, 1976). Ellis writes:

In many instances cigarette smoking by workers has been shown to enhance their chances of contracting occupation-related diseases, or, conversely, exposure to certain industrial substances has heightened the health risks of smoking (Ellis, 1978: 160).

A classic example of the synergistic effect of smoking and noxious substances encountered in the workplace is the experience of asbestos workers. Selikoff and Hammond (1978) estimate that approximately 20 percent of all asbestos workers in the United States have died or will die from lung cancer, that another 10 percent will die from pleural or peritoneal mesothelioma, and that an additional 7 percent will contract asbestosis. Asbestos workers who smoke have a 90 percent greater risk of developing lung cancer than nonsmoking, nonexposed persons (CDC, May 6, 1977). Fortunately, considerable data suggest that when asbestos workers quit smoking, their death rates from lung disease may be expected to drop significantly (Hammond, 1965).

The experience of the asbestos worker is but one example of the synergistic relationship known to exist between smoking and noxious industrial agents. Hoffman

and Wynder (1976) have identified several agents which, together with smoking, serve as a cofactor in occupational cancers. These include a high incidence of urinary cancer in dye workers and a high incidence of respiratory cancer in workers exposed to uranium, nickel, arsenic, chromate, and vinyl chloride. Smoking may also contribute to an additive effect. For example, among coal miners, cotton workers, and firefighters -- who consistently develop a unique form of chronic obstructive pulmonary disease -- smokers have a significantly higher prevalence of obstructive airway diseases than their nonsmoking co-workers (U.S. Public Health Service, 1979).

The subject of smoking has been of great interest to behavioral scientists for many years. Borgatta and Evans (1968) conclude that in the twelve years preceding the 1964 Surgeon General's Report, there were some three thousand studies carried out in the general area of smoking behavior. Despite this massive accumulation of data, the successful translation of theory to practical application via organized smoking programs and public education campaigns has been difficult and has not directly affected cessation rates to the degree that was earlier expected.

### Need for Study

Cigarette smoking has become increasingly viewed as a public health problem of considerable magnitude. In



response, numerous agencies and organizations (public, private, and proprietary) are providing assistance to those smokers wishing to give up the cigarette habit. Commonly, this assistance is of a "service orientation" and not concerned with the "advancement of knowledge." Treatments vary and are often nonsystematic, while evaluations and follow-up data are frequently nonexistent or incomplete (Schwartz, 1969, 1979).

After an exhaustive review of a variety of treatment programs, Schwartz (1978, 1979) states that immediate treatment success ranged from 20 to 80 percent with an average success rate of 25 percent; one-year follow-ups for all treatment techniques averaged 25 to 45 percent abstinence with an average success rate of 29 percent. It should be cautioned that this data was self-reported and, as such, has some inherent limitations. In contrast to treated groups, unaided control groups will frequently demonstrate a 10 to 15 percent success at the end of one year (Schwartz and Dubitzky, 1968-B; Guilford, 1972).

Some authorities have suggested the possibility that success achieved in smoking cessation is independent of any established treatment procedure (Saunders, 1978). Specifically, it is theorized that the success rate among individuals giving time and attention to quitting smoking on their own will be similar to that for individuals participating in systematic treatment procedures. A

recent newsletter from the National Center for Health Education (Fall, 1977) notes that thousands of smokers are currently participating in many different types of smoking cessation programs being offered, and yet considerable doubt remains regarding the effectiveness of these smoking cessation activities.

There is clearly a need to analyze more carefully the effectiveness of smoking cessation treatment and techniques. This need has been suggested by the 1979 Surgeon General's Report on Smoking and Health: "More effort should be made, therefore, to evaluate ongoing clinical activities so that researchable hypotheses can be illuminated for further controlled study" (U.S. Public Health Service, 1979:19-12).

#### Statement of the Problem

The basic question to be answered by this research was, "Does an organized smoking cessation treatment have a significant impact on the smoking behavior of participants?" Specifically, the research addressed itself to the following questions: (1) Is there a significant difference in smoking behavior between smokers receiving cessation treatment and nontreated smokers? (2) Is there a significant difference in smoking behavior between smokers receiving cessation treatment in a group setting and smokers receiving cessation treatment via a self-

directed, self-help kit? and (3) From a preselected list, can a set of personal/demographic variables be identified which, either singly or in combination, serve as correlatives of smoking reduction/cessation?

### Source of Data

Employees and facilities of the Resources Agency, State of California, were used for this study. Data was gathered on three groups of employees: (1) those who participated in a group-centered smoking cessation treatment, (2) those who participated in a self-help smoking cessation treatment, and (3) those who did not receive formal treatment. Treatment assignment, administration, and evaluation were conducted during regular working hours.

### Research Design

This research was divided into two parts: an "experimental component" and a "descriptive component."

The experimental component (Part I) compared the effects of two smoking cessation techniques upon the smoking behavior of current smokers. The following hypotheses were tested:

Hypothesis I: There will be no significant difference in mean smoking behavior among smokers assigned to a Group Treatment, a Self-help Treatment, and smokers assigned to a Control.

Hypothesis II: There will be no significant difference in mean smoking behavior between smokers assigned to a Group Treatment and smokers assigned to a Self-help Treatment.

The descriptive component (Part II) focused on a preselected list of personal and demographic characteristics which were theorized to be possible correlates of smoking behavior (Appendix B). Although hypotheses are not offered here, findings of the investigation have been reported and incorporated into the discussion of the results (Chapter 4).

### Limitations

The following factors should be taken into consideration before generalizations are made from this research:

1. Subject Interaction: The major limitation of this research was the potential for subject interaction; all subjects were employed in the same building (housing some twenty-five hundred employees) and were treated simultaneously. It should be noted that the physical nature of the work site (a large sixteen-story structure, numerous departmental divisions, and partitions between individual employees) inhibited interaction to an appreciable extent. It is assumed, however, that some subject interaction occurred (e.g., sharing of treatment information and experiences); it is also assumed that selection

of subjects from different locations and work environments may have resulted in the unintentional mixing of dissimilar populations. Any interaction that may have occurred was accepted as a limitation and representative of the employees day-to-day routine. Nevertheless, as a further control measure, prior to treatment initiation, subjects were given only minimal information such as the date, time, and location of their assigned treatment.

2. Investigator Bias: To facilitate the uniformity of treatment, the researcher conducted all treatments and follow-ups. Because of this researcher/subject interaction, investigator bias was a potential problem. Consequently, as a control measure, the following techniques were employed: (1) Uniform instructions were routinely used in initial contacts and follow-ups, (2) a "script" approach was used in the dissemination of the "I Quit Kits," and (3) the American Cancer Society Instructor's Manual was closely followed while conducting the Group Treatment. Additionally, to help identify and correct program inconsistencies, an outside consultant knowledgeable in smoking cessation served as a periodic observer. This observer, a nurse practitioner employed by the American Lung Association, was experienced in group processes and smoking cessation programs.

### Assumptions

To facilitate this investigation, the researcher made the following assumptions:

1. that the assessment battery (Appendix A and B) used in this study elicited information appropriate to its designated intention.
2. that the information provided by the subjects was accurate and sincere.

### Definitions of Terms

The terms used in this study are defined as follows:

Completer: any person who attends four or more sessions of the program (group treatment)\*

Correlates of Change: a limited number of variables (demographic and attitudinal) which serve to suggest a subject's eventual performance (change in smoking behavior) while participating in an organized smoking cessation program

Follow-up: contact with a subject to ascertain smoking behavior (rate) following subject's participation in assigned treatment\*

Participant: anyone enrolled in a specified program who is designated as a smoker, ex-smoker (per current status)\*

Rate: number of cigarettes smoked (at least one drag is taken) per day

Self-Help Treatment: a self-directed, self-contained stop-smoking kit developed and distributed by the American Cancer Society (copyright 1977)

\*American Cancer Society (ACS) Definitions, 1971.

Smoker Classification:\*

- (a) Occasional Smoker: a person who does not exceed 100 cigarettes per year
- (b) Light Smoker: a person who smokes 0-10 cigarettes (1/2 pack) per day
- (c) Medium Smoker: a person who smokes 1/2 to 1-1/2 packs of cigarettes per day
- (d) Heavy Smoker: a person who exceeds 1-1/2 packs of cigarettes per day
- (e) Ex-smoker: a person who was a smoker but no longer smokes and claims to have "quit smoking"
- (f) Recidivist: any subject who returns to his original consumption rate after significantly reducing (50 percent) or abstaining from the smoking of cigarettes

Stop Smoking Group Treatment: a formal program developed by the American Cancer Society for the planning, organizing, and conducting of a smoking cessation group program (see Appendix C)

Target Population: employees of the Resources Agency, State of California, who are assigned to the headquarters building, Sacramento, California

Treatment: a planned technique to help the smoker in the process of quitting cigarettes by the application of knowledge and facts to his particular needs (distinct from education, which is more general in nature, and counseling, which is oriented towards specific therapy)\*

Organization of Subsequent Chapters

Chapter 2 presents a survey of the literature, focusing on what might be viewed as two distinct eras of smoking research. Chapter 3 describes the research

\*ACS, 1971

design and methodology. Chapter 4 examines the results of the two-part research, and Chapter 5 concludes with the summary, conclusions, and recommendations.



## CHAPTER 2

### REVIEW OF THE LITERATURE

The literature related to smoking research is abundant. The purpose of this chapter is to review those areas of smoking research which are pertinent to this study. These include: (1) history of smoking research, (2) smoker characteristics, (3) predictors of treatment outcome, (4) natural history of smoking behavior, (5) cessation programs and treatment techniques, and (6) cessation programs in the work environment.

#### History of Smoking Research

Smoking research can be divided into two distinct eras: pre-1964 and post-1964. The landmark separating these two time periods is the 1964 Surgeon General's initial report on smoking and health.

The research of the pre-1964 era focused on the differentiation of smokers from nonsmokers as measured by variables other than their smoking behavior (Dunn, 1973). This era was epitomized by Clark Hull (1924:53), who, in reference to his early smoking research, explained his work as a search for "a clue to the charm which tobacco has for those accustomed to its use." The standard procedure for the smoker/nonsmoker design was to obtain

measurements and study differences between smokers and nonsmokers; differences included personality traits, physical factors, and life-style characteristics. Researchers assumed that they would arrive at some understanding of smoking behavior through systematic study of these differences.

In 1964 the published report of the Advisory Committee to the Surgeon General gave evidence of the adverse health effects of cigarette smoking. The reaction to this report was immediate and signaled a distinct shift in priorities for smoking research. An extensive attack on smoking was begun through education and cessation activities. Under the auspices of the U.S. Public Health Service, a National Clearing House for Smoking and Health was created, the primary function being the encouragement and coordination of research and community smoking cessation programs. Dr. Daniel Horn (1966), serving as director of this agency, urged social scientists to rise to the challenge of solving a health problem which he believed should be addressed through a behavioral approach.

In recent years smoking research has focused substantial attention on the development of techniques for smoking cessation treatment (Lichtenstein, Danaher, 1976; Schwartz, 1978). Although a measure of success has been achieved through various smoking cessation techniques, the processes of smoking cessation and posttreatment recidivism remain essentially a behavioral enigma (Hunt

and Matarazzo, 1973; Schwartz, 1978). The Surgeon General's most recent report on smoking and health calls for researchers to address themselves to the evaluation of cessation programs and treatment techniques (U.S. Public Health Service, 1979).

### Smoker Characteristics

Numerous of the pre-1964 studies were conducted to ascertain what differences might exist between those people who chose to smoke and those who did not (Lynn, 1948; Heath, 1957; Lilienfeld, 1959; McArthur et. al., 1959). Most of the individual traits and characteristics that have been investigated can be placed into four categories: (1) personality traits, (2) lifestyle characteristics, (3) morphological traits, and (4) demographic characteristics (see Table 1).

In an attempt to summarize existing literature on the psychodynamics of smoking behavior, Matarazzo and Saslow (1960) reviewed a number of psychological, personal, social, and situational characteristics of smokers and nonsmokers. The authors note that while smokers appeared to differ from nonsmokers in a variety of characteristics, no study had demonstrated a single variable which was exclusive to one group. The researchers conclude that "our knowledge of personality and psychosocial characteristics of smokers and nonsmokers is only at its beginning"

(Matarazzo and Saslow, 1960:509). In reviewing their work some thirteen years later, Foss (1973) concluded that during the years following the Matarazzo/Saslow study, little progress seemed to have been made in the differentiation of smokers from nonsmokers.

In 1973, Dunn completed an updated version of the earlier Matarazzo/Saslow work (see Table 1).

TABLE 1

INDIVIDUAL TRAITS AND GROUP CHARACTERISTICS  
WHICH DISTINGUISH SMOKERS FROM NONSMOKERS\*

Personality Traits [of Smokers]

More independent  
Greater antisocial tendencies  
More active, energetic  
Higher mean extroversion rating  
Happy-go-lucky  
Higher mean measure of "orality"  
Poorer mental health  
Less rigid, less orderly, more impulsive  
Greater reliance on "external" than on "internal controls"  
More change-oriented  
More emotional  
Less agreeable  
"Type A" personality (more time-conscious, competitive, etc.)  
Less "strength of character"  
Higher anxiety level

Life Style Characteristics [of Smokers]

More business-oriented in occupation  
Poorer academic performance  
More use of alcohol  
Religious service attendance less frequent  
Proportionately higher frequency of marriages and job changes  
Higher incidence of prior hospitalizations  
Higher incidence of smoking among parents  
More active participation in sports  
More auto accidents  
More users of coffee and tea

Morphological Traits [of Smokers]

Greater body weight  
Greater height  
Thinner  
Taller, relative to cube root of weight  
Thinner skin folds

Demographic Characteristics [of Smokers]

More men  
Proportionately more 25-to 45-year-olds  
Lower mean socioeconomic class  
Proportionately fewer college men  
More urban residents

---

\* From William L. Dunn, Jr., Ed. Smoking Behavior: Motives and Incentives, V. H. Winston & Sons, 1973, pg. 95.

A cursory inspection of Table 1 will reveal that many items overlap. Dunn (1973:94) writes that his

. . . compilation represents the work of many investigators using diverse conceptual and descriptive frames of reference. Were the commonality identifiable and 'pure' traits measurable, our list would be shortened indeed.

Most studies addressed to the smoker/nonsmoker differentiation have concluded that smokers are more prone to maladaptive types of behavior than nonsmokers (Heath, 1957; Matarazzo and Saslow, 1960; Schwartz and Dubitzky, 1968-A; Smith, 1970). Regarding these conclusions, Walker (1969) raises an interesting question, one which was first hypothesized by Matarazzo in 1960. Specifically, is it possible that smokers receive higher scores on anxiety scales and other psychological measurements because they are more candid in admitting "abnormal" behavior? If accurate, Walker's findings that smokers are more frank in responding to paper and pencil personal-

ity tests could conceivably invalidate much of the previous research evidence which served to differentiate smokers and nonsmokers.

Some researchers have questioned whether there is value in the study of smoker/nonsmoker characteristics. In a 1970 report Schwartz suggests that there is an inherent weakness in the attempt to compare smokers, nonsmokers, and ex-smokers as separate and distinct groups. He points out that "some ex-smokers have a behavioral complex similar to certain kinds of current smokers, while others have patterns similar to those who never smoked" (1970:129). In lieu of single variable analysis, Schwartz proposes the utilization of a cluster analysis from which a typology or "smoker profile" might be developed. He concludes that "smokers are not just one kind of a person and nonsmokers another kind" (1970:129).

#### Predictors of Treatment Outcome

As more sophisticated theories of the dynamics of smoking were developed, attention was directed away from smoker/nonsmoker differentiation and toward the development of a screening mechanism to determine a given smoker's chances of success in a smoking cessation program. A variety of variables have been identified as predictors or correlates of change in smoking behavior.

Guilford (1972) reports the sex variable to be a highly significant correlate. She writes that after six

months nontreated males showed as much improvement as treated females, whereas females improved only if treated. The same study reported that age was a correlate of success for both sexes. Guilford further writes that while a spouse's disapproval appeared to be a motivator for men to quit smoking, the same was not true for women. This finding has been substantiated by other researchers (Eisenger, 1971; Mettlin, 1973).

Dubitzky and Schwartz (1968) have examined the concepts of ego-resiliency and ego-control. These are defined respectively as measures of one's ability to cope effectively with stress and anxiety and one's ability to manage one's emotional responses. Both variables, especially ego-control, were predictors of reduction in smoking behavior. In another study (Schwartz and Dubitsky, 1969), the same researchers report that light smokers demonstrated a higher success rate than did moderate or heavy smokers.

Mausner (1973) writes that one of the most powerful predictors of change was a subjective expectation of improved health. On a contradictory note, Cannon and Matthews (1973) report that smokers expressing a high concern for their personal health more strongly endorsed a variety of rationalizations about smoking. Straits (1965) states that success and quitting were predicted by the presence of physical ailment.

Examining environmental influences, Eisenger (1971) reports that two variables were related to success: the presence of children twelve or younger in the home and the smoking behavior of the twenty people that the subject knew best. Eisenger also reports that the length of time an individual smoked was a significant predictor of recidivism and that successful abstainers tended to believe that they would not be smoking five years hence. Along similar lines Tamerin (1972) reports that expectancy of success correlated with actual success, while expectancy of failure correlated with actual failure.

Schwartz and Dubitzky (1968-C) write that successful abstainers demonstrated a lower degree of anxiety at the beginning of treatment. Furthermore, while the anxiety level for successful subjects increased after they stopped smoking, it remained lower than the anxiety levels of both the recidivists and failures. Weatherley (1965) reports that successful abstainers displayed a stronger generalized drive to master difficult tasks.

Locus of control has been explored in depth by Eysenck (1965). More recently it has been used as a screening mechanism for prescriptive smoking cessation treatment (Best, 1975), the theory being that treatment response can be predicted by one's internal or external locus of orientation. Best found that internal-locus



smokers responded better to aversion procedures than did external-locus smokers; on the other hand, external-locus smokers responded better to situational analysis of environmental circumstances than did internal-locus smokers.

### Natural History of Smoking Behavior

#### Background

Theories concerning the underlying mechanisms governing smoking behavior are many and diverse. Theories range from the traditional Freudian approach, which views smoking as a continuation of the infantile oral phase (Strachey, 1955; Saul, 1972); to the more recent theories of behaviorism, which perceive smoking as an undesirable behavior to be eliminated without regard to underlying causes (Chesser, 1964; Schwartz, et. al., 1972). Some researchers (Hammond, 1958; Hochbaum, 1965) have suggested that smoking behavior is determined by multiple factors rather than by a single factor. The implication is that the etiology of smoking behavior is too complex to be explained by any one theory, e.g., personality type or genotype. The assumption is that smoking behavior is resultant of a host-environment interaction and must therefore be conceptualized in an ecological model (Mausner and Platt, 1971; Mausner, 1973). It is interesting to note that this assumption is consistent with the thinking

of contemporary epidemiologists. Epidemiology has replaced the "single agent" theory of disease causation with the "multiple causality" approach in its search for the etiology of lifestyle diseases such as heart disease and of social pathologies such as alcoholism, and suicide (Mausner and Bahn, 1974).

In contrast to the above psychosocial theories is the constitutional hypothesis, which maintains that some individuals are biologically or genetically predisposed to the smoking habit. It is along these lines that Eysenck (1965) disagrees with those who maintain that smoking, alone, causes lung cancer and other diseases. He hypothesizes that there is equally convincing evidence which suggests that both smoking and lung cancer are associated with a specific personality type -- a "cancer prone" personality. Opponents of Eysenck's work point to human and animal studies, such as those conducted by Auerback, Hammond, and Kirman (1970), which they conclude demonstrate a biochemical causal relationship between smoking and lung cancer independent of any psychosocial variables.

#### Smoking: The Natural History, or Smoking Continuum, Concept

Some researchers (Dunn, 1973; Russell, 1974) subscribe to a natural history, or smoking continuum, concept. Within such a framework, smoking is viewed as a dynamic process composed of separate stages and not as a static

entity. These stages include (1) the starting or initiation phase, (2) the continuing or maintenance phase, and (3) the stopping or cessation phase. Russell (1974) and Dunn (1973) have identified individual components which give each phase a unique and distinct identity. As noted by Schwartz and Dubitzky (1968-A), these phases frequently overlap. Building on Russell's earlier work, Danaher and Lichtenstein have developed a smoking continuum model (See Table 2).

TABLE 2  
A SMOKING CONTINUUM MODEL\*

Starting	Continuing	Stopping
availability of cigarettes	nicotine effects	health
curiosity	immediate positive consequences	expensive
rebelliousness	signals (cues) in environment	social pressures
toughness		self-mastery
anticipation of adulthood	avoiding unpleasant effects (fatigue, withdrawal, weight gain)	aesthetic factors
social confidence		example to others
example set by parents, siblings, peers	negative effect	

\*From Brian G. Danaher and Edward Lichtenstein, Become an Ex-smoker, Prentice-Hall, 1978, pg. 5.

Initiation Phase of Smoking. A number of studies and reports have proposed theories to explain the adoption of the smoking habit (Tomkins, 1966; Schwartz, 1970;

Hochbaum, 1970; Horn, 1976). Most smokers begin smoking during their adolescent years, and some researchers feel that this relationship between age and initiation arises out of needs and processes unique to this developmental stage in the maturation process. Wake, Moore, and Booth (1966) explain the initiation of smoking in a context of adjustment to social and psychological pressures peculiar to the adolescent.

Horn (1976) states that the initiation of smoking behavior is dependent on the availability of cigarettes. Indeed, this simple observation correlates with public health data which demonstrate smoking to be more common among children of smoking parents (U.S. Public Health Services, 1979). In addition to the availability, he points out the importance of the "exemplar," or role behavior, demonstrated by smoking parents. The use of cigarettes by parents or other significant adult figures sets an example of acceptable behavior and stimulates curiosity about smoking. Wohlford (1970) and Schwartz (1970) concur that parental smoking behavior influences childrens' decision of whether or not to smoke. Schwartz continues by stating that the parents' behavior is more important than their expressed attitude, or "that 'do as I say' is not as effective as 'do as I do'" (Schwartz, 1970:112). Other influencing factors include the need to conform or rebell (Schwartz, 1970), to take risks (Williams,

1973), and to be adventuresome and tough (Weir, 1967), as well as the anticipation of adulthood and social confidence (Russell, 1974) and the pressure from peers (Pomerleau, 1979).

Hochbaum warns researchers and educators that they should not discount the physical gratification and pleasure that smokers -- including young smokers -- reportedly receive from their habit. He writes that young smokers report that "cigarettes help them to relax, to concentrate, to tolerate anxiety, to feel more at ease in awkward social situations" (Hochbaum, 1968:34).

Approaching the problem from a broader perspective, some researchers describe smoking as a compensatory gratification for troubled youngsters who are unsuccessful in the important areas of their life. Such youngsters would include the adolescent who is unsuccessful scholastically (though not necessarily less intelligent), who does not excell in sports, who tends to have lower class social standing or who does not find satisfaction in extracurricular or social areas of life (Salber and MacMahon, 1961; Rogers and Reese, 1964). Schwartz and Dubitzky state:

The lack of alternative symbolic (or real) status achievements available to the adolescent further encourages the selection of smoking as a status symbol. Thus, initiation of smoking is related to the social milieu, maturational problems, and availability of alternative gratifications (1968-A:78).

Continuation Phase of Smoking. Like the initiation phase, the continuation or maintenance phase of the natural history of smoking is a complex and multifaceted process (see Table 2). One of the most prevalent theories regarding this process is based on the reinforcement model, in which smoking is theorized to be a tool for the reduction of tension. Schwartz and Dubitzky (1968-A:79) state: "By experiencing stress together with social circumstances conducive to the performance of the smoking ritual, cigarette smoking and stress become associated." In other words, the smoker is convinced that smoking reduces his day-to-day life tension and he therefore continues his habit.

Speaking from the viewpoint of a pharmacologist, Russell (1974) writes that in the early stage of development, smoking is intermittent and confined primarily to social situations. He theorizes that the younger smoker, responding to strong social and psychological cues, is a "psychosocial smoker." However, as a few years pass and the smoker achieves a sense of social maturity, these psychosocial rewards weaken and the effects of nicotine become primary to the maintenance of the smoking habit. Russell continues that

. . . if the nicotine intake is high, a new powerful drive emerges, namely withdrawal relief or avoidance. The subjective malaise and craving of withdrawal are instantly relieved or anticipated and avoided by smoking, ensuring repeated reinforcement and strengthening of the

habit to a stage of extreme dependence. Thus, most people end up by smoking not because they want to look 'tough' or 'grown-up' or because most of their friends smoke but simply because they have become dependent on nicotine (1974: 798).

Stanley Schacter (1977) believes that because smoking is addictive the maintenance phase is therefore subject to basic physiological processes. He begins with data which demonstrate that smokers consume more cigarettes when their urine becomes acidic. Briefly, he theorizes that once the smoking habit is established, the smoker develops a relatively consistent nicotine level which the body physiologically perceives as "normal." When the individual is under stress, the urinary pH is altered, causing an increase in acidity. With this increase, more nicotine is excreted, prompting the smoker to increase his cigarette consumption to reestablish his "normal" nicotine level. Schacter writes that the level of nicotine in the body at any one time directly reflects the urinary pH. He concludes that "smoking doesn't make a smoker less irritable or vulnerable to annoyance . . . [but] not smoking or insufficient nicotine makes him more irritable" (Time, 1977).

Some psychologists have attempted to understand the maintenance phase by exploring the feelings a smoker associates with his habit. Silvan Tomkins (1966:17) writes: "The key to the understanding of smoking behavior is to be found in the management of affect," the term

affect referring to the human feelings or emotions. According to Tomkins, smoking -- a behavior which he compares to the "infantile sucking mechanism" -- allows the individual to reduce negative affects and to evoke positive affects. He identifies the positive affects as excitement, enjoyment, and surprise and the negative affects as stress, anger, fear, shame, and contempt.

Some researchers address the issue of smoking maintenance via the stimulus properties of the cigarette. They theorize that the taste and smell of cigarette smoke are positively reinforcing to the habitual smoker (Lichtenstein, 1971; Mausner, 1973). Hunt (1970) characterizes the smoking habit as a fixed behavior pattern overlearned to the point of becoming automatic and marked by decreasing awareness and increasing dependence on secondary rather than primary reinforcement.

Also related to the maintenance phase are the "constitutional hypotheses" researched by numerous investigators. Thomas (1960) found that smokers and nonsmokers responded differently to stress. Smokers tended to eat more and become angry, whereas nonsmokers reported sleepiness, demonstrated a diminished activity level, and experienced more psychosomatic conditions. Perhaps the leading proponent of the constitutional hypothesis is H. J. Eysenck (1965). He believes that personality can be described on two dimensions -- introversion-extroversion and neuroti-



cism -- and that most individual differences based on these two dimensions are inherited. According to Eysenck, personality differences may be traced to individual variations of excitatory and inhibitory potentials of the brain; smokers, especially heavy smokers, are high in extraversion. This finding is explained in terms of "stimulus hunger," which arises from a predominance of inhibitory activity and causes smokers to attempt to increase their level of cortical arousal by various means of external stimulation. It would naturally follow that cigarettes are an ideal source of such stimulation.

In an effort to integrate previous research, Guilford has proposed a "life style" theory of smoking. She finds such a theory applicable to a large number of smokers characterized as follows:

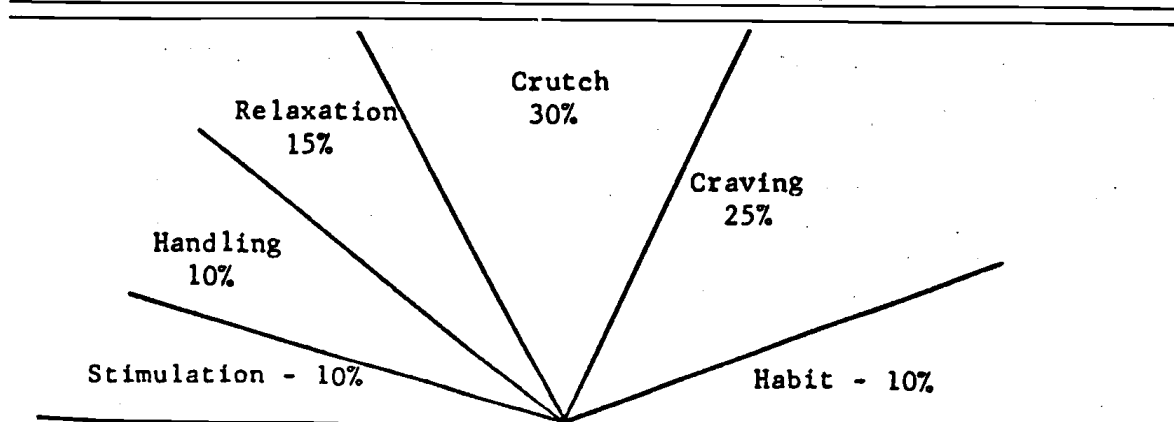
. . . instability and by indulgence in social habits which are detrimental to health (e.g., smoking, drinking of alcohol, overeating, eating sweets and fatty substances, drinking coffee, hyperactivity, choice of occupations which are stressful, responses of anger and hunger to stress, neglect of proper exercise, impulsive and risk-taking behavior, history of instability with respect to marriage, frequent moves from one area to another, increased tendency to have accidents, extraverted temperament, etc (Guilford, 1967:11-12).

Schwartz and Dubitzky (1968-A) write that theories relating to the continuation of smoking are not mutually exclusive and that people may smoke for one or several reasons. However, while recognizing individual differences among smokers, some researchers have also noticed similar-

ities. McArthur, et. al. (1958) identifies three types of smokers: the emotionally constricted person for whom smoking may be a way to "act out"; the restless, active person for whom smoking may be a way of expressing need for stimulation; and the anxious person for whom smoking may serve as a tension reduction mechanism.

Building on these earlier theories of smoker similarities, researchers have begun to develop smoker typologies many of which are based on the earlier work of Silvan Tompkins. Researchers believe that a reliable and valid smoker typology test could be used in diagnosing different types of smokers and evaluating their progress toward success in quitting. Perhaps the best known smoker test has been developed by Daniel Horn (1968). In preparing the Smoker's Self-Test, Horn has identified and differentiated six types of smoking behaviors: (1) handling, (2) stimulation, (3) relaxation, (4) stress, (5) craving, and (6) habituation (see Table 3).

TABLE 3  
PORTRAIT OF SMOKER TYPES\*



\*From Stop Smoking Program, Leaders Guide, ACS, Calif. Division, 1971.

The test consists of eighteen responses, is simple to compute, and includes an interpretation (Appendix I). Based on previous research, the individual categories in Table 3 represent the "normal" distribution of smokers who complete the Smoker's Self-Test. The percentages reflect the actual number of smokers whose highest score was in a given category.

The Termination Phase of Smoking.      Horn    (1968)  
writes that a smoker's decision of whether or not to quit or modify his habit depends largely on four factors: (1) values served by quitting smoking, (2) perception of the threat of continued smoking, (3) the psychological utility provided by smoking, and (4) influential environmental forces which either support or interfere with efforts to change.

Dorothy Green (1977) has identified four factors related to values served by quitting smoking. These are (1) health -- people scoring high on this factor agree with statements such as "cigarette smoking might give me a serious illness," (2) exemplar -- smokers are aware that their behavior may influence others to smoke, especially their children, (3) aesthetics -- smokers tend to agree that smoking is a messy habit, causes bad breath, stains teeth, and causes damage to clothes, and (4) self-mastery -- smokers often express anger and resentment about the habit which they feel controls them; they express a need to quit as a sign of self-mastery or will power.

Several theorists have addressed perception of threat as a compelling factor in changing health behavior (Hochbaum, 1960; Rosenstock, 1974; Becker, 1974). In his model of health behavior, Hochbaum (1960) identifies five necessary conditions for changing health behavior: (1) knowledge of the threat, (2) importance of the threat, (3) personal relevance, (4) capability of doing something about it, and (5) value of doing something about it.

In applying Hochbaum's model to smoking cessation, Green (1977) notes that prior to the Surgeon General's initial report in 1964 it was difficult to identify knowledge of the smoking threat as a separate factor. Moreover, even when recognizing the threat, a smoker may still deny its personal relevance. Davidson (1964) and Green (1977) have examined the rationalizations for continued smoking. Common rationalizations include, "I don't smoke enough to get any of the diseases cigarettes cause," "I haven't smoked long enough to worry about the diseases cigarette smoking is supposed to cause," or simply "It can't happen to me." Both authors write that with these defenses in place the smoker will not act on his knowledge of the threat. In an effort to penetrate the cognitive defenses frequently employed by smokers, Reed and Janis (1974) used a smoking cessation technique which promoted awareness of rationalization. Their findings were promising. When smokers became aware of

their rationalizations, they reported feeling more susceptible to smoking-induced disease. Similarly, those smokers who recognized the personal relevance of the health threat -- as theorized by Hochbaum -- demonstrated a greater change in smoking behavior.

Finally, Green writes that before a person is willing to attempt a difficult change in behavior -- such as giving up cigarettes -- he must believe in his ultimate success; or, put another way, because people dislike failure, if the smoker thinks failure is an almost certain outcome of his efforts to quit, he probably will not attempt quitting.

Mausner (1973) has developed a theory based on the psychological utility of smoking, the underlying assumption being that it is impossible to understand individual smoking behavior without a clear picture of the role one's smoking behavior plays in his total life pattern. Psychological utility refers to the smoker's expected consequences of smoking a cigarette. Mausner defines psychological utility as involving a wide range of needs, including positive self-esteem, lack of tension, enjoyment of life, etc. He theorizes that quitting is an individual process based on the utility of smoking or not smoking as it relates to the aforementioned needs. Mausner writes:

. . . people make the decision to stop smoking, not because they have a heightened fear of the consequences of continuing to smoking but because they have an increased expectation of

benefits from stopping. Almost everybody is agreed that continuing to smoke is a bad thing. What seems to differentiate those people who stop smoking from those who continue is that the people who continue find not smoking more adverse than continuing to smoke, whereas those who stop are able to convince themselves that not smoking might be worthwhile after all (Mausner, 1973: 120).

Environmental factors have also been identified as forces which either support or interfere with the smoker's efforts to change his smoking behavior. Russell (1974) notes that many smokers can stop for a few days or even weeks without great difficulty but that they will start again when they encounter a stressful event or simply when they are surrounded by relatives, friends, or co-workers who smoke. Horn (1968) states that because giving up smoking is a process, not an event, influential social forces tend to facilitate or inhibit cessation. These forces can include interpersonal influences or the attitudes of key groups. Specific examples include the difficulty of quitting encountered by smokers whose spouse continues to smoke; or, from a group perspective, the reduction in smoking behavior among physicians as contrasted with the continued high rate of smoking among blue collar workers (U.S. Public Health Service, 1979).

One area receiving little attention in the literature is the "smoker self-concept." Mausner (1973:117) writes,

There seems to be some evidence that the use of cigarettes is a form of expressive behavior which functions for many smokers as a part of the definition of self-concept.

Other researchers have also addressed the issue of self-concept. Eisenger (1972) found a correlation between the ability to envision oneself as a future nonsmoker and the actual ability to quit. Razzell, in a revealing narrative, recounts her personal efforts to give up smoking:

. . . the smoking habit is insidious and subtle. It has been woven into my personality from early teens. It was part of the image I had of myself. I went through much of my growing up with a cigarette substituting for more appropriate behavior. If I felt awkward and ill at ease . . . I took a cigarette (Razzell, 1975:25).

Along similar lines Mausner (1973:12) writes, "Cigarettes make it possible to get up and face the world. . . . The fact that smoking is expressive behavior and thus helps define self-concept also makes the cigarette a useful prop in the daily struggle to play out one's role." Mausner concludes that for some smokers, quitting may necessitate a restructuring of self-image. Some practitioners are currently exploring techniques to assist the "hard-core" smoker in developing and internalizing a nonsmoker self-image (Harrup, 1979-A).

#### Cessation Programs and Treatment Techniques

During the 1960's, medication was the most widely used technique in helping individuals quit smoking. During the 1970's, however, smoking withdrawal clinics -- which primarily utilized the group approach -- became the leading type of formal assistance (Schwartz, 1977). More

recently, behavioral techniques have received a great deal of attention. From a global perspective, there are two ways to stop smoking: (1) self-care/self-control techniques and (2) professional and organized cessation programs.

### Self-Care/Self-Control

Dubren (1978) states that for a large number of smokers self-help methods may be the appropriate treatment. As a related example, he cites the somewhat successful use of "bibliotherapy" in weight control programs. The research also reports on several other self-help methods. Brengleman (1975) reports the success rate for mail order programs can approximate that of personal contact programs. Saunders (1978) reports on the use of telephones for "Smoker Quitlines," and McAlister (1978) discusses the use of television for reaching large numbers of smokers.

Schwartz (1977) writes that self-care consists of three modes: (1) devising a personal way of quitting, (2) utilizing an existing aid for quitting such as a stop smoking manual, book, cassette, or special filters, and (3) receiving advice on how to quit and then applying it on an individual basis. The importance of self-care techniques is illuminated by the fact that of smokers who stop, 95 percent do so on their own (U.S. Public Health



Services, 1978). In recognition of the scarcity of self-care programs for smokers, the American Cancer Society recently developed an "I Quit Kit" (see Appendix D). To date, an impartial evaluation has not been conducted.

Whereas the term self-care is broad and implies that the individual devises a personal way of quitting, "self-control" (a behavioral term) implies the use of structured methods devised by someone else. Schwartz (1978) writes that most self-control techniques involve more active participation by the subject than do aversive methods used in the behavioral approach. He further states:

Generally, the use of self-control evolves from three factors: first, attention to one's own smoking actions and recording of their occurrences; second, the awareness of and willingness to change one's environment so that either the cues preceding the smoking response or the immediate consequences of it are changed; and third, recognition of and ability to break long standing, cue-elicited smoking patterns (1978:43).

According to Lichenstein and Danaher (1976), there are three distinct self-control strategies: (1) environmental planning, (2) behavioral programming, and (3) cognitive control.

Environmental Planning. The environmental planning strategy proceeds on the notion that smoking is linked to a variety of events or cues (stimulus response). Lichtenstein and Danaher discuss some common techniques designed to aid the smoker in achieving stimulus control of his habit. These include, (1) increasing the stimulus

interval -- or setting the smoker on a timetable with longer and longer duration between cigarettes, (2) hierarchical reduction -- instructing the smoker to label each cigarette with a need rating (e.g., 1-5) and then to follow a reduction program in which he reduces his rate of smoking by beginning with the easiest cigarettes and progressing to the more difficult, and (3) deprived response performance -- progressively narrowing the environmental circumstances in which one can smoke (the smoker is normally confined to a specific place such as the garage or back porch). Lichtenstein and Danaher (1976) report that results of stimulus control studies have been unimpressive.

Contingency contracting is another example of environmental planning. A contingency contract is a system by which the smoker might deposit a sum of money or a valued personal article in an organized program or with a friend, etc, which may be refunded or returned contingent upon a predetermined change in smoking behavior. Social contracts have been used in which spouses or peers mutually contract not to smoke.

Behavioral Programming. This self-control strategy contains two essential elements --self-reward and self-punishment (Thorenson and Mahoney, 1974). When using the self-reward system, the smoker rewards himself for reducing his smoking rate or abstaining. The rewards might be tangible or personal. Using the self-punishment system,

the smoker applies a predetermined punishment for smoking; some studies have reported smokers tearing up dollar bills or contributing to charities as a form of self-punishment (Axelrod, et. al., 1974).

Cognitive Control. This strategy involves the smoker's manipulation of his own thoughts. This might include imagery, self-instruction, or rehearsals. According to Lichtenstein and Danaher (1976:115), the goal is "to change the manner in which smokers think before and after smoking."

### Professional Care and Organized Smoking Cessation Programs

Under the heading of organized cessation methods, several methods can be readily identified. These include (1) individual counseling, (2) medication, (3) hypnosis, (4) behavioral techniques, and (5) group methods. The reader should be aware that other methods do exist such as mass media, educational programs, health-risk appraisal, acupuncture, yoga, telephone messages, and mailings; however, these have not been reviewed by this study.

### Individual Counseling

Most smoking cessation counseling takes place in the context of the patient/health professional relationship. Advice commonly focuses on the harmful effects of smoking and the benefits of quitting, and pamphlets outlining

specific techniques for quitting are frequently provided. Unfortunately, many health professionals feel that they are inadequately prepared to assist the smoker or that counseling is too time consuming in relation to the poor outcome frequently experienced. Attention is being focused on assisting health professionals to prepare themselves to counsel smokers (Horn, 1968; Fredrickson, 1968; Lichtenstein and Danaher, 1978). Recent data underscore the potential impact of the practitioner's counseling on the patient's smoking behavior. Surveys show, for example, that the physician or dentist could exert greater influence. Only 25 percent of smokers report that their physicians have advised them to stop, yet over 50 percent of smokers surveyed indicate that they would quit or reduce smoking if so advised by a health professional (HEW, 1976).

Although individual counseling is a valid technique, approaches most certainly vary among professionals. The effects of individual approaches to changing smoking behavior have not been widely studied. However, Jenks, Schwartz, and Dubitzky (1969) have observed considerable differences among professional psychologists treating smokers. They report that unfounded preconceptions often appeared to handicap the counselor's performance in assisting smokers to stop. The researchers conclude that

the appropriate method by which to motivate smokers in quitting is not intuitively obvious, even to trained mental health professionals.

### Medication

There are two general categories of pharmaceutical agents designed to help people quit smoking (Schwartz, 1977). These are chemicals designed to help smokers give up the tobacco habit and drugs, usually prescribed, to help the smoker deal with withdrawal symptoms. Lobeline sulphate is the most common substitute for nicotine. It is the contention of some researchers that lobeline will satisfy the physical craving for nicotine which many smokers report when attempting to quit; it also irritates the mouth, throat, and stomach. Other products such as astringent mouthwashes are used to diminish sensory drives. Gritz and Jarvik (1977) express serious doubts about the efficacy of both lobeline and astringents, reporting no significant difference in results between these treatments and a placebo treatment.

A variety of drugs have been used, including sedatives and tranquilizers, to help ease the commonly experienced physical symptoms of withdrawal. These symptoms include sleep disturbances, nervousness, weight gain, fatigue, and irritability. Evidence suggests tranquilizers are ineffective and may even have a negative effect on smokers

seeking to quit (Schwartz and Dubitzky, 1968-B). Schwartz (1979) states that it would appear drugs do not enhance long-term success rates.

### Hypnosis

Hypnosis is often combined with other treatment modalities such as group counseling or psychotherapy. Teaching the smoker self-hypnosis and relaxation techniques is a common practice, the idea being that although one session of hypnotherapy is inadequate, the patient can self-reinforce the therapist's initial efforts. Spiegel (1976) describes a program which uses hypnosis as a way of lowering defenses, thus aiding the smoker to be more receptive to a new perspective on smoking. He states that through this new receptivity, the smoker develops a commitment to his own well-being, a commitment which is reflected in enhanced respect for his body. The results from using hypnosis as a treatment technique are mixed (Schwartz, 1978). Although some practitioners indicate a high success rate (90 percent and higher), outcomes of other attempts have proved very disappointing (less than 10 percent).

### Behavioral Methods

Lichtenstein and Danaher (1976) categorize behavioral smoking control strategies into two broad categories:

aversion strategies and self-control strategies. Self-control was discussed with "self-care" techniques because self-control techniques emphasize what one does for oneself. Aversion techniques, however, tend to be "other-care" in nature. Lichtenstein and Danaher write:

Aversion strategies aim at suppressing smoking behavior and usually, but not necessarily, emphasize laboratory sessions and minimize homework assignments. Self-control strategies emphasize homework assignments and usually, but not necessarily, minimize aversion control (1976:89).

Aversion strategies include three major kinds of aversion stimuli -- electric shock, cigarette smoke, and covert sensitization. Schwartz (1978) writes that results from electric shock treatments have generally been poor; however, despite the reported poor outcomes, many proprietary clinics have relied heavily on shock treatment as their principal therapeutic tool. Using cigarette smoke as the aversive stimuli, researchers have carefully studied two methods of aversion therapy: satiation and rapid smoking. Satiation requires the smoker to increase the number of cigarettes consumed while maintaining a fairly normal day-to-day routine. It is assumed that as the smoker increases consumption, smoking will lose its rewarding properties (Lichtenstein, 1971). Rapid smoking requires the subject to increase the rate of smoking -- usually one puff every six seconds -- for either the duration of a cigarette, a specified amount of time, or

until the subject becomes nauseated. Although, objections to the rapid smoking techniques have been raised based on both ethical and medical grounds (Lichtenstein and Danaher, 1976), currently, rapid smoking appears to be the most promising aversive technique (Schwartz, 1978).

The third major aversion strategy, covert sensitization, is a cognitive process designed to produce avoidance behavior through the use of the smoker's imagination. The smoker is directed to imagine he is receiving noxious stimulation or pleasant feelings and to associate these internal states with images of smoking or not smoking. Several researchers write that overall the results of covert sensitization have been weak.

### Group Programs

Smoking cessation groups are held in diverse settings and are led by a variety of leaders. Public health departments, voluntary health agencies, psychologists, university-related researchers, and commercial firms all offer group oriented cessation programs. Groups usually consist of eight to twenty members and are from four to ten weeks long. The format of the group approach depends on the philosophy and research goals of the supporting agency and on the skills of the leader. Frequently, group programs examine smoking motivation (see Appendix I),



offer information relative to quitting, and provide support to the quitting process. Established clinics will often follow a specific format and time table (see Appendix C). Saunders (1975) views the group smoking clinic as a sequential series of structured experiences with fairly predictable outcomes (1975). Schwartz (1978) writes that group success correlates with the leader's experience in smoking cessation activities.

Influenced by the recent holistic health trend, groups programs are now incorporating exercise, stress management, relaxation techniques, nutrition education, and weight-control techniques. Harrup (1979-A) feels that assertiveness training must also be seriously considered as a valuable component in a smoking cessation program. Her theory is that some smokers have developed a pattern of lighting up a cigarette in lieu of expressing their feelings -- especially negative affects.

The American Cancer Society (ACS) offers one of the most widely known group programs (Appendix C). Saunders (1978) states that although the ACS program has been implemented in some two thousand locations throughout the United States, few outside evaluations have been conducted. An evaluation by Pyska, Ruggels, and Janowicz (1977) of twenty-nine ACS clinics revealed abstinence rates of 30 percent at six months, 22 percent at twelve months, and 18 percent at eighteen months. They suggest a need for further evaluation.

## Related Issues

Although not discussed in this paper, several other issues are pertinent to the question of smoking cessation. Among these are the issues of fear-arousing techniques (Leventhal and Kafes, 1963), of quitting "cold turkey" versus tapering off (Powell, 1979), of tailoring treatment to individual smokers (Best, 1975), and the effectiveness of allowing smokers the opportunity to select their own particular withdrawal methods (Schwartz and Dubitzky, 1969). High risk populations present another relatively new area for exploration (Danaher, 1978). In addition, there are the issues of the reliability of measurements (Danaher and Lichenstein, 1976) and the prevention of post-treatment relapse rates (Hunt, 1971).

## Cessation Programs in the Work Environment

As discussed in Chapter 1, employees have demonstrated a growing interest in the smoking employee. Reasons for this interest include health, economics, and productivity. Currently, 3 percent of all United States companies and 6 percent of all Canadian companies are offering smoking cessation activities for their employees (Business Week, 1978). Companies have also investigated the indirect effects of smoking employees. In 1976 the Canadian government conducted a survey to gauge the level of discomfort experienced by employees exposed to various

levels of atmospheric cigarette smoke. They concluded that the number of people who indicated discomfort from the secondhand effects of cigarette smoke was significant enough to warrant further attention (Thornton, Pearlman, and Lewis, 1976).

To date, a variety of work site smoking cessation activities have been implemented. A number of firms have chosen to utilize the physician-counseling approach by taking advantage of annual or biannual company-sponsored physical examinations. This one-to-one approach is frequently supplemented with pamphlets and film strips. Danaher (1978) points out that one important feature of the physician model is that it is viewed by employees as being unobtrusive and part of the normal routine. The occupational nurse, more widely employed in industry, represents another viable counseling possibility (Robbie, 1979).

In addition to the physician model, Danaher (1978) has identified the use by the business community of three types of "in-house" smoking cessation programs: facilitated groups and educational programs, incentive programs, and the prohibition of smoking.

Group programs have been offered by a number of firms. Campbell Soup, having utilized such an approach, estimates that their company will ultimately realize a savings of \$25,000 for each career employee who successfully

quits smoking (Kenny, 1979). Most group treatments are similar to the American Cancer Society Model described in Chapters 2, 3, and Appendix C. Recently, some firms have investigated the feasibility of incentive programs or the systematic monetary rewarding of successful ex-smokers (Kelleher, 1978; American Lung Association, 1979). Usually such programs are concerned with work-related smoking only and are based on self-reported data (Rosen and Lichtenstein, 1976). Prohibition programs are found more frequently in those environments where there is potential exposure to synergistic agents. Even when strict no-smoking regulations are enforced, most firms offer their employees the opportunity to receive formal smoking cessation assistance (Ellis, 1978).

Approaching the problem from an epidemiological perspective, some researchers have begun to study smoking characteristics by type of employment. Sterling and Weinkan (1976) write that one cannot look at smokers independent of their occupational status. They feel that occupation can be both a precursor and reinforcer to individual smoking behavior. Among other findings they report that the blue-collar and nonmanagerial white-collar workers tend to smoke more and are less likely to stop. In light of such data, occupational specialists feel that the industrial-based smoking cessation program is probably the most cost-effective avenue for reaching

the largest number of blue-collar and young workers (West, 1979).

In making recommendations for future occupational smoking cessation programs, Danaher (1978) writes that the work site program offers two vital features: first, the on-site program reduces personnel costs, such as lost time, and eliminates the transportation problems associated with clinic-based programs; secondly, the work site program presents greater opportunity for careful monitoring and follow-up over an extended period of time.

## CHAPTER 3

## RESEARCH DESIGN AND METHODOLOGY

This research was conducted to answer the following questions: (1) Is there a significant difference in smoking behavior between smokers receiving cessation treatment and nontreated smokers? (2) Is there a significant difference in smoking behavior between smokers receiving cessation treatment in a group setting and smokers receiving cessation treatment via a self-directed, self-help kit? and (3) From a preselected list, can a set of personal/demographic variables be identified which, either singly or in combination, serve as correlates of smoking reduction/cessation?

Population Characteristics

The population selected for this research was employees of the Resources Agency, State of California (see Appendix G). Specifically, the research population was limited to those employees located in the Agency's headquarters building in Sacramento, California. (Sacramento, the state capital, is a metropolitan area of approximately 700,000 population, and it is situated in California's Central Valley, ninety miles northeast of San Francisco.) The Resources Agency, as its name implies, is responsible for management of the state's natural resources such as water, forests, coastline, air quality, and parks and

recreation. The headquarters building, where this study was conducted, houses some 2,500 full-time employees, most of whom are white-collar workers. Because of the scope and diversity of its services, the Agency employs people with a variety of skills and educational backgrounds. Job descriptions range from beginning clerks to attorneys, engineers, and Ph.D. economists.

### Source of Data

The 218 subjects of this research were identified through a smoker's questionnaire (Appendix A) circulated to all 2,500 employees of the Resources Agency. Using federal government statistics (U.S. Public Health Service, 1979) which estimate that 42 percent of adult males and 32 percent of adult females smoke, the researcher calculated that there were approximately 925 smokers (37 percent) within the target population. Of the 2,500 employees, 315 responded and 280 indicated a desire to participate in a smoking cessation program. From these 280 subjects, 218 were randomly selected and assigned to treatment.

### Characteristics of the Subjects

All subjects, full-time employees of the Resources Agency, State of California, were at least light smokers (1-10 cigarettes per day) as defined in the smoker classification system used by the American Cancer Society. All subjects were those current smokers who expressed a

desire for assistance in giving up smoking. The following table provides a demographic profile of the participants in this study. It should be noted that sex, smoking rate, and job status data were obtained from both treatment and control subjects (N=218), whereas data on marital status, age, education, and years-smoked were obtained from treated subjects only (N=158). As detailed later, this difference was part of the research design. In an effort to avoid control contamination or a "minimal treatment effect," the researcher administered only the intake questionnaire to the Control Group (N=60).

TABLE 4

## SUBJECT PROFILE

Sex (N=218)	No. of Persons	Percentage of Subject Population
M	106	48.6%
F	112	51.4%

Cigarettes Smoked Per Day (N=218)	No. of Persons	Percentage of Subject Population
0 - 9	2	.9%
10 - 19	19	8.7%
20 - 29	60	27.5%
30 - 39	85	39.0%
40 - 49	32	14.7%
50 - 59	14	6.4%
60+	6	2.8%



Job Status (N=218)	No. of Persons	Percentage of Subject Population
Supervisory	42	19.0%
Rank and File	176	81.0%

Marital Status (N=158)	No. of Persons	Percentage of Subject Population
Single	22	13.9%
Married	100	63.3%
Widowed	4	2.5%
Divorced/Separated	32	20.3%

Age (N=158)	No. of Persons	Percentage of Subject Population
20 - 29	30	19.0%
30 - 39	54	34.2%
40 - 49	38	24.0%
50 - 59	34	21.5%
60+	2	1.3%

Education (N=158)	No. of Persons	Percentage of Subject Population
Some high school	2	1.3%
High school degree	29	18.3%
Some college	75	47.5%
College degree	52	33.0%

Years Smoked (N=158)	No. of Persons	Percentage of Subject Population
0 - 5	6	3.8%
6 - 10	23	14.6%
11 - 15	24	15.2%
16 - 20	30	19.0%
21 - 24	22	13.9%
25+	53	33.5%

---

### Randomization and Treatment Assignment

Kerlinger defines the principle of randomization by stating that "in random procedures, every member of a population has an equal chance of being selected" (Kerlinger, 1967:56). He further notes that a sample can be representative of the population from which it is drawn only if it is drawn randomly. Similarly, Downie and Heath (1974) write that the usual statistics are appropriate only when individual subjects have been randomly assigned to treatment.

To facilitate randomization and subject assignment, the researcher used the following procedure: a pool of "interested smokers" was first generated from the data received from the initial smoker questionnaire (see Appendix A). From this pool, 218 participants were selected through the use of a table of random numbers. After each treatment -- Group, Self-help, and Control -- was randomly assigned a number from one to three, subjects were sequentially assigned to treatment.

### Treatment Description

The treatment methods were modeled on two approaches currently employed by the American Cancer Society. Treatment I, Group Treatment, represents the traditional group approach currently employed by the American Cancer Society in some two thousand clinics nationwide. The procedure entails twice weekly meetings, two hours each,

for a period of one month (Appendix C). According to Saunders (American Cancer Society, 1971), the theoretical construct of the group program is based on an exploration of the causes; that is, the emotional, historical, and motivational reasons for smoking are explored, rather than manipulating or conditioning the subjects' smoking behavior. Saunders also states that the underlying strength of the group program, as reported in evaluations by participants, is the opportunity for sharing similar experiences and offering mutual encouragement.

Treatment II, Self-help Treatment, consists of the recently developed "I Quit Kit" (Appendix D), which is designed to be a self-directed and self-motivated individual program. The kit incorporates several of the exercises from the group program as well as portions of Walter Ross' book You Can Quit Smoking in 14 Days (Ross, 1974). In contrast to the Group Treatment, which seeks to facilitate a significant emotional experience directly influencing the participants' smoking behavior, the Self-help Kit is primarily informational, with any emotional response being individual to each smoker. Both treatments were developed under the auspices of the American Cancer Society (Saunders, 1978).

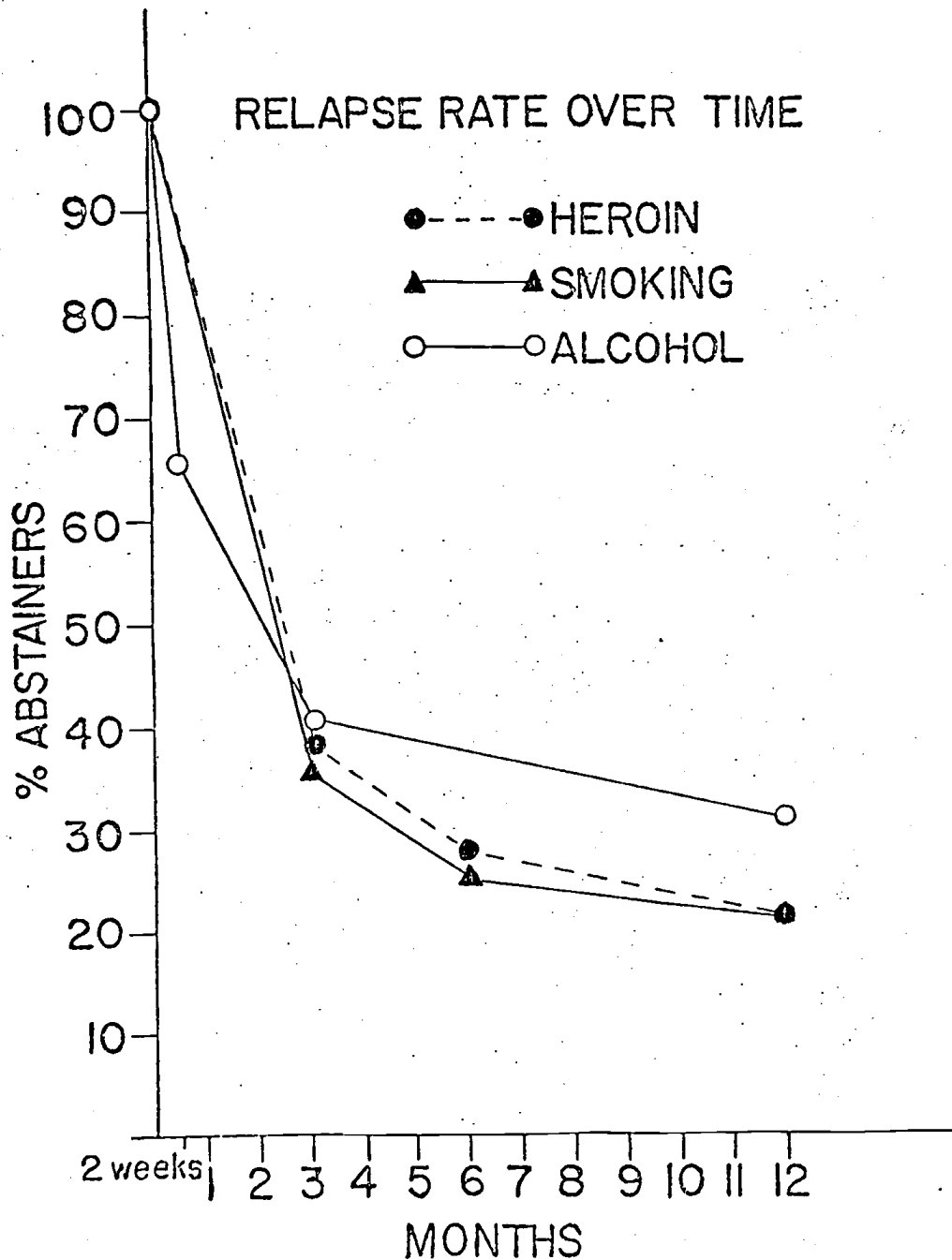
#### Measurement Procedures

At initiation, each treatment group was assigned a treatment period of four weeks. After a group's completion

of the four-week treatment period, each subject's smoking behavior was recorded as the number of cigarettes smoked in the previous forty-eight hours. Relying on previous work (Schwartz, 1979), the researcher felt that the forty-eight-hour period was recent enough for subjects to remember accurately. It was also of sufficient length to allow for the "averaging out" of any sporadic changes in smoking behavior caused by unusually stressful or unique situations. Since the baseline measurement was based on each subject's reported daily consumption of cigarettes, the forty-eight-hour measurement was divided by two to calculate a daily average.

Each subject was contacted by telephone sixteen weeks after treatment initiation. This allowed for a twelve-week interval after completion of the one-month treatment period. The use of this twelve-week interval period was based on Hunt's 1971 study (Table 5), which demonstrated that regardless of treatment modality 90 percent of all recidivism would occur in the three months immediately following treatment. Subjects were not informed that formal follow-up measurements were to be conducted. Upon completion of the one-month treatment period, Subjects were casually told that the researcher would contact them sometime in the future. The purpose of this contact, they were informed, would be to receive their personal evaluation of the treatment to which they were assigned. The sixteen-week follow-up data consisted

TABLE 5\*



\*From William A. Hunt, L. Walker Barnett, and Laurence G. Branch, "Relapse Rates in Addiction Programs." Journal of Clinical Psychology (27) 1971, pg 455-456.

of the estimated number of cigarettes smoked by each subject during the forty-eight hours prior to the contact.

### Baseline, Dependent, and Independent Variables

To aid the reader, the following section will define and describe the baseline measurement, the dependent variables, and the independent variables.

#### Baseline Variable

The baseline measurement was designated as the "X variable." The X variable was self-reported and equals the usual number of cigarettes smoked in a day (twenty-four hours). The baseline measurement was conducted prior to treatment or control assignment.

#### Dependent Variables

- Y1 Treatment Measurement: conducted upon completion of the one-month (four-week) treatment period and equals the average number of cigarettes smoked in a twenty-four-hour period.
- Y2 Follow-up measurement: conducted four months (sixteen weeks) after treatment initiation and equals the average number of cigarettes smoked in a twenty-four-hour period.
- C1 One-month change measurement: measures change in smoking behavior upon completion of the one-month

(four-week) treatment period. C1 equals the average daily smoking rate measured upon completion of treatment (Y1) minus the baseline smoking rate (X). The formula for C1 was  $C1=Y1-X$ .

C2 Four-month change measurement: measures change in smoking behavior at the conclusion of the four-month (sixteen-week) follow-up period. C2 equals the average daily smoking rate measured sixteen weeks after treatment initiation (Y2) minus the baseline smoking rate (X).

The formula for C2 was  $C2=Y2-X$ .

C3 Four-month categorical measurement: represents a categorical measurement of change in smoking behavior as based on the four-month (sixteen-week) follow-up measurement (C2). Subjects were assigned the numbers 0, 1, and 2 as follows:

0 = No change or a change of less than 50 percent in individual daily smoking rate;

1 = A 50 percent or greater reduction in individual daily smoking rate; and

2 = a 100 percent reduction in individual daily smoking rate.

The purpose of C3 was to obtain a categorical measurement (i.e., quitters, reducers, unables) in addition to the numerical measurements provided by C1 and C2.

## Independent Variables

Independent variables (excluding the baseline measurement) were monitored for two purposes. The first purpose was to identify possible correlates of success in a smoking cessation program. Items examined as potential correlates included personal, demographic, and attitudinal variables (Appendix B). Secondly, the monitoring of basic demographic variables enabled the researcher to more effectively control the potential effects of extraneous variables. Kerlinger (1967: 284) writes: "The control of extraneous variables means that the influences of independent variables extraneous to the purposes of the study are minimized, nullified, or isolated."

Items included as potential correlates of success were labeled I-1 through I-32. These variables are presented in two parts: demographic items and smoking-related attitudes.

### Demographic Items

I-1	Sex
I-2	Age
I-3	Marital Status
I-4	Are there children less than 12 years old in S's household?
I-5	Are there children 12-18 years old in S's household?
I-6	Age S began smoking
I-7	Level of formal education
I-8	Number of persons in S's household who smoke
I-9	Smoking status of S's spouse
I-10	Number of persons in S's household who had stopped smoking



- I-11 Years S had smoked
- I-12 Number of previous attempts by S to stop
- I-13 Previously, the longest period S had gone without smoking
- I-14 Number cups of coffee S drank per day
- I-15 Did S have physical during previous year?
- I-16 Times S had been hospitalized during previous 5 years
- I-17 Smoking related/aggravated health conditions

#### Smoking-Related Attitudes

- I-18 How hazardous do you actually think smoking is to your health?
- I-19 How easy is it to picture yourself as a non-smoker?
- I-20 Other than smoking, how would you rate your willpower?
- I-21 How much guilt do you feel about smoking?
- I-22 How important is it to you to stop smoking?
- I-23 At this time, how confident are you of stopping the smoking habit?
- I-24 Do you think you will be smoking 5 years from now?
- I-25 With regard to quitting cigarettes, how would you rate your willpower?
- I-26 Compared with others, how often do you feel anxious?
- I-27 How many of your friends smoke cigarettes?
- I-28 How much does the thought of never smoking again disturb you?
- I-29 How often do you smoke alone?
- I-30 How important is it to "others" (spouse, children, relatives, friends) that you stop smoking?
- I-31 How much pleasure do you get from smoking cigarettes?
- I-32 Compared with other periods of your life, how satisfying have the past 6 months been?

#### Reliability

In defining reliability, statisticians have used words such as dependability, stability, consistency, and accuracy. Kerlinger (1967:430) defines reliability with the following question, "If we measure the same set of

objectives again and again with the same or comparable measuring instrument, will we get the same or similar results?"

As previously indicated, all data were self-reported. Chapter 1 stated the assumption that the information provided by the subjects was accurate and sincere. To check data reliability, the researcher employed the following procedure: The initial questionnaire (see Appendix A), mailed to all employees of the Resources Agency, asked respondents to indicate their usual daily smoking rate. This information served as the baseline measurement for the control group. By avoiding personal contact during the entire treatment period with subjects assigned to the control group, the researcher hoped to avoid a "minimal treatment effect." The control group was personally contacted at the conclusion of the sixteen-week follow-up period, and a measurement of their daily smoking rate was taken. These two measurements were then compared for possible differences.

### Questionnaire

Two questionnaires were developed and employed by the researcher:

#### Questionnaire A: Smoking Questionnaire (Appendix A)

A basic smoking questionnaire was developed by the researcher for use in this study. Its primary purpose

was to provide data regarding the number of smokers interested in participating in a smoking cessation program. Secondly, it provided the phone numbers and addresses of those smokers who were randomly selected as subjects and assigned to treatment or control groups. The questionnaire, sent to each employee located in the Agency Headquarters Building in Sacramento, was administered entirely through interoffice mail. (The Personnel Officer reviewed the document for possible infringement of employee rights and assisted in its distribution and collection.)

Questionnaire B: Smoker's Profile (Appendix B)

Questionnaire B was developed by the researcher to provide demographic and other personal data to be utilized in Part II, the descriptive section, which sought to develop a correlative index for smoking behavior. Questionnaire B was five pages in length and contained 32 items; it was constructed, piloted, and written according to procedures recommended by Burwen (1978). The site chosen for the pilot test was San Francisco State University (SFSU). After consultation between the researcher and members of the Department of Social Psychology, SFSU, Questionnaire B was piloted for comprehensibility and ease of administration. A selection of undergraduate and graduate students enrolled at SFSU, who were current smokers, served as the pilot population. After refinement, Questionnaire B was administered for further evaluation

to a small sample of State of California employees who were not associated with the potential experimental population. Approximately ten minutes were required for its administration.

### Treatment Administration

Permission to conduct this study was obtained from Huey Johnson, Secretary, Resources Agency, State of California (Appendix E). Preliminary planning meetings were held with the Directors of Personnel and Training, who assisted in making the necessary arrangements to secure facilities and equipment required to conduct this research.

During September 1978, an initial questionnaire was mailed to all twenty-five hundred employees of the Resources Agency located in the Headquarters Building, Sacramento, California (Appendix A). The purpose of this questionnaire was to generate a "pool" of cigarette smokers who expressed interest in an organized program to help them stop smoking. Cigar and pipe smokers were excluded as were smokers currently receiving cessation treatment. From this questionnaire, 315 responses were received with 280 expressing interest in a program to help them stop smoking.

Subjects were randomly assigned to either the Group Treatment, Self-help Treatment, or a nontreated Control. Specific procedures for each were as follows:

### Group Treatment

Subjects assigned to the Group Treatment were contacted initially by telephone at their usual place of work. The same explanations and directions were given to all subjects. They were told that in response to their request for assistance, a smoking cessation program was being made available to them and would require a total of sixteen hours participation. They were reminded of the memorandum from the Secretary's Office which endorsed the program and approved release time from their normal activities. To avoid potential problems, the researcher urged each subject to clear the release time necessary for participation with his/her immediate supervisor. Subsequently, eight groups were initiated. Each group was assigned to a single conference room for the duration of treatment. At the first meeting, all subjects completed the "Smoker Profile" (see Appendix B) and received an orientation to their assigned treatment. After each four-week program, a treatment measurement was recorded. The researcher later telephoned all subjects at work to complete the sixteen-week follow-up. (Table 6 displays how the data was acquired for this research.)

### Self-help Treatment (Self-help Kit)

Subjects assigned to the Self-help Treatment were contacted initially by telephone at their usual place of

work. The same explanations and directions were given to all subjects. They were informed that in response to their request for assistance, a smoking cessation program was being made available to them and would require that they meet with the researcher once for a short period of time, approximately fifteen minutes. It was emphasized that this treatment was approved by the Agency and sponsored by the American Cancer Society. An appointment was made. The actual meeting took place in a reserved conference room, at which time each subject completed the Smoker Profile (Appendix B) and received the Self-help Kit with appropriate directions for its use. Approximately fifteen minutes were required for each subject to finish these two tasks. The researcher later contacted all subjects by telephone during the workday to complete the four-week treatment measurement and the subsequent sixteen-week follow-up.

### Control

Subjects assigned to the Control were contacted only at the conclusion of the sixteen-week assessment period so that control contamination could be avoided. This procedure was based on the assumption that any additional contact might in some way influence individual smoking behavior and create an unintentional experimental effect. Baseline measurements for the controls were obtained from the intake questionnaire while the sixteen-week follow-up

was completed by telephone. At the conclusion of the sixteen-week assessment period, those subjects assigned to the control group were offered appropriate assistance, with most accepting. (Table 6 displays how the data were acquired for this research.)

TABLE 6  
SOURCE OF DATA BY TREATMENT

<u>Sources of Data</u>	<u>Treatment</u>		
	<u>*G</u>	<u>SH</u>	<u>C</u>
Smoker Questionnaire	X	X	X
Smoker Profile	X	X	
Treatment Measurements (four weeks)	X	X	
16-Week Follow-up	X	X	X

---

G = Group Treatment  
SH = Self-help Treatment  
\*C = Control

#### Treatment Initiation and Test Instructions

The study was reviewed and approved by the Oregon State University Committee for Protection of Human Subjects (see Appendix H). This review was done in accordance with the policy on protection of human subjects of the U.S. Department of Health, Education, and Welfare (Appendix I). To satisfy the requirements of this act and to enhance the reliability and validity of this study, the researcher provided the following test instructions and initiation to treatment before administering the "Smoker's Profile."

The researcher introduced himself as coordinator of the smoking cessation program (his actual title while conducting the program for the Resources Agency) and also indicated that he was a college instructor. All subjects were then given a brief explanation concerning the nature of their treatments. It was explained that their participation was part of a study to determine how smokers wishing to quit might be helped in their work environment (Appendix I).

Regarding anonymity, all subjects were assured that their responses to the "Smoker Profile" and data concerning their treatment activities would be treated with complete confidentiality by the researcher. The use of reference numbers for each subject was explained.

Regarding the Likert-type questions in the "Smoker Profile" (Appendix B: Items 18-31), it was explained that there were no right or wrong answers and that each subject was to respond according to his/her beliefs and/or feelings about each item. All subjects were encouraged to query the researcher if any of the test or treatment material was unclear to them.

#### Treatment of Data

Data from the "Smoker Questionnaire" (Appendix A) were transcribed to master summary sheets (N=218), which included names of all respondents, their sex, current



smoking rate, work address, and phone number. In addition, each subject was assigned a permanent identification number. These summary sheets comprised the "pool of interested smokers" from which random assignment to treatment was made. No further data were collected from smokers assigned to the control (N=60) until the sixteen-week follow-up; however, all subjects assigned to treatment (N=158) completed the "Smoker Profile" (Appendix B).

Data for all subjects, control and treatment, were transferred to master tabulation forms after the sixteen-week assessment period. These forms included each subject's identification number, baseline rate, treatment rate (for treated subjects), and sixteen-week follow-up. In addition, Items 11-132 of the "Smoker Profile" (Appendix B) were included for treated subjects.

At this point, data were transferred to IBM cards and processed at the San Francisco State University Computer Center. Several inspections were made to ensure that all data were transferred and copied correctly. A computer consultant, employed by San Francisco State University, reviewed data cards with a recheck procedure before approving them for statistical analysis.

### Analysis of Data

The statistical tools selected for this research were as follows: analysis of variance, Student's t-test,

Pearson product-moment correlation coefficient, and Chi-square. The actual computations were done primarily using the "Statistical Package for the Social Sciences" (Second Edition, 1975).

Analysis of variance was selected as the primary statistical tool. It was employed to demonstrate the effectiveness of randomization and to examine the question of treatment effectiveness. The analysis of variance, also referred to as the F statistic, was used to determine whether significant differences existed between treatment and control groups as indicated by mean scores derived from individual smoking rates. According to Courtney and Sedgwick (1975), it is appropriate to use the F statistic when equidistant interval data are collected and when the following major assumptions are met: first, that the dependent variables (which in this study would consist of the one-month [four weeks] treatment evaluation and the four-month [sixteen week] follow-up) are normally distributed; second, that variables are common or equal; and, third, that samples have been randomly drawn. (The issues of normality and randomization are further addressed in Chapter 4.) When significant differences were found with the analysis of variance, the Scheffe' method was used to determine where they existed. When data were categorical, chi-square testing was used to determine if significant differences existed.

### Statistical Hypotheses

For the purpose of statistical analysis, all hypotheses were stated in the null form. The .05 level of significance was selected as the acceptable level of statistical significance.

This investigation was designed to examine the following statistical hypotheses:

$H_{01}$ : There will be no significant differences in mean smoking behavior among smokers assigned to Group Treatment, Self-help Treatment, and smokers assigned to the Control.

$H_{a1}$ : There will be significant differences in mean smoking behavior among smokers assigned to Group Treatment, Self-help Treatment, and smokers assigned to the Control.

$H_{02}$ : There will be no significant difference in mean smoking behavior between smokers assigned to Group Treatment and smokers assigned to Self-help Treatment.

$H_{a2}$ : There will be significant difference in mean smoking behavior between smokers assigned to Group Treatment and smokers assigned to Self-help Treatment.

### Summary

This chapter has detailed the methodology used to study the effect of smoking cessation treatment administered in a work setting, and has identified the dependent and independent variables. The procedures for treatment of data were reviewed. Chapter Four includes the results of this investigation.

## CHAPTER 4

### RESULTS

The research was conducted to determine the effectiveness of smoking cessation treatment administered in a work setting. Subjects were randomly assigned to one of three treatments: (1) a Self-help Treatment, (2) a Group Treatment, or (3) a non-treated Control.

A baseline measurement was collected on each subject. This information, which was self-reported, consisted of "the usual number of cigarettes smoked in a 24-hour period." Treatment effectiveness was measured four weeks after treatment initiation, and a follow-up was conducted sixteen weeks after treatment initiation. The treatment effectiveness measurement and the follow-up measurement consisted of the reported number of cigarettes smoked in the forty-eight-hour period prior to contact. Both measurements were converted to a daily average.

Treatment evaluation comprised the experimental component (Part I) of the research. In addition, subjects assigned to treatment completed a questionnaire designed to gather information for the descriptive component (Part II) of the research. While not included in formal hypotheses, the descriptive component examined a variety of specific personal and demographic characteristics as potential correlates of success in a smoking cessation program.

This chapter discusses the effectiveness of randomization, analyzes treatment effectiveness, and examines potential correlates of success.

### Effectiveness of Randomization

Because this research was concerned with the evaluation of smoking cessation techniques, randomness of the baseline variable was essential to meaningful results. As defined, the X variable equaled the usual number of cigarettes smoked in a day (twenty-four hours) as measured prior to treatment assignment.

The following table displays, by treatment and control assignment, the effectiveness of randomization with regard to the X variable.

TABLE 7

#### BASELINE VARIABLE (X) BROKEN DOWN BY TREATMENT

<u>Treatment Assignment</u>	<u>(N)</u>	<u>Mean</u>	<u>S.D.</u>
Group Treatment	64	29.02	10.83
Self-help Treatment	94	28.14	10.99
Control	60	25.97	11.33

Examination of Table 7 shows the mean baseline smoking rates to be very close, ranging from just under twenty-six cigarettes per day to just over twenty-nine. Furthermore, the standard deviations are close with a general range of eleven cigarettes per one standard deviation unit.

Analysis of variance was used to compare the means of the X variable by group and is displayed in Table 8.

TABLE 8

ANALYSIS OF VARIANCE OF THE GROUP TREATMENT,  
SELF-HELP TREATMENT, AND CONTROL ON THE BASELINE

ANALYSIS OF VARIANCE					
Source	SS	df	MS	F	Sig.
Between Groups	306.99	2	153.50	1.27	N.S.
Within Groups	26014.12	215	120.97		

$p > .05$  ( $F = 3.04$ ,  $df = 2, 215$ )

Inspection of the F ratio shows the computed value of 1.27 to be not significant, which would indicate that the means of the three groups are close. Therefore, it may be assumed that the X variable was controlled and randomization was effective.

Table 9 examines the means, variances, and F scores for each independent variable by treatment group. As outlined in Chapter 3, data which comprised the independent variables were drawn from the "Smoker Profile" (Appendix B), which was administered to treated subjects only ( $N=158$ ). It is also noted that Table 9 includes only the numerical variables. Categorical variables were examined by chi-square test and are presented in Table 10.

TABLE 9

MEANS, STANDARD DEVIATIONS AND F RATIOS  
OF THE NUMERICAL INDEPENDENT VARIABLES  
FOR THE GROUP AND SELF-HELP TREATMENTS

Variable	Self-help Treatment(N=94)		Group Treatment (N=64)		F	Sig.
	Mean	S.D.	Mean	S.D.		
I-2	2.64	1.10	2.38	1.07	.95	N.S.
I-6	3.38	.75	3.20	.76	1.03	N.S.
I-7	3.08	.71	3.25	.75	3.94	*
I-8	2.15	1.46	1.53	1.23	6.65	*
I-10	4.32	1.70	4.13	1.47	.55	N.S.
I-11	4.39	13.64	4.13	11.70	.63	N.S.
I-12	2.05	1.58	2.23	1.78	.19	N.S.
I-13	104.17	125.26	102.64	117.78	.06	N.S.
I-14	3.62	2.35	4.00	2.42	4.67	*
I-16	.77	2.02	.66	1.17	.34	N.S.
I-18	5.45	1.42	6.09	1.03	5.49	*
I-19	3.27	1.82	3.09	1.35	.21	N.S.
I-20	4.58	1.42	4.52	1.48	.04	N.S.
I-21	4.01	2.00	4.31	2.05	1.26	N.S.
I-22	5.28	1.42	5.72	1.47	2.80	N.S.
I-23	3.43	1.60	3.75	1.51	.86	N.S.
I-24	4.64	1.71	4.73	1.61	4.25	*
I-25	3.16	1.77	3.17	1.65	.16	N.S.
I-26	4.09	1.67	4.73	1.57	2.57	N.S.
I-27	4.12	1.49	4.09	1.80	.12	N.S.
I-28	3.18	1.87	3.28	1.80	1.39	N.S.
I-29	6.01	1.34	6.02	1.35	1.11	N.S.
I-30	5.36	1.81	5.50	1.59	.88	N.S.
I-31	5.03	2.43	5.09	2.33	.29	N.S.
I-32	4.91	2.08	4.30	2.31	6.40	*

\* $p < .05$  ( $F = 3.91$ ,  $df = 1,156$ )

\*\* $p < .01$  ( $F = 6.81$ ,  $df = 1,156$ )

An inspection of Table 9 reveals only six of the twenty-five independent variables to be significant -- one of which is marginal. It is a general rule of statistics that artifacts, extraneous variables, and chance findings increase with the number of variables tested.



Hays (1966) states that a 5 percent chance factor can be assumed when multiple variables are tested at the .05 level. As seen later (Table 20), those variables with a significant F score in Table 9 do not correlate with the dependent variables and are rejected as correlates of change. Therefore, in view of the results displayed by Table 9, the researcher assumed that the numerical independent variables were controlled.

Table 10 presents the chi-square scores for each of the categorical independent variables.

TABLE 10

CHI-SQUARE RESULTS FOR CATEGORICAL INDEPENDENT VARIABLES

<u>Variable</u>	<u>df</u>	<u>X<sup>2</sup></u>	<u>Sig.</u>
I-1	2	.05	N.S.
I-3	4	6.53	*
I-4	1	.86	N.S.
I-5	1	1.55	N.S.
I-9	2	9.98	**
I-15	1	5.46	*
I-17	1	1.20	N.S.

\*Sig. at<.05 level

\*\*Sig. at<.01 level

As seen in Table 10, variables I-3, I-9, and I-17 proved significant; however, as reported in Table 21, all of these variables were rejected as correlates of change. Therefore, based on the findings reported in Table 10, the researcher assumed that the categorical independent variables were controlled.

### Reliability of Dependent Measurements

Because rate-of-smoking was selected as the basic datum for this study, accuracy of the X variable and dependent variables was crucial. Since both the X variable and dependent variables were self-reported, the question of reliability must be addressed. Kazdin (1974) writes that self-monitoring of smoking behavior is usually confounded by demand characteristics. These include "volunteering for a smoking control project" and "individual expectations of a decreased smoking rate." Kazdin concludes that self-monitored rates are likely to be less than the "real" baseline.

To control demand characteristics, and to check for reliability, the researcher compared the baseline (X) and sixteen-week measurements (Y2) of subjects assigned to the control group. The results of this comparison are displayed in Table 11.

TABLE 11

A COMPARISON OF THE BASELINE AND  
FOLLOW-UP MEASUREMENTS OF THE CONTROL GROUP  
AS A RELIABILITY CHECK OF SELF-REPORTED DATA

<u>No Change in Self Reports</u>			<u>Change in Self Reports</u>		
No. of subjects	<u>X</u>	<u>Y2</u>	No. of subjects	<u>X</u>	<u>Y2</u>
4	10	10	1	10	0
1	15	15	1	20	5
17	20	20	2	20	15
17	30	30	2	20	30
4	40	40	2	30	0
3	50	50	2	30	20
			1	40	30
			1	50	20
			1	60	30
<hr/> N = 47 (78%)			<hr/> N = 13 (22%)		

Examination of Table 11 shows that forty-seven subjects (78 percent) of the control group reported the same rate at both X and Y2. In contrast, thirteen subjects (22 percent) reported a different rate at Y2 than at X. However, two of those reporting change had stopped smoking, and scrutiny of the remaining nine subjects reveals their differences to be minimal in most cases. It is also interesting to note that two subjects reported an increased rate of smoking. According to the work of other researchers (Kazdin, 1974; Lichtenstein, 1976), a 78 percent "no-change" rate is quite acceptable. Finally, as presented in Table 12, the means and standard deviations of X and Y2 for the control group are numerically close.

The data in Tables 11 and 12 demonstrate a consistency between X and Y2 for subjects assigned to the control. These results suggest that subjects were truthful in regard to self-reporting of their smoking rates and that most smokers assigned to control were incapable of unaided self-change.

Although the accuracy of self-reporting is debated (it is reported that smokers underestimate the rate of their habit), the data in Table 11 suggests that for the purposes of this study self-reported data were highly consistent and, therefore, dependable.

## PART I: EXPERIMENTAL COMPONENT

### Effectiveness of Treatment

Table 12 displays the means and variances for each dependent variable by treatment and control assignment. Because C3 represents categorical data, it is included in a separate table and described in terms of percentages. The X variable is included to provide the reader with an encompassing view.

TABLE 12

BASELINE AND DEPENDENT VARIABLES:  
MEANS AND STANDARD DEVIATIONS

<u>Variable</u>	<u>Group Treatment</u> (N = 64)		<u>Self help Treatment</u> (N = 94)		<u>Control</u> (N = 60)	
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>
X	29.02	10.83	28.14	10.90	25.97	11.33
Y1	9.66	14.83	20.91	13.75	Not Measured	
Y2	11.77	14.42	18.96	14.21	24.00	11.65
C1	-19.36	13.26	- 7.23	10.54	Not Measured	
C2	-17.25	12.41	- 9.18	11.01	- 1.97	9.36

Examination of the data in Table 12 reveals several interesting trends when contrasted with the X variable. The Group Treatment demonstrated the greatest change in smoking behavior on both the four-week and sixteen-week measurements. The Self-help change was not as dramatic; however, it was in the desired direction.

It is interesting to note that although the Group Treatment change rate (C1) began to decay at sixteen weeks (C2), the Self-help sixteen-week measurement (C2) showed a slight improvement. When statistically analyzed with a t test, the difference between C1 and C2 proved significant for both the Self-help Treatment and the Group Treatment. The t score for the Group Treatment was 2.29 ( $p < .05$ ,  $t = 1.67$ ,  $df = 63$ ), while the t score for the Self-help Treatment was 2.28 ( $p < .05$ ,  $t = 1.66$ ,  $df = 93$ ). The significant posttreatment increase in smoking

behavior demonstrated by the Group Treatment is compatible with previous research (Schwartz, 1978); however, the posttreatment decrease recorded for the Self-help Treatment contradicts the results reported in previous experimental work (Hunt, 1971). Because of the relatively short follow-up period, the possibility of artifactual or spurious findings cannot be ruled out. A clearer picture of the posttreatment results for the Self-help Treatment can be obtained only via long-term (e.g., one-year) follow-up.

As previously indicated, the purpose of C3 was to provide a categorical or proportional measurement of change to complement the numerical data provided by Y1 and Y2. C3 was computed on the sixteen-week follow-up. Table 13 presents the results of C3.

TABLE 13

DEPENDENT VARIABLE C3 BROKEN DOWN BY GROUP

	<u>Group Treatment</u>			<u>Self-help Treatment</u>			<u>Control</u>		
	0*	1	2	0	1	2	0	1	2
C3	32.3%	27.7%	40.0%	60.6%	21.3%	18.1%	90.0%	5.0%	5.0%
*0 = 50% reduction									
1 = 50% reduction									
2 = 100% reduction									

As indicated in Table 13, the Group Treatment demonstrates clear superiority with regard to abstinence; however, the Self-help Treatment approximates the Group

Treatment in terms of significant reduction. The 40 percent abstinence rate reported for the Group Treatment tends to exceed other group results reported in the literature. Schwartz (1978) analyzed the results of twenty-five separate group programs. He reported a median treatment success rate of 27 percent and a subsequent follow-up success rate (five to eleven months) of 9 percent. Regarding Self-help Treatment, Dubren (1978) found the abstinence rate of two, three-week programs to be 24 percent and 19 percent. As noted in Table 13, the C3 results for the present Self-help Treatment are similar to Dubren's findings; however, C3 was based on a significantly longer follow-up period than employed by Dubren. Therefore, the C3 results suggest that the present Self-help Treatment had a greater impact on smoking behavior than did the treatment studied by Dubren.

Of further interest is the high percentage of nonchange in the Control group. The 5 percent abstinence rate for the Control group is below most nontreated control rates reported in the literature. Abstinence rates for nontreated control subjects have frequently ranged between 10 percent and 15 percent (Guilford, 1972; Schwartz, 1979), although it should be noted that the preponderance of data on nontreated subjects have come from nonexperimental work.

### Normality of Distribution

As stated in Chapter 3, the analysis of variance is predicated on the assumption that the dependent variables are normally distributed. To test this assumption, the researcher used the Pearson goodness-of-fit chi-square test. Specifically, the test was used to determine whether the observed data (Y2, the only dependent measurement taken of all three groups) were significantly different from the theoretical "normal distribution." The results of this test were as follows: Group Treatment,  $\chi^2 = 8.50$  ( $p < .05$ ,  $\chi^2 = 7.82$ ,  $df = 3$ ); Self-help Treatment,  $\chi^2 = 7.90$  ( $p < .05$ ,  $\chi^2 = 7.82$ ,  $df = 3$ ); and Control,  $\chi^2 = .60$  ( $p > .05$ ,  $\chi^2 = 7.82$ ,  $df = 3$ ). As the comparison indicates, the chi-square scores for the Group Treatment and Self-help Treatment were significant at the .05 level, while the chi-square score for the Control was not significant. The researcher notes that though the chi-square scores for two groups were significant (which suggests that the dependent data departed from the theoretical "normal distribution") these scores were not very large.

Hays (1966:378) writes that:

. . . influences made about means that are valid in the case of the normal populations are also valid even when the forms of the population distributions depart considerably from normal, provided that the  $n$  in each sample is relatively large [25+].



Downie and Heath in discussing the robust nature of the analysis of variance write that "the assumption of normality of distribution may be violated provided the departure from normal is not too large" (1974:207). Therefore, because of the chi-square results and the recommendations of the cited authorities, the researcher assumed the analysis of variance was appropriate for the data collected in this research.

#### Comparison of Groups on the Dependent Variables

The technique of analysis of variance was used to compare the means of the Group Treatment, Self-help Treatment, and Control on the dependent variables Y1 and Y2. The reader is reminded that the Control was measured only on the baseline (X) and at the sixteen-week (Y2) follow-up.

Y1 To test the hypotheses that there will be no significant difference in mean smoking behavior between smokers assigned to the Group Treatment and smokers assigned to the Self-help Treatment ( $H_{02}$ ), the researcher used analysis of variance to compare the four-week (Y1) results for both treatments. Table 14 gives the analysis of variance for Y1.

TABLE 14  
ANALYSIS OF VARIANCE OF THE GROUP TREATMENT  
AND SELF-HELP TREATMENT ON Y1

ANALYSIS OF VARIANCE					
Source	SS	df	MS	F	Sig.
Between groups	4826.40	1	4826.40	22.70	**
Within groups	33167.76	156	212.61		

\*\*p < .01 (F = 6.81, df = 1,156)

As reported, the F ratio is highly significant. Furthermore, as only two means were compared, the significant F score indicates that one treatment was more effective than the other. Examination of the means in Table 12 reveals the Group Treatment to be superior to the Self-help Treatment at the conclusion of the four-week treatment period. Thus the hypothesis that the two treatments were not significantly different ( $H_{02}$ ) was rejected, and the alternative hypothesis ( $H_{a2}$ ) was accepted.

Y2 To test the hypotheses that there will be no significant difference in mean smoking behavior among smokers assigned to the Group Treatment, the Self-help Treatment, and the Control ( $H_{02}$ ), the researcher used analysis of variance to compare the sixteen-week (Y2) results. Table 15 gives the analysis of variance table for Y2.

TABLE 15

ANALYSIS OF VARIANCE OF THE  
GROUP TREATMENT, SELF-HELP TREATMENT, AND THE CONTROL ON Y2

ANALYSIS OF VARIANCE					
Source	SS	df	MS	F	Sig.
Between groups	4721.76	2	2360.88	12.90	**
Within groups	39339.31	215	182.97		

\*\*p < .01 (F = 4.71, df = 2,215)

As seen in Table 15, the F ratio was significant. Therefore, the hypothesis that the means of the three groups are equal ( $H_{01}$ ) was rejected, and the alternative hypothesis ( $H_{a1}$ ) was accepted. Because Y2 included three means, it was also necessary to determine where the difference or differences existed. A multiple comparison procedure (the Scheffe' method) was used for this purpose. Downie and Heath (1974) write that the Scheffe' is a rigorous test which reduces the probability of a type 1 error. Table 16 provides the results of this procedure.

TABLE 16

## A SCHEFFE' COMPARISON OF THE MEANS ON Y2

<u>Comparison</u>	<u>F</u>	<u>Sig.</u>
Treatment vs. Control	22.17	**
Group vs. Control	32.69	**
Self-Help vs. Control	9.00	*
Group vs. Self-Help	10.75	**

\* $p < .05$  ( $F = 6.10$ ,  $df = 2, 215$ )

\*\* $p < .01$  ( $F = 9.50$ ,  $df = 2, 215$ )

As is displayed in Table 16, several significant differences were highlighted by the Scheffe'. These differences were based on the smoking behavior of all subjects sixteen weeks after treatment initiation. Using the means in Table 12 as a reference, the researcher determined that treated subjects achieved a markedly greater reduction in smoking activity than did subjects assigned to a nontreated control. When contrasted with the Control, both treatments demonstrated individual superiority over nontreatment; however, as reported, the Group Treatment achieved a significantly higher F score than did the Self-help Treatment. Finally, in direct comparison, the Group Treatment was shown to be statistically more effective than the Self-help Treatment.

### Analysis of Change

A unique feature of smoking research is the physical nature of the dependent variable. The cigarette, which comprises the basic unit of smoking behavior, readily lends itself to tabulation.

Taking advantage of this opportunity, the researcher chose to analyze treatment effectiveness from two perspectives. The first perspective, represented by the dependent variables Y1 and Y2, analyzed the status of each treatment group at a single point in time (i.e., Y1 equals four weeks and Y2 equals sixteen weeks). In addition to the fixed perspective, which was based on a comparison of the means, this researcher addressed treatment effectiveness by analyzing the difference between the means of change. In contrast to Y1 and Y2, the hypothesis of change examined treatment effectiveness between two points in time. These were designated C1 and C2. As previously defined, these variables were computed by subtracting the baseline (X) variable from the dependent variables (Y1 and Y2).

C1 This measurement was computed for the group and self-help treatments only. Analysis of variance was used to compare the four-week change results (C1) for both groups. The analysis of variance for C1 is displayed in Table 17.

TABLE 17  
ANALYSIS OF VARIANCE OF THE  
GROUP TREATMENT AND SELF-HELP TREATMENT ON C1

ANALYSIS OF VARIANCE					
Source	SS	df	MS	F	Sig.
Between groups	5598.07	1	5598.07	40.80	**
Within groups	21406.59	156	137.22		

\*\*p < .01 (F = 6.81, df = 1,156)

As illustrated by Table 17, the F ratio is very high, thereby indicating that the difference between the means of change for the two groups was significant. Examination of Table 12 shows that the Group Treatment demonstrated a greater mean reduction in smoking activity at C1 than did the Self-help Treatment. This finding supports the results reported for Y1 and reaffirms the Group Treatment to be more effective at one month than the Self-help Treatment.

C2 Analysis of variance was used to compare the difference at sixteen weeks among the means of change for the Group Treatment, Self-help Treatment, and Control. The results for C2 are provided in Table 18.

TABLE 18  
ANALYSIS OF VARIANCE OF THE GROUP TREATMENT,  
SELF-HELP TREATMENT, AND CONTROL ON C2

ANALYSIS OF VARIANCE					
Source	SS	df	MS	F	Sig.
Between groups	7257.74	2	3628.87	29.85	**
Within groups	26139.86	215	121.58		

\*\*p < .01 (F = 4.71, df = 2,215)

Examination of Table 18 shows the F score is significant thus establishing that the differences among the means of change for the three groups were significant. Table 17 also supports the findings reported for Y2. By utilizing Tables 11 and 15, one can conclude that at sixteen weeks the difference between the means of change was (1) more significant for treatment than for Control and (2) more significant for Group Treatment than for Self-help Treatment.

The t-test for correlated groups was used to analyze the significance of change. This technique allowed for an individual analysis of each group at four and sixteen weeks. Again, C1 and C2 were designated as the change variables and were computed by subtracting the baseline from the dependent variables Y1 and Y2. Table 19 provides the results of the analysis of change.

TABLE 19

ANALYSIS OF CHANGE WITHIN GROUPS AT THE  
FOUR-WEEK AND SIXTEEN-WEEK MEASUREMENTS

<u>Variable</u>	<u>Treatment</u>	<u>t value</u>	<u>Sig.</u>	<u>r</u>	<u>Sig.</u>
C1	Group	11.68	P< .01	.50	P< .01
C1	Self-help	6.64	P< .01	.69	P< .01
C2	Group	11.12	P< .01	.55	P< .01
C2	Self-help	8.09	P< .01	.65	P< .01
C2	Control	1.63	N.S.	.66	P< .01

As presented in Table 19, both the Group and Self-help Treatments showed significant change at four and sixteen weeks after treatment initiation. In contrast, the Control did not demonstrate significant change based on the sixteen-week follow-up.

The significant correlation findings in Table 19 indicate that in regard to smoking rates within each group, there was a consistency between the baseline and dependent variables. That is, according to individual smoking rates, the heavier smokers on the baseline measurement tended to be the heavier smokers at Y1 and Y2, and the medium and lighter smokers showed a similar pattern (Appendix J presents this relationship in more detail). This finding suggests that the baseline (X) variable might serve as a correlate or predictor of smoking behavior.



## PART II: DESCRIPTIVE COMPONENT

Examination of Potential Correlates of Change

The descriptive component of this study sought to identify, from a preselected list of variables, potential correlates of success in a smoking cessation program. (Some of these variables have been previously identified in the literature, Chapter 2.) The Pearson product-moment correlation coefficient was employed for this purpose.

The researcher recognizes that many of the variables tested are ordinal data and could be examined by other statistical techniques. In support of his decision to utilize the Pearson  $r$ , the researcher quotes William Hays, who writes:

It is not necessary to make any assumptions at all about the form of the distribution, the variability of Y scores within X columns or 'arrays,' or the true level of measurement represented by the scores in order to employ linear regression and correlation indices to describe a given set of data . . . one may apply correlation techniques to any set of paired data . . . (Hays, 1966:510).

Table 20 presents the findings for those variables which were numerical data, while Table 21 displays the categorical variables which were examined by chi-square. For complete identification of I-1 through I-33, the reader is directed to Chapter 3 (pg. 61).

TABLE 20  
CORRELATION AND SIGNIFICANCE OF  
POTENTIAL CORRELATES OF CHANGE

Variable	Y1		Y2	
	r	Sig.	r	Sig.
X	.69	***	.65	**
I-2	.10	N.S.	.04	N.S.
I-6	.14	N.S.	.09	N.S.
I-7	.11	N.S.	.08	N.S.
I-8	.04	N.S.	.04	N.S.
I-10	-.08	N.S.	-.08	N.S.
I-11	.10	N.S.	.03	N.S.
I-12	-.08	N.S.	.14	N.S.
I-13	-.09	N.S.	.19	*
I-14	.16	N.S.	.14	N.S.
I-15	-.02	N.S.	.003	N.S.
I-16	.04	N.S.	.0005	N.S.
I-18	-.11	N.S.	-.08	N.S.
I-19	-.26	**	-.34	**
I-20	.007	N.S.	.10	N.S.
I-21	-.13	N.S.	-.07	N.S.
I-22	-.16	N.S.	-.13	N.S.
I-23	-.22	*	-.22	*
I-24	-.24	*	-.24	*
I-25	-.19	*	-.26	*
I-26	-.04	N.S.	-.01	N.S.
I-27	.04	N.S.	.07	N.S.
I-28	.06	N.S.	.19	*
I-29	.15	N.S.	.18	*
I-30	-.13	N.S.	-.15	N.S.
I-31	.02	N.S.	.09	N.S.
I-32	.04	N.S.	.03	N.S.

df = 156

\*  $p < .05$  ( $r = .16$ )

\*\* $p < .01$  ( $r = .21$ )

Examination of Table 20 shows that most of the potential correlates proved to be not significant at both Y1 and Y2. The strongest correlation was demonstrated by the baseline (X) variable. This finding corresponds with those of previous researchers (McArthur, et al, 1958),

who found the number of cigarettes smoked per day to be a significant predictor of success or recidivism. Schwartz and Dubitzky (1969) found that lighter smokers had a higher success rate when compared to moderate and heavy smokers. Although other variables demonstrated definite correlation, the values were modest ( $r = .20 - .35$ ).

The most significant correlation after the X variable was found with I-19 (How easy is it to picture yourself as a nonsmoker?). I-19 demonstrated significance at both Y1 and Y2. This item was developed by the researcher during the course of previous work and from anecdotal readings (Mausner, 1973; Razzell, 1975).

A similar variable was I-24 (Do you think you will be smoking five years from now?), which proved significant at both Y1 and Y2. This question was developed by Eisenger (1971), who reported it as valuable predictor. However, Eisenger's findings were much more significant than the findings reported in this study. Both I-23 (At this time, how confident are you of stopping the smoking habit?) and I-25 (With regard to quitting cigarettes, how would you rate your willpower?) were significant at Y1 and Y2. The findings regarding self-confidence and "nonsmoking willpower" appear to correspond with Tamerin's (1972) findings that expectancy of success was directly related to actual success.

Whereas the previously discussed variables demonstrated negative correlation -- which reflected a reduction in smoking activity -- three variables demonstrated significant positive correlation (an increase in smoking activity), all at Y2. These were I-13 (What is the longest period you have previously gone without smoking?); I-28 (How much does the thought of never smoking again disturb you?); and I-29 (How often do you smoke alone?). The results from I-13 contradict the findings of earlier research which determined previous long-term abstainers to be "good bets" in a smoking cessation program. Because the word "disturb" (I-28) might be interpreted by the smoker in a number of ways, this item could elicit a variety of responses, some of which could be related to the smoker's fear of failure. Tamerin (1972) reports that three features central to failure in a smoking cessation program were: (1) the expectation of failure, (2) the fear of loss of control, and (3) the affective significance of a loss of cigarettes. When subjects of the present study were queried prior to treatment, a highly confident response ("I'm not disturbed") could be interpreted as a sign of uncertainty of achieving success. Finally, the responses to I-29 (smoking alone) can be interpreted as supporting Eysenck's locus of control theory or the smoking continuum concept (Table 2), wherein

the heavier long-term smoker tends to rely on smoking as a resource for meeting interpersonal needs (Dunn, 1973; Harrup, 1979-B).

Table 21 examines the proposed correlates which were categorical data.

TABLE 21  
CHI-SQUARE EXAMINATION OF POTENTIAL CORRELATES OF CHANGE

<u>C3</u> (N = 158)			
<u>Variable</u>	<u>df</u>	<u>X<sup>2</sup></u>	<u>Sig.</u>
I 1	2	2.23	N.S.
I 3	4	2.09	N.S.
I 4	1	2.06	N.S.
I 5	1	.28	N.S.
I 9	2	5.75	N.S.
I 15	1	1.13	N.S.
I 17	1	9.67	**

---

\*\*  $p < .01$  ( $X^2 = 6.63$ )

Table 21 indicates that only I-17 (self-reported smoking-related/aggravated health conditions) proved significant.

Researchers have previously noted that knowledge of a health threat is not sufficient in itself to produce a change in smoking behavior (Karkoff, 1968). The lack of significant correlation of I-18 (How hazardous do you think smoking is to your health?) with Y1 and Y2 would tend to corroborate these earlier findings. Horn and

Waingrow (1966) discuss a dimension which they call the "perception of threat." They write that if the smoker is to change his smoking behavior, he must feel a personal susceptibility to the adverse effects of smoking. The significant correlation of I-17 with both Y1 and Y2 is in accordance with this theory.

Several researchers have reported a significant relationship between the desire to improve one's health and successful abstinence from smoking cigarettes. Eisenger (1971) wrote that recidivists were less likely to verbalize the desire to improve their health than were successful abstainers. Mausner (1973) reported that one of the most powerful predictors of change was a subjective expectation of improvement of health.

### Summary

This chapter examined the effectiveness of randomization and analyzed treatment effectiveness. Both hypotheses were rejected and their alternatives accepted. The question of change was addressed, and the experimental treatments were found to be significantly effective. Finally, an analysis of potential correlates of success was conducted. In general, most variables examined were found to be not significant or of modest correlational value.

## CHAPTER 5

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The harmful effects of cigarette smoking have been well documented. As a result, numerous agencies and organizations are providing formal stop-smoking assistance to those smokers wishing to give up the habit. However, treatments vary and are often nonsystematic, while evaluations and follow-up data are frequently nonexistent or incomplete. In light of these facts, researchers have recognized the need to analyze more rigorously the effectiveness of smoking cessation treatment and techniques.

The following three questions were central to this study: (1) Is there a significant difference in smoking behavior between smokers receiving cessation treatment and nontreated smokers? (2) Is there a significant difference in smoking behavior between smokers receiving a self-help treatment and smokers receiving group treatment? and (3) From a preselected list, can a set of personal/demographic variables be identified as correlates of smoking reduction/cessation?

The population selected for this study was employees of the State of California's Resources Agency located in Sacramento. The study was conducted on-site during

normal work hours, and participants ranged from beginning clerks to professionals such as lawyers and engineers. Randomization was successful in controlling such important variables as age, sex, education, number of cigarettes smoked, and length of habit.

Subjects were randomly assigned to one of three groups: (1) a Group Treatment, (2) a Self-help Treatment, or (3) a nontreated Control. Baseline measurements (usual number of cigarettes smoked in twenty-four hours) were collected on all subjects. A treatment effectiveness measurement was conducted at four weeks, and a follow-up measurement was conducted at sixteen weeks.

### Conclusions and Discussion

Based on statistical analysis of between-group and within-group changes in smoking behavior, the following conclusions may be drawn.

Treated subjects demonstrated a significantly greater reduction in smoking behavior than did subjects assigned to a nontreated control. This difference proved significant at both four and sixteen weeks after treatment initiation. In individual comparisons with the nontreated Control, the Group Treatment proved more effective than the Self-help Treatment. Furthermore, in a direct comparison the Group Treatment demonstrated statistical superiority over the Self-help Treatment. Based on these results,



both null hypotheses were rejected, and the alternative hypotheses were accepted.

Although individual components of each treatment were not rigorously controlled and examined, it may safely be assumed that ongoing interaction provided by the Group Treatment was a major contributing factor to the success of this method over the self-help approach. In addressing the importance of ongoing interaction to successful smoking intervention, Banks (1978) writes that "health-related decisions are seldom made by individuals after only one approach; multiple contacts are necessary to reinforce the particular message." The theory that ongoing, multiple-session treatments are necessary to change smoking behavior is harmonious with current thinking of other researchers. Horn (1970) writes that quitting smoking is a process. Mausner (1973) states that for some smokers quitting may necessitate a restructuring of self-image, and Harrup (1978) suggests that smokers must learn -- or restore -- new coping behaviors and more directly experience affect. The results of this study support the previous statements. That is, the Group Treatment provided smokers the time necessary for individual process, allowed for reflection on personal feelings, and, through the process of sharing mutual experiences, allowed smokers the opportunity to develop new nonsmoking behaviors.

Regarding correlates of smoking behavior, most variables examined were either not significant or of low correlational value. The strongest relationship was demonstrated by the baseline variable, which was significant at both the four-week and sixteen-week measurements. Furthermore, there was a significant consistency between the baseline variable and the dependent variables; that is, the heavier smokers on the baseline measurement tended to be the heavier smokers on the dependent measurements. This finding is supportive of recent research which suggests that nicotine (and its metabolite cotinine) may be the major reinforcing agent of tobacco smoking (WHO Chronicle, 1975; Schacter, 1976).

One interesting finding was that smokers who reported more ease in "picturing themselves as nonsmokers" did significantly better at both the four-week and sixteen-week measurements. Eisenger's (1972) predictor of "Will you be smoking five years from now?" also proved significant at both measurements, though the strength of the relationship was less than Eisenger had reported. In addition, those who did better were the light smokers and smokers who reported "more confidence" about stopping, who reported more "stop smoking willpower," and who perceived "improved health from quitting." Those who did more poorly were the heavy smokers and the smokers who had previously stopped for long periods, had reported the

"thought of never smoking again" as not disturbing, and had frequently smoked alone. Thirty-two correlates were examined. The fact that the proposed correlates of change fared poorly in this study suggests that the proper predictors of change in smoking behavior are not thoroughly identified or known.

In contrast to previous reports, there was no significant difference in smoking behavior between sexes. A similar finding is reported by Gritz (1978) after an exhaustive review of the literature. However, she does report that men showed greater long-term posttreatment abstinence rates than did women. Although she was at loss to explain this difference, she suggests that it may be related more to "ill-defined" sociocultural or demographic factors than to cessation treatment. The reader is reminded that all subjects in this study were full-time employees, whereas women in previous studies were frequently housewives. Therefore, the question arises, Is employment outside the home an important independent factor in long-term cessation maintenance? No previous smoking research has addressed this issue; however, studies of alcoholism have shown the "shut-in" and "home-bound" alcoholic to present greater intervention difficulties than the alcoholic who has daily involvement outside the home (Benell, 1979).

This study did demonstrate the feasibility of conducting a smoking cessation program in a work environment. Anecdotal reports indicated a general climate of encouragement from both management and nonsmoking employees. The feared negative feedback from nonsmoking employees, in response to the paid release time allotted to participants, did not materialize.

Although not statistically analyzed, other trends were noted. The researcher observed better performance from subjects assigned to scheduled morning treatment. Further research of the time factor would seem appropriate. Also "empirically observed" was a relationship between an individual's willingness to comply with specific treatment requirements and subsequent success. Rank and file personnel were randomly assigned to treatment with management and supervisory personnel. While this variable was not statistically analyzed, noticeable differences in treatment outcome were not detected. This observation by the researcher contradicts previous research which suggests that better outcomes would result if workers and management were provided separate programs.

### Recommendations

The present research has demonstrated the effectiveness of smoking cessation treatment. Treated subjects demonstrated a significantly greater reduction in smoking

activity than nontreated subjects. In a posttreatment comparison of treatment modalities, the Group Treatment was found to be superior to the Self-help Treatment; however, when compared at a sixteen-week follow-up, the results of the two treatment began to approximate each other. Based on this follow-up evaluation, the question arises, Is the superior treatment effectiveness of the Group Treatment significant enough to offset its considerable time and cost factors?

As a general recommendation, the researcher suggests that answers to this question be found through more detailed study of the Group and Self-help smoking cessation treatments. In light of the findings of the present study, the researcher further suggests that future investigators consider the following specific recommendations:

1. The problem of recidivism was pronounced in this research and was also well-documented in the literature. If investigators are to understand recidivism and to reduce relapse rates, the effects of posttreatment maintenance must be more thoroughly studied. Maintenance could include "booster sessions" -- that is, extending the length of formal treatment -- or some type of long-term systematic contact such as by mail or telephone. Maintenance could also include informal meetings such as lunch dates, pot-luck dinners, or recreational activities. Meetings of this type would serve to reinforce

newly developed nonsmoking behavior within the context of social gatherings. In addition, maintenance allows the practitioner to continue contact with the recent ex-smokers during the critical period immediately after they have stopped, when stress, weight gain, nicotine craving, or an assortment of other problems are most likely to promote recidivism. Maintenance programs could be designed with sequentially longer periods between each meeting or contact, thus providing a "weaning" effect whereby the recent ex-smoker gradually becomes stronger and more confident in his ability to withstand day-to-day life pressures and remain a nonsmoker.

2. Long-term follow-up and individual subject evaluation are vital to promoting a better understanding of treatment impact and the dynamics of smoking cessation. It is recommended that follow-up measurements be conducted on a periodic schedule such as at the conclusion of treatment and at three, six, nine, and twelve months. The researcher further recommends that the follow-up measurement period be at least six months and, if possible, be extended to one year.

3. The concept of individualized treatment is recommended for future research. Specifically, the question to be addressed is, Can a screening mechanism be developed which will enable practitioners to prescriptively assign smokers to either a Group or Self-help Treatment?

The present research has identified eight possible correlates of change. Perhaps a screening profile, based on the reported correlates of change -- and others yet to be identified -- could be developed. The purpose of prescriptive treatment is two-fold: first, to enhance treatment outcome by matching subjects to a treatment which is more conducive to their personal "profile" and, secondly, to allow helping agencies (which often face the reality of limited resources) to more confidently design their smoking cessation programs to reach the greatest number of smokers while maximizing positive results.

4. It is recommended that the issue of women and cessation be more closely examined. Contrary to previous studies, the researcher found no significant difference in cessation rates between male and female smokers. Since all female subjects of the study were full-time employees, the employment variable was suggested as a determining factor. In most previous studies, the research population has consisted of both employed and nonemployed females. Further research should examine the effect of the employment variable on the smoking cessation rates of female smokers.

5. Finally, recent professional articles have addressed the issue of employee health education. Many employers are now providing a variety of health-related activities designed to assist their employees in achieving

a higher level of wellness. Smoking cessation efforts should be central to any such programs. In examining work site smoking cessation programs, investigators should consider the following: The question of whether rank-and-file personnel and management personnel should be assigned to the same treatment simultaneously (e.g., Group Treatment) must be examined. While this issue was not hypothesized or statistically analyzed in the present research, the researcher empirically noted that "mixing" populations did not noticeably affect treatment administration or outcome. This observation contradicts previous reports. Therefore, the issue should be explored further. The researcher also empirically reported that regarding the Group Treatment, subjects assigned to morning schedules demonstrated better attendance and achieved higher cessation rates than subjects assigned to afternoon schedules. This variable should be examined more rigorously. Of extreme interest to management is the cost-benefit issue. Basic cost-benefit parameters include job attendance and productivity. Smoking-related absenteeism can serve as a cost-benefit measurement. It is recommended, therefore, that prospective research be conducted to measure changes in absenteeism among smokers who have participated in a work site smoking cessation program.



Smoking behavior represents a subset of a greater phenomenon -- human behavior. Human behavior is complex and difficult to predict. Therefore, the researcher recognizes that these recommendations will not lead to a "final solution" to the problem of smoking cessation; however, he does believe that, if implemented, these recommendations could represent a step toward solving a complex and very serious health problem.

# BIBLIOGRAPHY

American Cancer Society, California Division. Stop Smoking Program -- Leaders Guide San Francisco: 1971.

American Cancer Society. Cancer Facts and Figures. New York: American Cancer Society, 1978.

American Cancer Society. I Quit Kit. New York: American Cancer Society, 1978.

American Lung Association. "Employer Incentives Include \$\$\$ for Employees Who Quit Smoking." Life and Breath, Vol. 6, No. 3 (February 1979): 6-8.

Auerbach, O.; Hammond, E.C.; Kirman, D.; and Garfinkel, L. "Effects of Cigarette Smoking on Dogs." Archives of Environmental Health 21(6) (December 1970): 754-768.

Axelrod, S.; Hall, R.V.; Weis, L.; Rohrer, S. "Use of Self Imposed Contingencies to Reduce the Frequency of Smoking Behavior." In M.J. Mahoney and C.E. Thoresen, (Eds.), Self-Control: Power to the Person. Monterey, CA: Brooks/ Cole, 1974.

Banks, Michael H. "Limits to Behavior Change: Social Science Perspectives on Smoking Prevention," World Smoking and Health, (American Cancer Society) Vol. 3, No. 2, (Summer 1978): 32-36.

Becker, Marshall H. "The Health Belief Model and Personal Health Behavior" Society of Public Health Education Journal, 2-4 (Winter 1974).

Benell, Florence. Department of Health Education, Sacramento State University. Personal Communications, June 1979.

Bernstein, D. A. "Modification of Smoking Behavior, An Evaluative Review." Psychological Bulletin 71 (1969): 418-440.

Best, Allan J. "Tailoring Smoking Withdrawal Procedures to Personality and Motivational Differences." Journal of Counseling and Clinical Psychology Vol. 43, No. 1 (1975): 1-8.

Borgatta, E. F. and Evans, Robert R. Smoking, Health, and Behavior. Chicago: Aldine Publishing Co., 1968.

Bosse, Raymond and Rose, Charles L. "Age and Interpersonal Factors in Smoking Cessation." Journal of Health and Social Behavior 14 (December 1974): 381-385.

Brengleman, Johannes C. "The Treatment of Smoking through the Mail." In, Jerome L. Schwartz (Ed.), Progress in Smoking Cessation. Proceedings of the International Conference on Smoking Cessation, June 21-23, 1978, New York. Sponsored by the American Cancer Society.

Burwen, Leroy J. Department of Psychology, San Francisco State University. Personal Communications, 1978.

Business Week, "Companies Put Up the 'No Smoking' Sign." May 29, 1978, pg. 68.

Butler, N. R.; Goldstein, H.; and Ross, E. M. "Cigarette Smoking in Pregnancy: Its Influence on Birth Weight and Perinatal Mortality." British Medical Journal (2) (1972): 127-130.

Cattell, R. B. and Krug, S. "Personality Factor Profile Peculiar to the Student Smoker," Journal of Counseling Psychology 14, (1967): 116-121.

(CDC) Center for Disease Control, U.S. Public Health Services, Morbidity and Mortality Weekly Report. Atlanta, Georgia: May 6, 1977.

Committee on Agriculture. "Effect of Smoking on Nonsmokers." Hearing before the Subcommittee on Tobacco of the Committee on Agriculture, House of Representatives. Ninety-fifth Congress, Second Session, September 7, 1978, Government Printing Office, Washington, D.C.: Serial No. 95-000.

Courtney, W. and Sedgwich, L. Individualized Curriculum for Individualized Activities. Corvallis, Oregon: Continuing Education Publications, 1974.

Danaher, Brian G. "Ob-Gyn Intervention in Helping Smokers Quit" In, Jerome L. Schwartz (Ed.), Progress in Smoking Cessation. Proceedings of the International Conference in Smoking Cessation, June 21-23, 1978, New York. Sponsored by the American Cancer Society.

Danaher, Brian G. "Smoking Cessation Programs in Occupational Setting: 'State-of-the-Art' Report." Presented at the National Conference on Health Promotion Programs in Occupational Settings. Sponsored by Department of Occupational Health, U.S. Public Health Service, 1978-B.

Davidson, Henry A. "Rationalizations for Continued Smoking," New York State Journal of Medicine (December 15, 1964): 2993.

Diehl, H. S. Tobacco and Your Health, the Smoking Controversy. Minneapolis: McGraw-Hill, 1969.

Downie, W.M. and Heath, R.W. Basic Statistical Methods. New York: Harper and Row, Publisher, 1974.

Dubitzky, M. and Schwartz, J. L. "Ego-resiliency, Ego-control, and Smoking Cessation." Journal of Psychology 70 (1968): 27-33.

Dubitzky, M. and Schwartz, J. L. "Cognitive Dissonance and Changes in Cigarette Smoking in an Organized Smoking Control Program." Journal of Social Psychology 79 (1969): 219-225.

Dubren, Roy "Evaluation of a Self-help Stop Smoking Program" In, Jerome L. Schwartz (Ed.), Progress in Smoking Cessation. Proceedings of the International Conference on Smoking Cessation, June 21-23, 1978, New York. Sponsored by the American Cancer Society.

Dunn, William L., Jr. (Ed.) Smoking Behavior and Incentives. Washington, D.C.: C. H. Winston & Sons, Inc., 1973.

Ellis, Bernard, H. "How to Reach and Convince Asbestos Workers to Give Up Smoking" In, Jerome L. Schwartz (Ed.), Progress in Smoking Cessation. Proceedings of the International Conference on Smoking Cessation, June 21-23, 1978, New York. Sponsored by the American Cancer Society.

Eisinger, Richard A. "Psychosocial Predictors of Smoking Recidivism" Journal of Health and Social Behavior 12 (December 1972): 355-362.

Elliott, Rogers, and Tighe. "Breaking the Cigarette Habit: Effects of a Technique Involving Threatened Loss of Money." Psychological Record 19 (4) (1968): 503-513.

Eysenck, H. J. Smoking, Health, and Personality. New York: Basic Books, Inc., 1965.

Fisher, J. M. "Sex Differences in Smoking Dynamics." Journal of Health and Social Behavior 17 (2) (June 1976): 155-162.

Foss, Robert. "Personality, Social Influence and Cigarette Smoking." Journal of Health and Social Behavior 14 (September 1973): 279-285.

Fredrickson, Donald T. "How to Help Your Patient Stop Smoking -- Guidelines for the Office Physician." Diseases of the Chest Vol. 54, No. 3 (September 1968).

Green, Dorothy E. In: Research on Smoking Behavior, American Cancer Society, 1979. (From: Research on Smoking Behavior National Institute on Drug Abuse, NIDA Research Monograph 17, Rockville, Maryland, 1977.

Gritz, E. R. "Women and Smoking -- A Realistic Appraisal" In, Jerome L. Schwartz (Ed.), Progress in Smoking Cessation. Proceedings of the International Conference on Smoking Cessation, June 21-23, 1978, New York. Sponsored by the American Cancer Society.

Gritz, E. R. and Jarvik, M. E. "Pharmacological Aids for the Cessation of Smoking" In, J. Steinfeld, W. Griffiths, K. Ball, and R.M. Taylor (Eds.), Health Consequences, Education, Cessation Activities, and Social Action, Vol. II, Proceedings of the Third World Conference on Smoking and Health, June 2-5, 1975, HEW Publication No. (NIH) 77-1413, 1977.

Guilford, J. S. Factors Related to Successful Abstinence from Smoking: Final Report. Los Angeles: American Institutes for Research, 1966.

Guilford, J. S. "Group Treatment vs. Individual Initiative in the Cessation of Smoking." Journal of Applied Psychology 56(2) (April 1972): 162-167.

Guilford, J.S., and Matarazzo, J. D. "Psychological and Related Characteristics of Smokers and Non-smokers." Psychological Bulletin 57 (1960): 493-513.

Hammond, E. C. "Evidence on the Effect of Giving Up Cigarette Smoking." American Journal of Public Health 55 (5) (1965): 682-691.

Harrup, Temple. "Addictive Processes in Tobacco Use." In, Jerome L. Schwartz (Ed.), Progress in Smoking Cessation. Proceedings of the International Conference on Smoking Cessation, June 21-23, 1978, New York. Sponsored by the American Cancer Society.

Harrup, Temple. Regional Coordinator, Stop Smoking Clinics, Kaiser Permanente Hospitals, Oakland, CA. Personal Communications, 1979-B.

Harrup, Temple.; Hansen, Bruce A.; and Soghikian, Krikor. "Clinical Methods in Smoking Cessation: Description and Evaluation of a Stop Smoking Clinic." 69 (December 1979): 1226-1231.

Hays, William L. Statistics for Psychologists. New York: Holt, Rinehart, and Winston, 1966.

(HEW) Health, Education, and Welfare, The Smoking Digest, Progress Report on a Nation Kicking the Habit. Bethesda, MD: Government Printing Office, 1976

Heath, Clark W. "Differences Between Smokers and Non-smokers." American Medical Association Archives of Internal Medicine Vol. 101 (February 1958).

Hochbaum, Godfrey M. "Behavior in Response to Health Threats." Annual Meeting American Psychological Association, Chicago, Illinois, September 1960.

Hochbaum, Godfrey, M. Health Behavior -- Basic Concepts in Health Science Series. Belmont, CA: Wadsworth Publishing Co., 1970.

Hoffman, D. and Wynder, E. "Smoking and Occupational Cancers." Preventive Medicine 5: (1976): 245-261.

Horn, Daniel "An Approach to Office Management of the Cigarette Smoker." Diseases of the Chest Vol. 54, No. 3 (September 1968).

Horn, Daniel "Behavior and Smoking: Concluding Remarks," In Mausner, Bernard and Platt, Ellen S.: "Behavioral Aspects of Smoking, A Conference Report." Health Education Monographs, Supplement No. 2, 1966.

Horn, Daniel "Man, Cigarettes, and the Abuse of Gratification," Archives of Environmental Health Vol. 20 (January 1970).

Horn, Daniel "Some Factors in Smoking and Its Cessation." World Health Organization Journal (Summer 1976).

Horn, D. and Waingrow, S. "Some Dimensions of a Model for Smoking Behavior Change," American Journal of Public Health 56-12 (1966) 21-26.

Hull, C. L. "The Influence of Tobacco Smoking on Mental and Motor Efficiency," Psychological Monographs: General and Applied 33, Whole No. 150 (1924).

Hunt, William A. Learning Mechanisms in Smoking. Chicago: Aldine Publishing Co., 1970.

Hunt, William A., Walker, A., and Branch, Laurence G. "Relapse Rates in Addiction Progress." Journal of Clinical Psychology 27 (1971) 455-456.

Hunt, W. A. and Matarazzo, J. D. "Three Years Later: Recent Developments in the Experimental Modification of Smoking Behavior." Journal of Abnormal Psychology 81 (1973): 107-114.

Janis, Irving L. and Mann, Leon. "Effectiveness of Emotional Role Playing in Modifying Smoking Habits and Attitudes." Journal of Experimental Research in Personality 1 (1976): 84-90.

Jenks, Robert, Schwartz, Jerome L., and Dubitzky, Mildred. "Effect of the Counselor's Approach to Changing Smoking Behavior." Journal of Counseling Psychology 16-3 (1969): 215-221.

Johnston, Jack B. "Excessive Sick Leave Among Smoking Employees, Department of Water Resources, State of California," (unpublished study) 1976.

Johnston, Jack B. Chief, Personnel Unit, California Department of Water Resources, Resources Agency, Sacramento, California. Personal Communications, 1978-1979.

Kazdin, A.E. "Self-monitoring and Behavior Change." In M.J. Mahoney and C.E. Thorenson (Eds.) Self-Control: Power to the Person, Monterey, CA: Brooks/Cole, 1974.

Kelleher, Eileen V. "Fewer Workers Now are Singing Smoke Gets in Your Eyes," Wall Street Journal, November 1978, Sec. 1, pg. 1.

Kenny, Alphonses P. Industrial Physician, Campbell Soup, Inc., Sacramento, California. Personal correspondence, October 1979.

Kerlinger, Fred N. Foundations of Behavioral Research. New York: Holt, Rinehart, and Winston, Inc., 1967.

Korsak, Andrew. "Job Absenteeism Among Habitual Smokers." Work, Smoking, and Health. (American Cancer Society) Vol. 2 (Fall 1977).

Kristein, Marvin M. "Economic Issues in Smoking." Preventive Medicine 6, (1977): 252-264.

Leventhal, Howard and Safes, Patricia N. "The Effectiveness of Fear-Arousing Movies in Motivating Preventative Health Measures." New York State Journal of Medicine 63-6, 867-874.

Lilienfeld, A. M. "Emotional and Other Selected Characteristics of Cigarette Smokers and Non-smokers as Related to Epidemiological Studies of Lung Cancer and Other Diseases," Journal of National Cancer Institution 22 (1959) 259-282.

Lichtenstein, E. and Danaher, Brian G. "What Can the Physician Do to Assist the Patient to Stop Smoking?" In Chronic Obstructive Lung Disease by Brashear, R.E. and Rhodes, M.L., St. Louis: C. V. Mosby Co., 1978.

Lichtenstein, Edward and Danaher, Brian G. "Modification of Smoking Behavior: A Critical Analysis of Theory, Research, and Practice." Progress in Behavior Modification, San Francisco: Academic Press, Inc., Vol. 3, 79-132.

Luce, Bryan R. and Schweitzer, Stuart O. "The Economic Costs of Smoking - Induced Illness" In, Research on Smoking Behavior, National Institute on Drug Abuse, NIDA Research Monograph 17, Rockville, Maryland 1977.

Matarazzo, J. D. and Saslow, G. "Psychological and Related Characteristics of Smokers and Non-smokers." Psychological Bulletin 57 (1960): 493-513.

Mausner, Bernard "An Ecological View of Cigarette Smoking." Journal of Abnormal Psychology Vol. 81, No. 2, (1973): 115-126.

Mausner, Bernard and Platt, E. S. Smoking: A Behavioral Analysis. New York: Pergamon Press, 1971.

Mausner, Judith and Bahn, Anita. Epidemiology: An Introductory Text. Philadelphia: W.B. Saunders Company, 1974.

McArthur, C., Waldron, E., and Dickinson, J. "The Psychology of Smoking." Journal of Abnormal and Social Psychology 56 (1958): 267-275.

McFarland, J. W. "Physical Measures Used in Breaking the Smoking Habit". Archives of Physical Medicine and Rehabilitation 64 (1965): 323-327.

Mettlin, Curt. "Smoking as Behavior: Applying a Social Psychological Theory." Journal of Health and Social Behavior 14 (June 1973): 144-151.

National Center for Health Education News Letter. San Francisco, Fall 1977.



National Interagency Council on Smoking and Health, "Smoking and the Work Place - A National Survey." New York, 1979.

Paul, G. L. Insight Versus Desensitization in Psychotherapy. Palo Alto, CA: Stanford University Press, 1966.

Pomerleau, O. F. "Why People Smoke: Current Psychological Models" In Davidson, P. (Ed.) Behavioral Medicine: Changing Health Life. New York, Brunner-Mazel, 1979.

[Powell, Donald R.] Sacramento Bee, "Smoking... 'Cold Turkey' Method a Hot Idea." May 16, 1979, Sec. A, p.16.

Pyska, R.H.; Ruggels, W.L.; and Janowicz, L.M. "Health Behavior Change: Smoking Cessation." In, I R and D Report (December 1977) available from SRI International, Menlo Park, CA.

Rae, G. "Extraversion, Neuroticism, and Cigarette Smoking." British Journal of Social and Clinical Psychology 14 (4) (1975): 429-430.

Razzell, M. "No Thanks, I've Quit Smoking." Canadian Nurse. 7(9) (September 1975): 23-25.

Robbie, Lynn. Occupational Health Program Coordinator, American Lung Association, Sacramento - Emigrant Trails Unit, Sacramento, California. Personal Communications, November 1979.

Rosen, Gerald M. and Lichtenstein, Edward. "An Employer Program to Reduce Cigarette Smoking." Journal of Consulting and Clinical Psychology Vol. 45, No. 5 (April 10, 1976): pg. 957.

Rosenstock, "The Health Belief Model and Preventive Health Behavior." In Becker, Marshall H. (Ed.) The Health Belief Model and Personal Health Behavior, Society of Public Health Education 2-4, (Winter 1974).

Ross, Walter S. You Can Quit Smoking in 14 Days. New York: Reader's Digest Press, 1974.

Roth, A. T. Testimony to House Committee on Foreign and Interstate Commerce, April 23, 1969.

Russell, M.A.N. "Cigarette Dependence: I -- Nature and Classification." British Medical Journal (May 8, 1971).

Russell, M.A.N. "The Smoking Habit and its Classification." The Practitioner 121 (1974): 719-800.

Salber, E. J. and MacMahon, B. "Cigarette Smoking Among High School Students Related to Social Class and Parental Smoking Habits." Journal of the American Public Health Association 51 (1961): 1780-89.

San Francisco Chronicle, "A Warning to Women on the Pill -Don't Smoke." 25 January 1978, Sec. A, p 2.

Saul, Leon J. "Dynamics of Cigarette Addiction." International Journal of Psychoanalytical Psychotherapy Vol. 1(2), (May 1971): 24-29.

Saunders, George "A Few Statements on What a Helping Smokers Quit Clinic Can Be," Paper presented to the American Cancer Society Conference on Lung Cancer, New Orleans, 1975.

Saunders, G. California State Division, American Cancer Society, San Francisco, California. Personal Communications, October 1977.

Schacter, S.I. "Nicotine Regulation in Heavy and Light Smokers." Journal of Experimental Psychology: General 106 (1) (March 1977): 5-12.

Schubert, D. P. "Personality Implications of Cigarette Smoking Among College Students." Journal of Consulting Psychology 23 (1959): 376.

Schwartz, Gary E., Shapiro, David, Schnidman, Susan R., and Tursky, Bernard. "Smoking on Cue: A Behavioral Approach to Smoking Reduction." Journal of Health and Social Behavior 12 (June 1971): 108-112.

Schwartz, Jerome L. "A Critical Review and Evaluation of Smoking Control Methods." Public Health Reports (June 1969): 84 -86.

Schwartz, Jerome L. "Insight into the Smoker's Profile." Journal of School Health March 1970.

Schwartz, Jerome L. "Smoking Cures: Ways to Kick an Unhealthy Habit." National Institute of Drug Abuse, Research Monograph Series No. 17. Rockville, MD: Government Printing Office, December 1977.

Schwartz, Jerome L. "Helping Smokers Quit: State of the Art." In, Jerome L. Schwartz (Ed.) Progress and Smoking Cessation, Proceedings of International Conference on Smoking Cessation, June 21-23, 1978, New York. Sponsored by the American Cancer Society.

Schwartz, Jerome L. Chief, Office of Planning, California Department of Health, Sacramento, California. Personal Correspondence, 1979.

Schwartz, Jerome L. and Dubitzky, Mildred. Psycho-Social Factors Involved in Cigarette Smoking and Cessation. Final Report of the Smoking Control Research Project, Berkeley, September 1968-A.

Schwartz, Jerome L. and Dubitzky, Mildred. "One Year Follow-up Results of a Smoking Cessation Program." Canadian Journal of Public Health 59 (1968-B): 161-165.

Schwartz, Jerome L. and Dubitzky, Mildred. "Changes in Anxiety, Mood, and Self-esteem Resulting from an Attempt to Stop Smoking." American Journal of Psychiatry 124 (May 11, 1968-C).

Schwartz, Jerome L. and Dubitzky, Mildred. "Maximizing Success in Smoking Cessation Methods." American Journal of Public Health Vol. 59, No. 8 (August 1969): 1392.

Selikoff, I. J. and Hammond, D. C. "Asbestos-Associated Disease in United States Shipyards." CA 28(2) (1978): 87-89.

Shewchuk, Lloyd A. and Wynder, Ernest L. "Guidelines on Smoking Cessation Clinics." Preventive Medicine 6 (1977): 130-133.

Smith, G. M. "Personality and Smoking: A Review of the Empirical Literature." In W. A. Hunt (Ed.), Learning Mechanisms in Smoking Chicago: Aldine Press, 1970.

Spiegel, H. Resume' No. 732, In National Clearinghouse of Smoking and Health, 1976 Directory of Ongoing Research in Smoking and Health. HEW Publication No. (CDC) 76-8320, USGPO, Washington, D.C., 1976, PP. 295-296.

Sterling, T.D. and Weinkan, J.J. "Smoking Characteristics by Type of Employment." Journal of Occupational Medicine Vol. 18, No. 11 (November 1976).

Strachey, J. The Complete Psychological Works of Sigmund Freud Vol. XVII. New York: Hogarth Press, 1955.

Straits, Bruce C. "The Discontinuation of Cigarette Smoking: A Multiple Discriminant Analysis." In, Zagona, Salvatore V., Ed., Studies and Issues in Smoking Behavior. University of Arizona Press, Tucson, AZ, 1967.

Tamerin, John S. "The Psychodynamics of Quitting Smoking in a Group." American Journal of Psychiatry Vol. 129(5) (November 1972): 589-595.

Tennant, F. S., Jr. and Detels, R. "Relationship of Alcohol, Cigarette, and Drug Abuse in Adulthood with Alcohol, Cigarette, and Coffee Consumption in Childhood." Preventive Medicine 5 (1) (March 1976) 70-77.

Thomas, C.B. "Characteristics of Smokers Compared with Non-smokers in a Population of Health Young Adults." Annals of Internal Medicine 53 (1960): 697-718.

Thompson, D. S. and Wilson, T. R. "Discontinuancy of Cigarette Smoking: "Natural" and with "Therapy." Journal of the American Medical Association 196 (1966): 1048-1052.

Thorenson, C.E. and Mahoney, M.J. Behavioral Self-Control. New York: Holt, 1974.

Thornton, Pearlman, and Lewis. "Smoking in the Workplace: A Summary of Health and Welfare Employees." Department of National Health and Welfare, Promotion and Prevention Directorate (Ottawa) May 1, 1976, ERD-77-98.

Time, "The Chemistry of Smoking." February 21, 1977, p. 48.

Tomkins, Silvan S. "Psychological Model for Smoking Behavior." American Journal of Public Health 56-12 (December 1966): 17-20.

U.S. Public Health Service. Health\* United States. Washington, D.C.: Government Printing Office (PHS Pub. No. 78-1232) December 1978.

U.S. Public Health Service. Smoking and Health: A Report of the Advisory Committee to the Surgeon General of the Public Health Service. Washington, D.C.: Government Printing Office (PHS Pub. No. 79-50066) 1979.

Veldman, D. "Personality and Performance Characteristics Associated with Cigarette Smoking Among College Freshmen." Journal of Consulting and Clinical Psychology 33 (1) (1969): 101-119.

Wake, F. R., Moore, R. S., and Booth, B. J. Socio-psychological Aspects of Cigarette Smoking. Report to the Canadian Smoking and Health Program, Department of National Health and Welfare, Ottawa, Canada, January 1966.

Walker, R.E. "Psychological Correlates of Smoking." Journal of Clinical Psychology 25 (1969): 42-44.

Weatherley, D. "Some Personality Correlates of the Ability to Quit Smoking Cigarettes." Journal of Consulting Psychology 29 (1966): 483-485.

Weir, John M. "Male Student Perceptions of Smokers" In Salvatore V. Zagana (Ed.) Studies and Issues in Smoking Behavior, The University of Arizona Press, Tucson, AZ, 1967, pp. 151-155.

West, Irma. Chief, Occupational Health Research and Development Section, California Department of Health, Sacramento. Personal Communications, October 1979.

(WHO) World Health Organization Chronicle. "Smoking and Disease: The Evidence Revisited." 29 (1975): 402-408.

(WHO) World Health Organization: Smoking and its Effect on Health. Technical Report Series No. 568, Geneva, World Health Organization, 1975.

Williams, Allan F. "Personality and Other Characteristics Associated with Cigarette Smoking Among Young Teenagers." Journal of Health and Social Behavior 14 (December 1973): 374-379.

Wohlford, P. "Initiation of Cigarette Smoking - is it Related to Parental Smoking Behavior?" Journal of Consulting and Clinical Psychology 34 (2) (1970): 148-151.

Wong, Winston, "Feds Talk Health, Subsidize Disease." Health Science Journal U.C. Berkeley, Vol. 6, No. 4 (February 1978).

Yankelovich, Skeely and While. "Summary of the Findings" Study About Cigarette Smoking Among Teenage Girls and Young Women," American Cancer Society, February 1976.

Zagana, S. and Babor, T.F. "Adolescents' Attitudes Toward Themselves and Cigarette Smokers." Psychological Reports 25 (1969) 501-502.

## APPENDIX

APPENDIX A

SMOKER QUESTIONNAIRE

APPENDIX A

## QUESTIONNAIRE A

TO: Smoking Project  
Department of Water Resources  
1416 Ninth Street  
Sacramento, CA 95814

Attention: Doug Flow, Coordinator  
Smoking Cessation Clinics  
Room 388, Resources Building

(Fold)

---

IF YOU ARE CURRENTLY A CIGARETTE SMOKER,  
PLEASE COMPLETE THE FOLLOWING QUESTIONNAIRE

SMOKING QUESTIONNAIRE

\*\*\*CONFIDENTIAL\*\*\*

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

Department: \_\_\_\_\_

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

Room Number: \_\_\_\_\_ Telephone: \_\_\_\_\_

Please answer the following questions by circling  
the letter corresponding to your answer.

- 
- |   |  |
|---|--|
| 1. Are you currently a cigarette smoker?<br>(A) Yes<br>(B) No   | 4. Are you currently participating in a<br>stop smoking program or treatment?<br>(A) Yes<br>(B) No                         |
| 2. Would you be interested in a program<br>to help you stop smoking?<br>(A) Yes<br>(B) No   | 5. Have you previously participated in<br>a stop smoking program sponsored by<br>the Resource Agency?<br>(A) Yes<br>(B) No |
| 3. During the average day how much do<br>you smoke?<br>(A) 1 - 1/2 pack<br>(B) 1/2 - 1 pack<br>(C) 1 - 1-1/2 packs<br>(D) 2 - 3 packs | 6. Other comments:   |



## APPENDIX B

### SMOKER PROFILE

APPENDIX B

\*\*\*CONFIDENTIAL\*\*\*

SMOKER'S PROFILE

Please answer the following questions by circling the letter corresponding to your answer.

1. Sex:

- (A) Male
- (B) Female

2. Age:

- (A) 20-29
- (B) 30-39
- (C) 40-49
- (D) 50-59
- (E) 60 or more

3. Marital Status:

- (A) Single
- (B) Married
- (C) Widowed
- (D) Divorced or Separated

4. Are there any children under 12 years of age living in your household?

- (A) Yes
- (B) No

5. Are there any children between the ages of 12 and 18 living in your household?

- (A) Yes
- (B) No

6. At what age did you begin to smoke (at least 8 to 10 cigarettes per month)?

- (A) 5-10
- (B) 11-14
- (C) 15-18
- (D) 19-24
- (E) 25 or more

7. Education level attained:
- (A) some high school
  - (B) high school graduate
  - (C) some college
  - (D) college graduate
8. Number of persons living in household (including yourself) who smoke:
- (A) 1
  - (B) 2
  - (C) 3
  - (D) 4
  - (E) 5 or more
9. If you are married, does you spouse smoke?
- (A) Yes
  - (B) No
10. Number of persons in household who have quit smoking:
- (A) 0
  - (B) 1
  - (C) 2
  - (D) 3
  - (E) 4
  - (F) 5 or more
11. How many years have you smoked?
- (A) 0-5
  - (B) 6-10
  - (C) 11-15
  - (D) 16-20
  - (E) 21-24
  - (F) 25 or more
12. Since you first began to smoke, how many different times have you seriously made an attempt to stop?
- (A) None
  - (B) 1-2
  - (C) 3-4
  - (D) 5-6
  - (E) 7 or more
13. Since you first began to smoke, what is the longest single period of time you have stayed away from cigarettes?
- (A) Hours (less than 24)
  - (B) Days (1-6)
  - (C) Weeks (1-4)
  - (D) Months (1-11)
  - (E) Years (more than one)

14. During an average day how much coffee do you drink?
- (A) None
  - (B) 1-2 cups
  - (C) 3-4 cups
  - (D) 5-6 cups
  - (E) 7 or more cups
15. Have you had a physical examination by a physician in the last year?
- (A) Yes
  - (B) No
16. How many times have you been hospitalized in the past five years?
- (A) None
  - (B) 1-2
  - (C) 3-4
  - (D) 5-6
  - (E) 7 or more
17. Check any health conditions you have or have had:
- (A) Allergy
  - (B) Asthma
  - (C) Bronchitis
  - (D) Emphysema
  - (E) High blood pressure
  - (F) Other (please specify)
- 

In the following portion of this questionnaire each item is a statement of beliefs and feelings. For each question, circle the number that represents your attitude. Circle only one number for each item. There are no right or wrong answers. Please read each question carefully.

18. How hazardous do you actually think smoking is to your health?

---

1                      2                      3                      4                      5                      6                      7

very safe

very hazardous

19. How easy is it to picture yourself as a non-smoker?

1	2	3	4	5	6	7
very difficult				very easy		

20. Other than smoking, how would you rate your willpower?

1	2	3	4	5	6	7
very low				very high		

21. How much guilt do you feel about smoking?

1	2	3	4	5	6	7
none				much		

22. How important is it to you to stop smoking?

1	2	3	4	5	6	7
very unimportant				very important		

23. At this time, how confident are you of stopping the smoking habit?

1	2	3	4	5	6	7
very unconfident				very confident		

24. Do you think you will be smoking five years from now?

1	2	3	4	5	6	7
likely				unlikely		

25. With regard to quitting cigarettes, how would you rate your willpower?

---

1            2            3            4            5            6            7

very low

very high

26. Compared with others, how often do you feel anxious?

---

1            2            3            4            5            6            7

very seldom

very often

27. How many of your friends smoke cigarettes?

---

1            2            3            4            5            6            7

few

most

28. How much does the thought of never smoking against disturb you?

---

1            2            3            4            5            6            7

very little

very much

29. How often do you smoke alone?

---

1            2            3            4            5            6            7

very seldom

very frequently

30. How important is it "to others" (spouse, children, relatives, friends) that you stop smoking?

---

1            2            3            4            5            6            7

very unimportant

very important

31. How much pleasure do you get from smoking cigarettes?

---

1            2            3            4            5            6            7

very little

very much

32. Compared with other periods of your life, how satisfying  
have the past six months been?

---

1            2            3            4            5            6            7

very unsatisfying

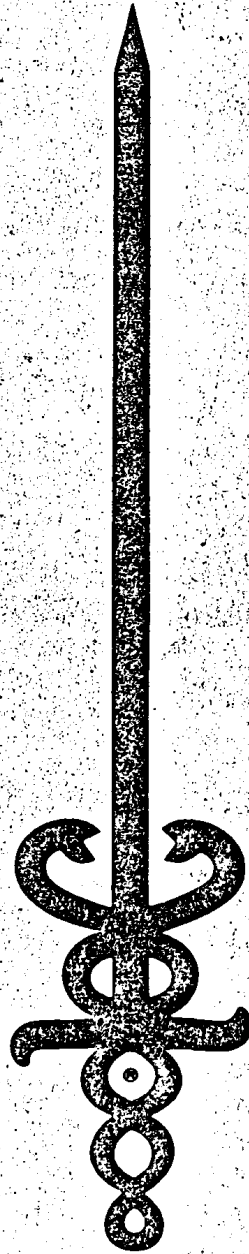
very satisfying

## APPENDIX C

### GROUP TREATMENT OUTLINE



# **STOP SMOKING PROGRAM GUIDE**



**AMERICAN CANCER SOCIETY  
CALIFORNIA DIVISION**

Smoking Education Project

American Cancer Society

California Division

875 O'Farrell Street

San Francisco, California

Copyright Applied For

October 1971

SESSION ONE

## (Outline)

Approximate  
Time in  
Minutes

- 10 (REGISTRATION DELAY)
- 5 INTRODUCTION
  - 1. Self
  - 2. Establish empathy with those in attendance
- 15 WHY PEOPLE ARE ATTENDING
  - 1. Flip Chart: "What would you like to get out of the Program?"
  - 2. Your goals will be our goals
- 10 ORIENTATION TO THE PROGRAM
  - 1. Program Philosophy
  - 2. Ground Rules:
    - a. Never ask you to quit
    - b. First name basis
    - c. 1/2 hour walk each day
    - d. Discussion techniques we will use
    - e. Wear comfortable clothes
    - f. No smoking during sessions
    - g. No fear techniques
    - h. Paper and pencil in hand
  - 3. Explain Program
    - a. Topics of 8 sessions
    - b. Three Phases of Program
  - 4. Questions and Answers
- 10 BREAK (Explain how to look for a buddy before the break)
- 20 ESTABLISH BUDDIES
  - 1. Distribute Profiles
  - 2. Buddies Interview each other
  - 3. Report Back by Introducing your Buddy

Approximate  
Time in  
Minutes

# SESSION ONE (continued)

## 10 LECTURE ON HABIT

1. Clear up Question of Addiction
  - a. WHO - Habituation vs. Addiction
  - b. Vote on Habituation vs. Addiction
2. HABIT - explain elements and concept of  
not smoking being learned
3. TIPS - explain elements
4. FILM - "The Owl and Fred Jones"

20

## 15 HOME ASSIGNMENT

1. Explain Purpose
2. Demonstrate Assignments
  - a. Cigarette Mad Money
  - b. Daily Cigarette Count

5

## CLOSURE

1. Encouragement
2. Review
  - a. Orient you
  - b. Get acquainted
  - c. Explain habit
  - d. Offer practical home assignments
3. Conclude Session

120

## PROPERTIES

1. Name Tags
2. Pencils for Participants
3. Felt Tip Pen
4. Masking Tape
5. Flip Chart
6. Kits of Materials:
  - a. Wrap Sheets
  - b. Mad Money Envelopes
  - c. No Smoking Signs
  - d. Tar and Nicotine Lists
  - e. "If You Want To Give Up Cigarettes"  
Pamphlets
7. Refreshments
8. Profile I's
9. 16 mm Projector
10. Screen
11. Film - "Owl and Fred Jones"
12. Leader's Attendance Sheet
13. Blackboard, Chalk and Eraser
14. Registration Forms
15. List of Guidelines

SESSION TWO

## (Outline)

Approximate  
Time in  
Minutes

- |    |  |
|----|--|
| 10 | <p>OPENING</p> <ol style="list-style-type: none"> <li>1. Welcome Back</li> <li>2. Quick Review of First Session</li> <li>3. Questions and Answers</li> <li>4. Preview of This Session</li> <li>5. Take Attendance</li> </ol>   |
| 30 | <p>DISCUSSION OF WRAPPING EXPERIENCE</p> <ol style="list-style-type: none"> <li>1. Set Stage</li> <li>2. Lead Discussion Around Group</li> </ol>   |
| 15 | <p>MOTIVATION</p> <ol style="list-style-type: none"> <li>1. Likes-Dislikes Exercise (Diagram)</li> <li>2. How can making a Personal List help prepare me? Discussion.</li> </ol>   |
| 15 | <p>HABIT AND REHABIT</p> <ol style="list-style-type: none"> <li>1. Explain how Motivation Relates to Habit</li> <li>2. Show Egg Concept (Diagram)</li> <li>3. Ask for Disagreement or Affirmation Discussion</li> <li>4. Ask if Old Habit Disappears - Discussion</li> </ol>   |
| 10 | <p>BREAK</p>   |
| 15 | <p>MOTIVES OF SUCCESSFUL EX-SMOKERS</p> <ol style="list-style-type: none"> <li>1. Ask and List Reasons for Quitting as Offered               <ol style="list-style-type: none"> <li>a. Break these down into: Health<br/>Example<br/>Aesthetics<br/>Self Mastery<br/>Economics</li> </ol> </li> <li>2. Ask if Reason Changes After you Quit? Discussion               <ol style="list-style-type: none"> <li>a. Make point of converting to positive motivation</li> </ol> </li> <li>3. Ask Analogy between Quitting and Ending a Love Affair</li> </ol> |

## SESSION TWO (continued)

Approximate  
Time in  
Minutes

## 15 QUITTING IS POSITIVE

1. Explain Converting to Positive takes Time
2. Give Quitting is Positive Demonstration  
Diagram and Discussion

## 10 CONCLUDE

1. Review
  - a. Discussed wrap and conclusions
  - b. Habit protected by desires
  - c. Positive reasons last longer
2. Review Assignments
  - a. Keep wrapping
  - b. 1/2 hour walk
  - c. Buy from envelope
3. Next Session
  - a. Dr.'s name
  - b. No fear techniques
  - c. How the body recovers is theme
4. Close Session

---

120

---

PROPERTIES

1. Name Tag Replacements
2. Felt Tip Pen
3. Pencils
4. Masking Tape
5. Flip Chart or Blackboard
6. Refreshments
7. Kits for Latecomers
8. Registration Forms for Latecomers
9. Replacements for Distributed Kits
10. Leader Attendance Sheet
11. ACS Poster
12. Optional - Tape Recorder for Review

SESSION THREE

## (Outline)

Approximate  
Time in  
Minutes

- |    |  |
|----|--|
| 5  | OPENING  |
|    | <ol style="list-style-type: none"><li>1. Welcome Back</li><li>2. Quick Review of 2nd Session</li><li>3. Questions and Answers</li><li>4. Attendance</li></ol>  |
| 5  | INTRODUCTION OF GUEST PHYSICIAN  |
|    | <ol style="list-style-type: none"><li>1. Name</li><li>2. Specialty and Practice</li><li>3. Education and Background</li><li>4. Professional Associations</li><li>5. Volunteer Activities for ACS</li><li>6. Ex-smoker Experience</li></ol>   |
| 45 | PHYSICIAN'S PRESENTATION   |
|    | <ol style="list-style-type: none"><li>1. Take Notes for Review</li><li>2. Interject Questions to Establish Informality</li></ol>   |
| 10 | BREAK  |
| 40 | PHYSICIAN'S PRESENTATION CONTINUED   |
|    | <ol style="list-style-type: none"><li>3. Bring up any Areas Left Out (do this only at end)</li></ol>   |
| 5  | CLOSE OF PRESENTATION  |
|    | <ol style="list-style-type: none"><li>1. Cut Off Dialogue</li><li>2. Thank Physician</li><li>3. Offer Opportunity for Physician to Exit</li></ol>  |
| 10 | CLOSING  |
|    | <ol style="list-style-type: none"><li>1. Review Session<ol style="list-style-type: none"><li>a. Offer to get answers of written questions</li><li>b. Go over key points made by physician</li></ol></li><li>2. Review Assignments<ol style="list-style-type: none"><li>a. 1/2 hour Walk</li><li>b. Wrapping Cigarettes</li><li>c. Money Envelope</li></ol></li></ol> |

## SESSION THREE (continued)

Approximate  
Time in  
Minutes

---

120

---

3. Preview Next Session
  - a. Smoker Type Test
  - b. Go Over Wrapping REMINDER: Bring  
in your wrap sheets
  - c. Explore Trigger Mechanisms
  - d. Prepare for 48 Hours Off Cigarettes
4. Close Session

PROPERTIES

1. Name Tag Replacements - Name Tag for M.D.
2. Felt Tip Pen
3. Pencils
4. Masking Tape
5. Flip Chart or Blackboard
6. Refreshments
7. Replacements for Kits
8. Leader Attendance Sheet

## OPTIONAL - PHYSICIAN MAY REQUEST

9. Projector
10. Tape Recorder
11. Lung and Heart Charts or Specimens
12. X-ray Viewer



SESSION FOUR

## (Outline)

Approximate  
Time in  
Minutes

15

## OPENING

1. Welcome Back
2. Take Attendance
3. Quick Review of Habit Concept
4. Preview of this Session
  - a. Smoker's Test
  - b. Trigger Mechanism
  - c. Prepare for 48 Hours
5. Ask for Examples of Habits that must be Learned to Illustrate they....
  - a. Require practice ... e.g. swimming
  - b. Slip back to old ways of doing things... e.g. foreign language
  - c. Require person to prepare and know what they are going to do before undertaking it... e.g. sky diving
6. Sit next to Buddy

20

## SMOKER'S TEST

1. Explain Purpose of Test
  - a. Type of smoker
  - b. What you get out of smoking
  - c. What smoking does for you
2. Distribute, Instruct and Administer Test
  - a. Have buddy administer
  - b. Do 18 questions at a time
  - c. Reverse procedure when one is completed
  - d. Ask for questions
  - e. Give go ahead (float around room)
  - f. Call halt when time is up
  - g. Tell how to score test
  - h. Compare with buddy's score

20

## TEST INTERPRETATION

1. Stimulation
2. Handling
3. Relaxation  
(Stimulation-Handling-Relaxation)
4. Crutch
5. Craving
6. Reflex  
(Crutch-Craving-Reflex)

10

## BREAK

## SESSION FOUR (continued)

Approximate  
Time in  
Minutes

20

## TRIGGER MECHANISM

1. Introduce the Concept
2. Formula: Trigger Mechanism = Activity +  
Feeling/Smoker type
3. Ask for Group Examples

30

## 48 HOUR PREPARATION

1. Tie in 48 Hour Exercise with Trigger Mechanism
2. Explain Idea of 48 Hours
3. Have Buddies make Arrangements to Help Each Other

5

## CLOSURE

1. Review Idea of the Test and Trigger Mechanism
2. Next Session
  - a. Phase Two
  - b. Compliment on being half way
  - c. Learn and discuss your experiences
3. Close Session

---

 120
 

---

PROPERTIES

1. Name Tag Replacements
2. Felt Tip Pen
3. Pencils
4. Masking Tape
5. Flip Chart or Blackboard
6. Refreshments
7. Leader Attendance Sheet
8. ACS Posters
9. Smoker's Tests
10. Smoker 48 Hour Preparation Sheets
11. Tip Sheet
12. 24 Hour Plan Sheets

SESSION FIVE

## (Outline)

Approximate  
Time in  
Minutes

5

## OPENING

1. Introduce Guest Ex-smokers
2. Preview of this Session
3. Review Nature and Purpose of 48 Hour Experiment
4. Reset Rules for Discussion
5. Attendance (take this during discussion)

40

## DISCUSSION

1. Set Discussion in Motion
2. Give Everyone an Opportunity to Report

30

## EX-SMOKERS

1. Introduction
2. Ex-smokers tell their Experience
3. Group/Ex-smoker Question and Answer Period
4. Excuse Ex-smokers

10

## BREAK

30

## REDIRECTION OF GROUP

1. Raise Question of Group Direction
2. Suggest Group Discussion Leader
3. Suggest Goals such as Another 48 Hour Period

5

## CLOSING

1. Review
  - a. Summarize discussion ideas
  - b. Compliment group process
2. Preview
  - a. Discuss goals of group
  - b. Learn "Active Listening"
3. Close Session

## (Outline)

Approximate  
Time in  
Minutes

5 OPENING

1. Preview of Session
  - a. Discuss goals
  - b. Learn active listening
2. Review Goals from Previous Session
3. Take Attendance

45 DISCUSSION

1. Turn Discussion over to Discussion Leader
2. Take Notes
3. Summarize New Goals

10 BREAK

55 ACTIVE LISTENING EXERCISE

1. Introduce Concept with Diagram
2. Solicit and List Listening Cues
3. Buddy Listen Exercise (reverse)
4. Summarize Purpose of Exercise

5 CLOSE

1. Review
2. Preview Next Session
  - a. Discussion
  - b. Answer Original Objectives of program
  - c. I.Q. Club
  - d. Scope of Life
3. Close

---

120

---

PROPERTIES

1. Name Tags
2. Felt Tip Pen
3. Pencils
4. Masking Tape
5. Refreshments
6. Leader Attendance Sheet
7. ACS Posters

Optional - Tape Recorder to record Active Listening for later analysis.

SESSION SEVEN

## (Outline)

Approximate  
Time in  
Minutes

- |    |   |
|----|---|
| 5  | <p>OPENING</p> <ol style="list-style-type: none"> <li>1. Exchange Thoughts on Active Listening</li> <li>2. Take Attendance</li> <li>3. Preview of Session</li> </ol>  |
| 20 | <p>ANSWERING OBJECTIVES</p> <ol style="list-style-type: none"> <li>1. Set up Concept of Answering their Own Objectives</li> <li>2. Turn Over Process to Discussion Leader</li> <li>3. Conclude and Summarize</li> </ol>   |
| 30 | <p>DISCUSSION</p> <ol style="list-style-type: none"> <li>1. Allow Group to Resume its Group Discussion of Goals</li> </ol>  |
| 10 | <p>BREAK</p>  |
| 25 | <p>SCOPE OF LIFE</p> <ol style="list-style-type: none"> <li>1. Establish Concept of Others Helping</li> <li>2. Explain Scope of Life</li> <li>3. Group does Own Scope</li> <li>4. Questions on How Individuals can Help or Hinder</li> </ol>  |
| 25 | <p>I.Q. CLUB</p> <ol style="list-style-type: none"> <li>1. Explain Concept</li> <li>2. Outline Previous Efforts</li> <li>3. Allow Group Time to Set Up First Meeting               <ol style="list-style-type: none"> <li>a. Time</li> <li>b. Location</li> <li>c. Attendance</li> </ol> </li> </ol>  |
| 5  | <p>CLOSING</p> <ol style="list-style-type: none"> <li>1. Review</li> <li>2. Preview of Next Session               <ol style="list-style-type: none"> <li>a. Will take a look at advertising (ask for ads)</li> <li>b. Will Review Whole Program</li> <li>c. Graduation Ceremony</li> <li>d. Solicit suggestions for next group</li> </ol> </li> <li>3. Close Session</li> </ol> |

---

120

---

(Outline)

Approximate  
Time in  
Minutes

- |    |  |
|----|--|
| 5  | OPENING  |
|    | <ul style="list-style-type: none"><li>1. Review of Previous Session<ul style="list-style-type: none"><li>a. Answering objectives</li><li>b. Discussion</li><li>c. Scope of Life</li><li>d. I.Q. Club</li></ul></li><li>2. Preview of this Session<ul style="list-style-type: none"><li>a. Review of program</li><li>b. Advertising</li><li>c. Time for Discussion</li><li>d. Graduation</li><li>e. Get ideas for next group</li></ul></li><li>3. Take Attendance</li></ul>           |
| 10 | REVIEW OF PROGRAM  |
|    | <ul style="list-style-type: none"><li>1. Go Through each Session, Review Concept and Purpose<ul style="list-style-type: none"><li>a. Session One - Habit</li><li>b. Session Two - Motivation</li><li>c. Session Three - Health</li><li>d. Session Four - Insight into behavior<br/>48 Hour Experiment</li><li>e. Session Five - Discuss 48 Hours</li><li>f. Session Six - Active Listening</li><li>g. Session Seven - You the Expert</li></ul></li><li>2. Answer Questions</li></ul> |
| 15 | ADVERTISING  |
|    | <ul style="list-style-type: none"><li>1. Collect copies and put on wall</li><li>2. Discuss intent of advertisers</li><li>3. Conclude purpose of this survey</li></ul>  |
| 10 | BREAK  |
| 30 | GROUP DISCUSSION   |
|    | <ul style="list-style-type: none"><li>1. Finalize plans for I.Q. Club</li><li>2. Introduce I.Q. Buttons</li></ul>  |

## SESSION EIGHT (continued)

Approximate  
Time in  
Minutes

20 GRADUATION CEREMONY

1. Thanks to both group and discussion leader
2. Certificates of Achievement distributed
3. Bravery Certificates issued
4. Humorous Awards

15 EVALUATION

1. Profile II
2. Program Evaluation

5 CIGARETTE MAD MONEY

1. How to spend it
2. Suggest money on calendar idea

10 CLOSING

- 
- 120
1. Personal note
  2. Close session and program
- 

PROPERTIES

1. Name Tags
2. Felt Tip Pen
3. Pencils
4. Masking Tape
5. Refreshments
6. Leader Attendance Sheet
7. ACS Posters
8. Cigarette Advertisements cut from Magazines
9. Profile II
10. Program Evaluations
11. I.Q. Buttons
12. Certificates of Achievement
13. Bravery Certificates
14. Humorous Awards

APPENDIX D

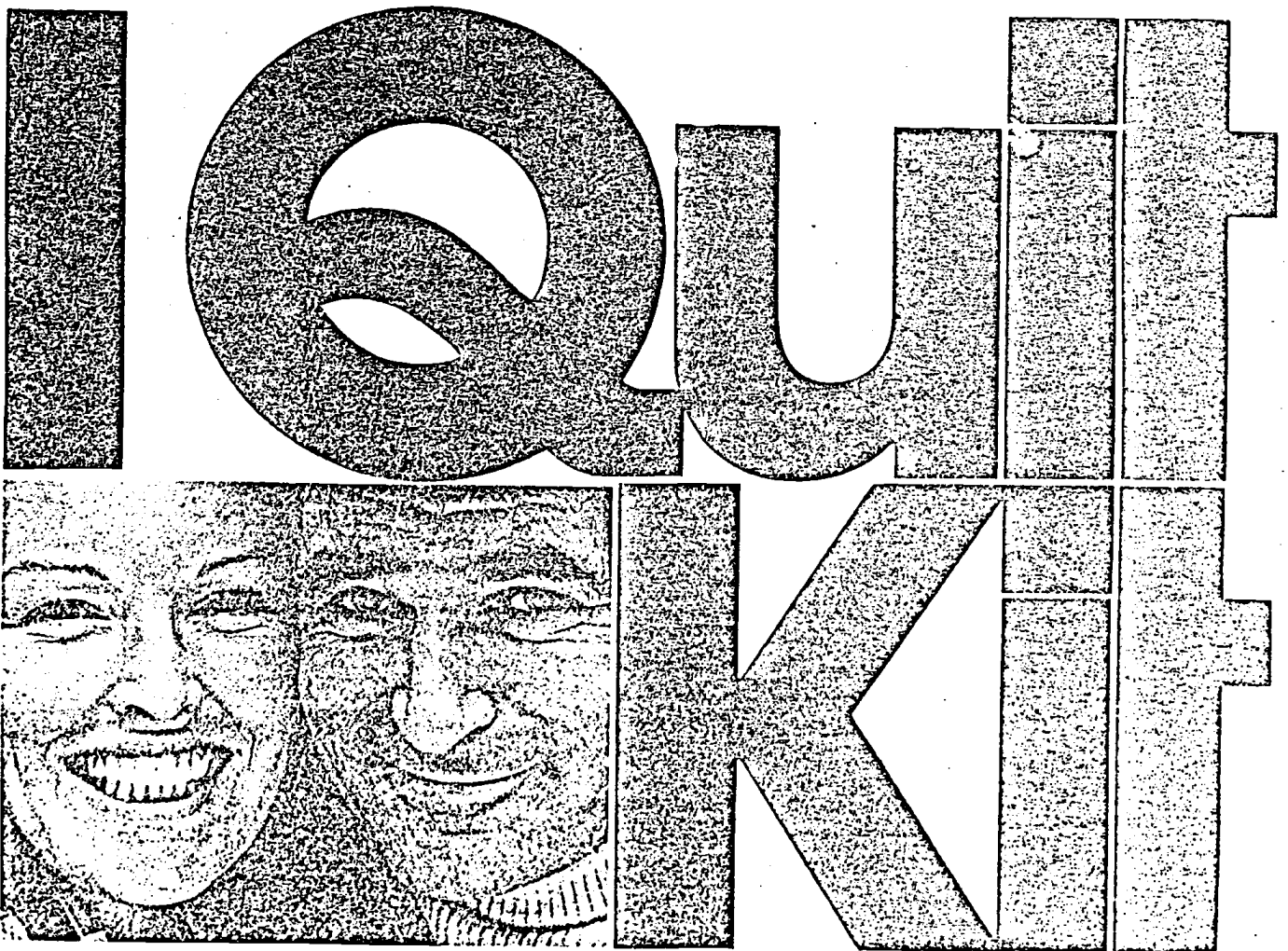
SELF-HELP TREATMENT OUTLINE

(Reproduced from American Cancer Society  
Self-help Kit, Copyright, 1978)



Best scan available  
for remaining  
pages in this  
document.  
Original is a faded  
photocopy.

# A SELF HELP STOP SMOKING PROGRAM FROM THE AMERICAN CANCER SOCIETY



# Before You Begin

**1. Fill out the Smoker's Self-Awareness Profile and read the Questions and Answers about Smoking in the Why Quit folder.**

If you're like most people, you've opened this *I Quit Kit* and looked through everything. You've looked through the *Why Quit* folder; you may even have filled in the *Self-Awareness Profile*. You've probably seen the record and maybe you've

played it, and you may have unfolded the *We Quit* poster and stuck it up on a wall. You've probably looked at the buttons, the desk-sign, and the stickers in the *Stay Quit* folder, and you may have looked at the *I Quit Calendar* in the *When Quit* folder. And you've probably scanned this booklet before settling down to read it. If so, you're ready to go.

But if you've just opened this folder and begun reading, please go back immediately to the *Why Quit* folder, and fill out the *Smoker's Self-*

How Quit

*Awareness Profile.* This should give you valuable insights into your reasons for smoking and quitting. Armed with this self-knowledge you will be better prepared to exchange your smoking habit for a non-smoking habit.

Next, read *Questions and Answers about Smoking*. They will help correct some misconceptions you may have about the dangers of smoking and the benefits of quitting.

## **2. Schedule your I Quit Program on the I Quit Calendar.**

Now take a look at the *I Quit Calendar*. There are no dates on it, but it is designed to represent two full weeks. This program is planned to be completed in seven days plus a "quit day."

We don't know which day of the week you'll want to start, so we've included self-adhesive labels for day 1, day 2, etc. through "Q" for "quit day." You can pick the day of the week you want to start (the first of the week, perhaps a Monday when you might be more relaxed), or perhaps you'd rather start by selecting a "quit day"

and work backward toward day 1.

Stick on the labels for day 1 through "Q" day. You'll notice there are also eight self-adhesive gold stars in the folder. After the successful completion of each day, award yourself a star in the space provided on the calendar.

Perhaps *today* is the day you want to begin. If so, congratulations! You've taken the first step toward better health and a better life. Now read the instructions for day 1.

Read each day's instructions the first opportunity you have, before breakfast if possible, and follow them faithfully. Quitting smoking is a *conscious* act which requires conscious self-discipline—so make it a rule to stick to the programs as closely as possible. Set a plan for each day even if you should decide to repeat the same plan for more than one day.

You may suffer a relapse, no matter how good your intentions. Don't regard any setback as a sign of failure. It isn't easy to quit smoking, but you can do it! If the first quit period isn't successful, go back to the last day of the plan that you were successful with and pick it up from there.



How @uit

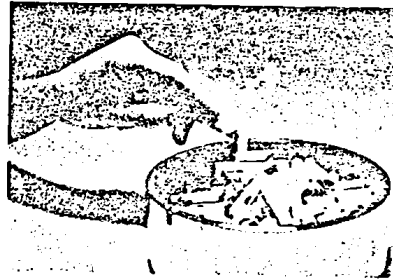
# 1

## DAY



### 1. Change your brand of cigarettes, and buy only one pack at a time.

Today throw out all your cigarettes even if you have ten cartons of them. Now buy *one pack* of another brand, particularly one that you don't like. Don't buy another pack until you've smoked the first. Smoking has been called "the unconscious act." To quit smoking, first you've got to become conscious of the act of smoking, and then apply your consciousness to developing a habit of *not* smoking. The first step is to be aware of every pack you smoke by making it an



act of conscious will to buy a pack of cigarettes.

### 2. Rate your need for each cigarette on a Smoking Record.

If you're like most smokers, you probably smoke a lot more often than you really *feel* like smoking. To prove this to yourself, take a sheet of ruled paper and write the following headings across the top of the sheet: "Cigarette," "Time of Day," "Activity," "Feeling," "Need Rating from 1 to 3." Below "Cigarette," write down the number each cigarette represents. The first few lines might look as in the box below:

Cigarette	Time of Day	Activity	Feeling	Need Rating from 1-3
1	8:45	waiting for bus	bored	3
2	9:20	on telephone with customer	irritated	1
3	10:30	coffee break	relaxed	2

A number "1" would mean you feel you need the cigarette very much and couldn't function without it. A number "2" would mean you want the cigarette, but not that badly. A number "3" would mean that you really could do without it.

Fill out the Smoking Record *before* you light up each cigarette. Remember that the purpose of this exercise is to make you conscious of the *decision* to smoke.

Keep this Smoking Record stuffed inside the cigarette wrapper or wrapped around it with a rubber band, so that it will always be handy and you can't reach for a cigarette without seeing and filling out the Smoking Record.

We're not asking you to start cutting down today, but you may be surprised to see how often, after you've *consciously analyzed* your desire to smoke a cigarette, you'll decide not to smoke it after all.

### **3. Put Up the We Quit poster.**

Put the *We Quit* poster up where you'll see it often—on the refrigerator or on the wall of your office.

You'll recognize the faces of a few famous people who've quit smoking, but you'll also see a lot of faces you *don't* recognize—ordinary *unfamous* people—a secretary, an airline stewardess, an advertising executive, etc.

You can be one of them. In fact, when you've really quit, it might be fun to put your own picture in the square labeled "Who's missing?"

### **4. Don't clean out your ashtrays.**

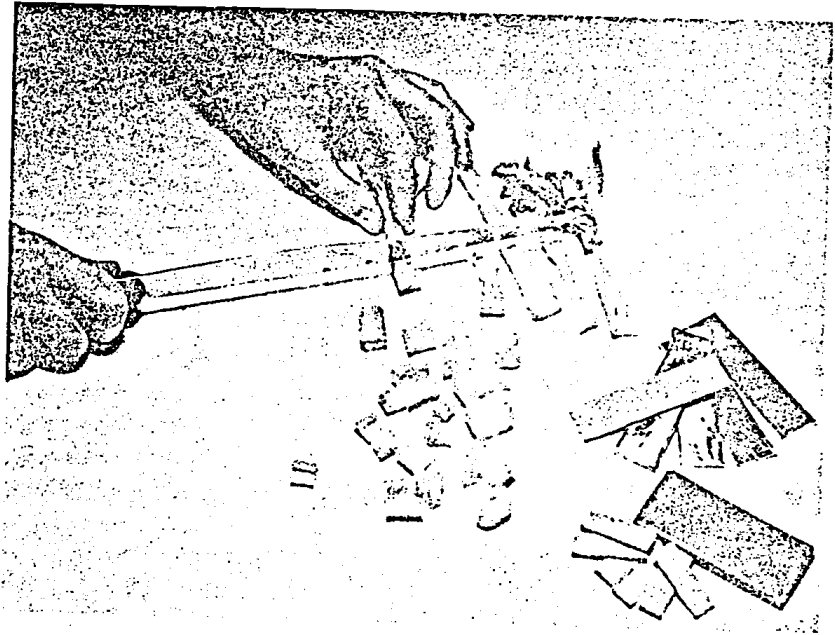
This is another "consciousness-raising" exercise. As the butts pile up you'll become acutely aware of just how many cigarettes you've smoked during the day.

### **5. Read the Quit Tips in the Stay Quit folder.**

Note particularly the *Tips to help you quit*. We'll mention some of them in this program, but others may be useful as "optional" activities or devices. All of them have proved successful for some smokers. Maybe a few of them will work for you.

# 2

## DAY



### 1. Stack up on low-calorie "snacks."

Smoking satisfies what psychologists call an "oral need." As another way of satisfying this oral need, stock up on celery, carrot sticks, or sugarless gum and keep them handy. Don't start eating cookies, candy, or peanuts, or you will soon have a weight problem as difficult to overcome as your smoking habit. If coffee and cigarettes go together for you, try switching to tea, a soft drink, or juice when you would normally

drink coffee.

### 2. Start cutting down on your smoking.

Keep up your Smoking Record, but today when you rate a cigarette a "3," don't smoke it. Try a stick of gum or celery or a carrot stick. Or get up for a stretch or a stroll.

### 3. Play side 1 of the *Who Quit* record.

Misery loves company, and quitting smoking may be a chal-

lenge, but it isn't fun. If you want some company, play side 1 of the *Who Quit* record and hear how some famous and not-so-famous people faced the challenge (and the miseries) of quitting.

You'll also hear about some of the *rewards* of quitting too, and it's important to keep these in mind. Quitting gives you a lot to look forward to: more energy (because that CO<sub>2</sub> is out of your system), a cleaner taste in your mouth, and freedom from an expensive and nonproductive habit.

On this side you'll also hear a beautiful song, "Summer's Come

and Gone." Listen to the words, and think about what an extra six years of life (the average nonsmoker lives six years longer than the average smoker) would mean to those you love.

#### **4. Take a walk.**

Exercise is a great way to relax, to work off tensions and work out worries. Take a 20 minute walk after dinner instead of smoking your after-dinner cigarette. It'll help you digest your food and give you a chance to fill your lungs with clean fresh air instead of smoke.





# 3 DAY

## 1. Cut down more on your smoking.

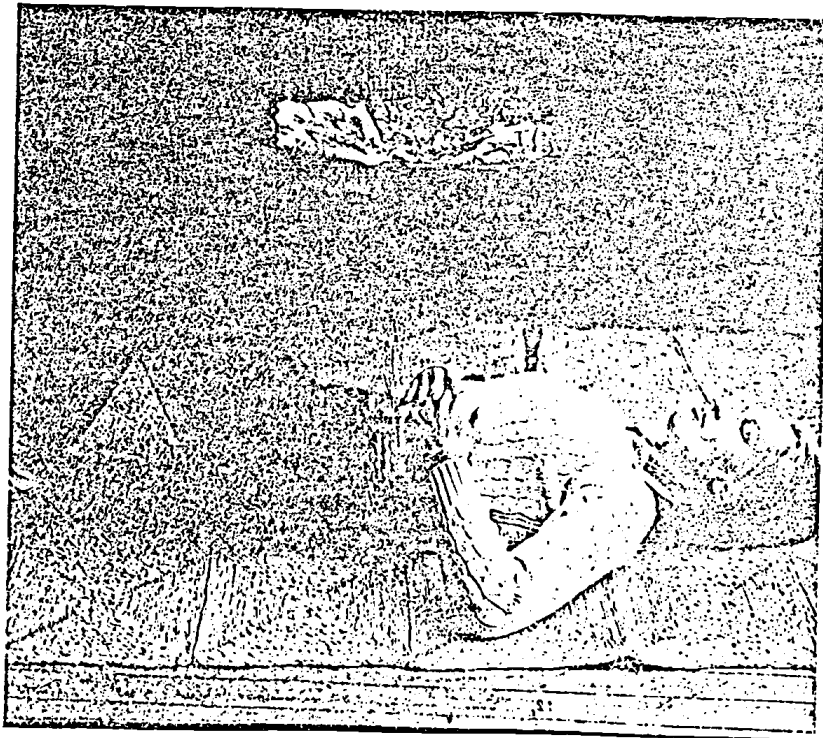
Are you still keeping your Smoking Record? Don't get out of the habit of doing so. Remember, as you smoke fewer cigarettes, you'll have a better check on what cigarettes are the hardest for you to give up.

Have you been successful in eliminating any of your number

3-rated cigarettes? If so, try today to skip some of your number 2-rated cigarettes.

## 2. Play the exercise program on band 1 of side 2 of the *Who Quit* record.

A professionally designed and tested deep breathing exercise, practiced morning and evening will help relieve tensions and



combat the urge to smoke.

To help get yourself started, play the exercise on the first band on side 2 of the *Who Quit* record. After you've played it a couple of times, you'll probably be able to do the exercise without the record, in your office, in school, or wherever you happen to be.

Try another, simpler breathing exercise as a *substitute* for a cigarette. A lot of people find that the action of breathing in and out deeply three or four times makes them feel better and more relaxed (with a fresher taste in their mouths than if they'd smoked a cigarette).

### **3. Pace yourself on a time basis.**

Pick a particular time of the day when you generally smoke and try to go for a definite, scheduled period without smoking—say one hour if you're a heavy smoker, two hours if you're a moderate smoker, or a half-day if you're a light smoker.

Remember two facts:

(A) *You can exercise self-control over smoking.* You don't smoke on a bus or in a theater do you? Why? Because you accept the *externally imposed* restraint

and you live with it. If you can accept an *externally* imposed restraint, you can accept an *internally* imposed restraint as well. In other words, you can tell *yourself* to stop smoking.

(B) The urge to smoke *will go away whether you smoke or not.* The craving for nicotine, the urge to light up, will pass if you don't smoke. It will reassert itself again later on, but *less forcefully*, and if you don't give in, the *next* urge will be easier to resist.

### **4. Go for a walk.**

Make moderate exercise part of your quitting regimen. You may grow to like the feeling of peace and relaxation it brings and decide to keep it up after you've quit smoking.

Doctors have noted that many patients who smoke seem to have "given up on their bodies," especially those whose work is basically sedentary. Remember what pleasure you used to take in your physical prowess? Even if you were not particularly athletic, you enjoyed physical activity. You can regain that kind of pleasure, that kind of physical confidence, but you'll need clean lungs to feel that way again.



4  
DAY



**1. Take a good look at the  
We Quit poster.**

Imagine yourself in the "Who's  
Missing?" square. You'll be in

good company. A lot of famous  
people have quit smoking, and a  
lot of ordinary people have too.

How many faces do you recog-  
nize? Most of the people you

won't recognize at all, because they're people much like you.

Quitting was hard for many, but for some it went smoothly. They were all prey to pressures, tensions, and temptations, but they overcame them to join the growing majority of ex-smokers who have made a commitment to quit.

## **2. Pick a situation in which to quit smoking.**

Probably the best situation to pick would be one in which you would not be too tempted to smoke anyway, say walking somewhere, or working in the kitchen.

But maybe you'd rather pick a tougher situation, say at a meeting or at a party.

Pretend there's a "No Smoking" sign in the room or nailed to a tree and don't smoke for the duration of the particular activity you've chosen.

Once you've learned you can control your smoking urge in one situation, try others. You'll find that in many of those situations in which you feel you just "have to have a cigarette," you really *don't* need a cigarette at all.

## **3. Switch to a different brand of cigarette and continue to keep your Smoking Record.**

By now, a lot of your cigarettes should be rated 2 instead of 1, since you should be gaining considerable mastery over your smoking urge. Don't kid yourself and start rating cigarettes 1 that should be rated 2 or 3.

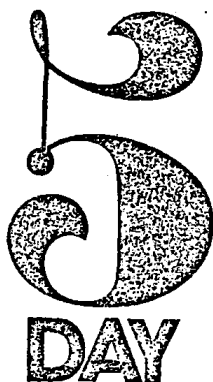
Remember, you could live without that cigarette if you *had* to, say if your arms were full of packages or you were skiing or swimming. Tell yourself you can't smoke those cigarettes. Try to quit smoking all of those 2-rated cigarettes today.

## **5. What about quitting cold tomorrow?**

Are you making good progress? Have you really cut your cigarette consumption? Are you feeling good? Feeling confident? If so, maybe you're ready to quit cold!

If so, skip to day 7, and move the 7 on your *I Quit Calendar* to tomorrow.

If you feel hesitant, stay with the program and go on to Day 5 tomorrow.



### **1. Put away your matches and lighters.**

If you have to ask someone for a light every time you want to smoke, you'll gain precious minutes in which to change your mind.

Keep up with your Smoking Record. Today you should be smoking no number 2-rated cigarettes and your number 1-rated cigarettes should have diminished to just a few.

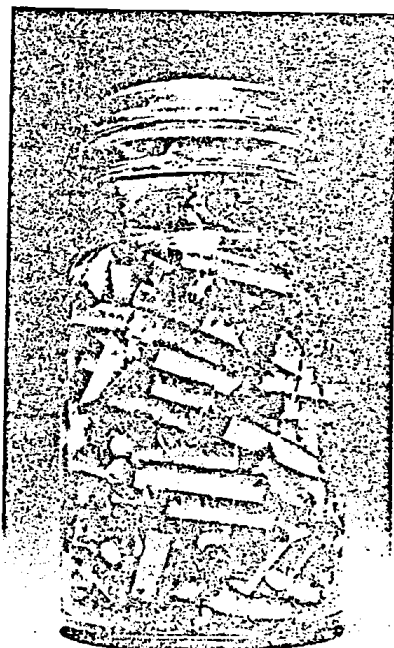
### **2. Better yet, throw away your cigarettes.**

Now you'll have to get whatever cigarettes you want from other smokers. This will make smoking an even *more* conscious act than asking for a light.

We're not trying to *embarrass* you out of smoking, just to give you a better chance of practicing the kind of self-control you're going to need tomorrow because....

### **3. Tomorrow you'll quit smoking for 24 hours.**

That's right. Tomorrow you're going to stop smoking for 24 hours, and today you should "psych yourself up" for the event.



Call your friends. Tell them—your non-smoking or ex-smoker friends—that you're quitting. They'll give you lots of encouragement, but the real reason for doing this is to declare your intentions and commit yourself more fully.

### **4. Clean out your ashtrays at the end of the day.**

Put the butts in a glass jar if



you can find one, so you can look at them and take off the lid and take a sniff tomorrow if you're tempted to smoke.

**5. Play the second band through to the end on side 2 of the *Who Quit* record.**

These bands on the record are radio spots written by students at the University of Michigan and performed by the New York Hys-

terical Society.

He who laughs last laughs best, and now that you've survived these first 5 days and you're committed to quitting for the next 24 hours, you deserve a few laughs.

**6. Keep up the breathing exercises.**

**7. Keep on taking walks.**

6  
DAY





### **1. Don't smoke for 24 hours.**

If you can get through this day, the next will be easier, and easier, and easier, until after a while the urge to smoke will leave you and you'll wonder why you didn't quit years ago.

The battle isn't over yet, though, and you should be very wary today. Avoid the patterns you've discovered that connect you to the smoking habit. Especially avoid alcohol, because alcohol lowers your resistance to temptation, and you'll need all the will power you can muster today.

Generally avoid all situations that you normally associate with smoking. You know what they are.

If you're tempted to have a cigarette, *don't do it*. Do something else. Try a breathing exercise, or a stick of gum, or take a walk around the block.

### **2. Call up your friends, report on your progress.**

Remember, call only non-smokers. Smoking friends may pooh-pooh your accomplishment with cracks about how many

times they've quit. Your smoking friends will not be supportive; they may in fact be a trifle resentful of your success and feel it is a reflection on their own will power if you rid yourself of a dependency they haven't escaped.

So call your non-smoking friends. Ex-smokers will be particularly appreciative and supportive, because they've been through it too. They may even have some helpful suggestions about how to resist the temptation to start smoking again.

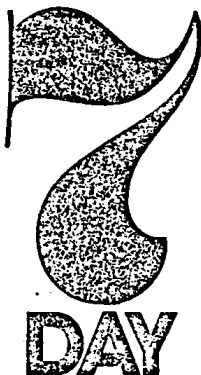
### **3. Check through the Quit Tips in the Stay Quit folder.**

Take particular note of the *Tips to help you maintain your nonsmoking habit*.

*Maintaining* the nonsmoking habit can be as hard as quitting for some people. You'll find lots of helpful suggestions here that have been tried successfully by other ex-smokers.

They won't all work for you, but if you find one or two that will help you through those times—times of stress or depression—when you really wish you had a cigarette, they will have served you well.





**1. If you got through one day you can get through another.**

This day will be easier than yesterday. Most smokers don't believe they can really get through a *whole day* without smoking. You've done it! Doing it again should be easier.

But don't let down your guard! Cockiness is the worst enemy of the ex-smoker. Keep planning. Continue consciously to stay away from situations and coffee and drinks and anything else that you associate with smoking.

Keep busy. Keep active. Don't give yourself a chance to think about smoking.

**2. Exercise.**

Your lungs should feel cleaner already. Truly. You may cough more than usual, but that's the lungs' cleansing mechanism at work.

All trace of cigarette taste will have disappeared from your mouth by now. Breathe deeply and enjoy that good fresh air. Take a walk. (We hope it isn't raining or snowing.) If it's raining,

stick your head out the door and smell the rain. Smell some fresh flowers, or an apple, or an orange.

**3. Save the money you're not spending on cigarettes.**

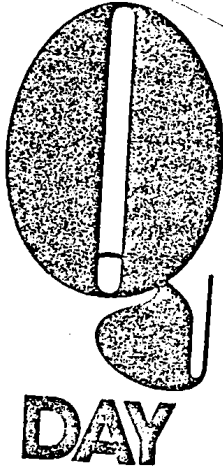
Put the price of the cigarettes you used to smoke in some safe place. Add to it every day, and when you've saved your cigarette money for a few weeks, buy yourself a present.

If you save that money for a year, you'll probably actually be able to take a vacation trip that you wouldn't otherwise have taken.

**4. If you broke down and had a cigarette yesterday don't give up.**

Pick yourself up, dust yourself off, and stay away from cigarettes today. If you're really having difficulty, go back to Day 4 and work your way on from there.

There's no disgrace in failing. Review the things that worked for you and think about those that didn't. But don't quit quitting. Go going again.



### 1. Congratulations!

You've been off cigarettes for two days! Stick with it. And wel-

come to the honorable and growing order of ex-smokers.

You've just saved yourself several hundred dollars a year in very nondeductible expenses. (Think of how much you had to earn *before* taxes to pay for your smoking habit. Then gloat.)

And, statistics show, you've probably added about five years to your life-span, *and* you've added immeasurably to your enjoyment of life.

### 2. Tell the world.

In the *Stay Quit* folder you'll find a table-top sign that says "No thanks. I Quit." Put it where anyone who might feel compelled to offer you a cigarette will be warned of your conversion and conviction.

You'll also find some "I Quit" pressure sensitive labels. You can put them in your ashtrays, on your automobile windshield, or on your luggage (when you take that vacation trip with the money you've saved).

And you've got a choice of two buttons to wear—one that proclaims, "I'm a quitter" and another that tells anyone who might offer you a cigarette, simply, "No thanks, I quit."



**Congratulations!**

APPENDIX D  
ADDENDUM

In addition to the section entitled "How to Quit" the self-help kit included the following sections: "Why Quit," "When Quit," "Who Quit," "We Quit," and "Stay Quit." The program was augmented by stop smoking posters and buttons. Also, recorded messages were provided on a 33-1/3 microgroove record. These included songs, personal messages, humor, and a breathing exercise.

APPENDIX E

MEMORANDUM INTRODUCING CESSATION PROGRAM



State of California

THE RESOURCES AGENCY

**Memorandum**

To : All Sacramento Based Employees  
of the Resources Agency

Date : SEP 14 1978

File No.:

Subject: Help for Smokers Who  
Want to Quit

From : Office of the Secretary

Newspaper articles and television specials report an increasing health awareness in this country. Americans are showing a greater concern than ever for the maintenance and improvement of their personal health. As an example, many people are seeking to enhance their physical well-being by reducing or stopping their smoking habit.

In light of this interest, I would like to share with you an opportunity for Sacramento based employees of departments in the Resources Agency to participate in a smoking cessation program sponsored by the American Cancer Society. In an effort to learn more about smoking and help those seeking to quit, starting this fall, researchers will be conducting a project in this Agency. Participation in this project is strictly on a volunteer basis and involves no fee.

I wish to emphasize that the decision to smoke is clearly a personal one. However, for those smokers who are seriously considering giving up smoking, this is an excellent opportunity and I encourage your participation.

Please take a minute to complete and return the brief questionnaire on the back of this memorandum.

**Redacted for Privacy**

Huey D. Johnson  
Secretary for Resources

APPENDIX F

MEMORANDUM APPROVING RELEASE TIME  
FOR CESSATION PROGRAM PARTICIPANTS

## APPENDIX F

Departmental Directors  
Resources Agency

Smoking Cessation  
Clinics

You will recall that I previously sent a memo to Sacramento based employees in departments in the Resources Agency inviting smokers who were interested to take part in a program to help them quit smoking. Some 250 employees returned the questionnaire attached to the memo.

The coordinator and resource person for the smoking cessation program, Doug Flow, University of San Francisco faculty member, is soon to start onsite smoking cessation clinics in the Resources Building. He originally planned to conduct these during the participants' lunch break, but it does not appear that 45 minute sessions would be sufficient to establish the necessary level of individual involvement and commitment to get results. It is now proposed that the clinics be conducted during working hours. A full clinic would total 16 hours and be conducted in two hour sessions on Mondays and Wednesdays over a four week period.

Quitting smoking benefits the State as an employer as well as contributing to the better health of the employee. Research has established that smokers as a group use significantly more sick leave than nonsmokers. A reduction in sick leave usage would more than offset the time costs of participation in such clinics. Therefore, I recommend you allow those who are interested release time to take part in these clinics.

Huey D. Johnson  
Secretary for Resources

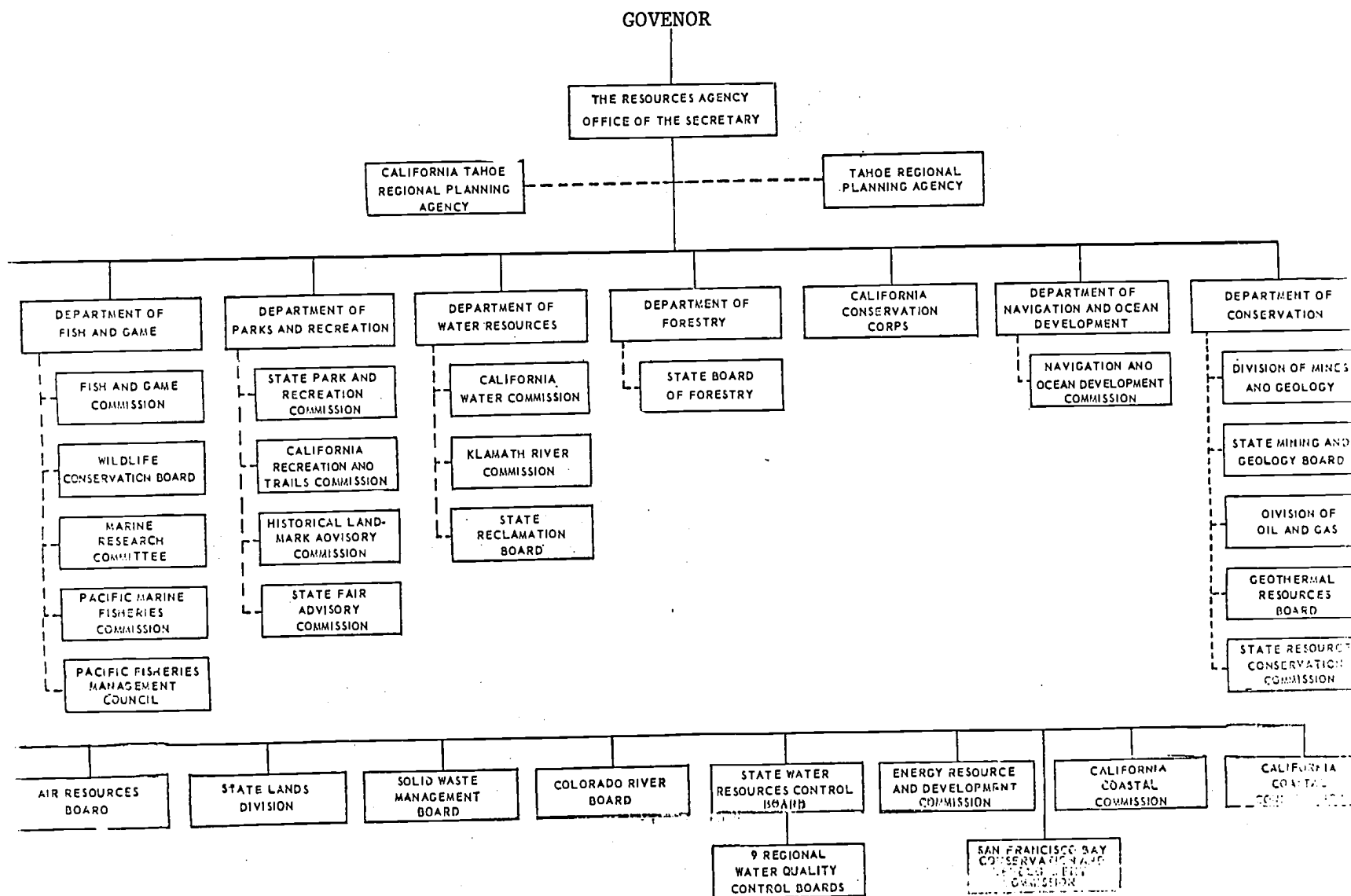
Attachments

JBJohnston:srw

APPENDIX G

ORGANIZATION CHART FOR RESOURCES AGENCY

(STATE OF CALIFORNIA)



APPENDIX H

HEW HUMAN SUBJECTS EXPERIMENTATION DOCUMENTS

## OREGON STATE UNIVERSITY

## APPLICATION FOR APPROVAL OF THE HUMAN SUBJECTS BOARD

Principal Investigator\* \_\_\_\_\_  
Department \_\_\_\_\_ Phone \_\_\_\_\_  
Project Title \_\_\_\_\_  
Present or Proposed Source of Funding \_\_\_\_\_  
Type of Project \_\_\_\_\_ Faculty Research Project  
\_\_\_\_\_ Graduate Student Thesis Project\*  
(Student's name \_\_\_\_\_)

The following information should be attached to this form. All material, including this cover sheet, should be submitted IN DUPLICATE to the Office of the Dean of Research, AdS A312. Feel free to call extension 3437 if you have questions.

1. A brief description of the methods and procedures to be used during this research project.
2. A list of the risks and/or benefits (if any) to the subjects involved in this research.
3. A copy of the informed consent document and a description of the methods by which informed consent will be obtained. (Information concerning the "Basic Elements of Informed Consent" is reproduced for your information on the back of this form.)
4. A description of the method by which anonymity of the subjects will be maintained.
5. A copy of any questionnaire, survey, testing instrument, etc. (if any) to be used in this project.
6. If this is part of a proposal to an outside funding agency, attach a copy of the proposal.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
Principal Investigator

\*Note: Graduate Student Thesis projects should be submitted by the major professor as Principal Investigator.

## BASIC ELEMENTS OF INFORMED CONSENT

The informed consent of subjects will be obtained by methods that are adequate and appropriate. Informed consent is the agreement obtained from a subject, or from his authorized representative, to the subject's participation in an activity.

The basic elements of informed consent are:

1. A fair explanation of the procedures to be followed, including an identification of those which are experimental;
2. A description of the attendant discomforts and risks;
3. A description of the benefits to be expected;
4. A disclosure of appropriate alternative procedures that would be advantageous for the subject;
5. An offer to answer any inquiries concerning the procedures;
6. An instruction that the subject is free to withdraw his consent and to discontinue participation in the project or activity at any time.
7. With respect to biomedical or behavioral research which may result in physical injury, an explanation as to whether compensation and medical treatment is available if physical injury occurs and, if so, what it consists of or where further information may be obtained.

In addition, the agreement, written or oral, entered into by the subject, should include no exculpatory language through which the subject is made to waive, or to appear to waive, any of his legal rights, or to release the institution or its agents from liability for negligence.



## OREGON STATE UNIVERSITY

## Committee for Protection of Human Subjects

Summary of Review

Title: A Comparison of Two Cigarette Smoking Cessation Techniques in an  
Occupational Setting

Program Director: Gordon W. Anderson (Douglas L. Flow)

## Recommendation:

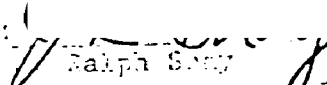
- ☒ Approval  
☐ Provisional Approval  
☐ Disapproval  
☐ No Action

Remarks:

Redacted for Privacy

Date: August 10, 1978

by Dr. H. J. J. J.

Signature:   
Ralph S. S. S.  
Assistant Dir. Research  
Phone: 754-3437

Principal Investigator\* Gordon W. Anderson, Ed.D.

Department Health Phone 754-2686

Project Title A Comparison of Two Cigarette Smoking Cessation Techniques in an Occupational Setting

Present or Proposed Source of Funding None

Type of Project        Faculty Research Project

  X   Graduate Student Thesis Project\*  
(Student's name Douglas L. Flow 753-1838)

1. A brief description of the methods and procedures to be used during this research project.
2. A list of the risks and/or benefits (if any) to the subjects involved in this research.
3. A copy of the informed consent document and a description of the methods by which informed consent will be obtained. (Information concerning the "Basic Elements of Informed Consent" is reproduced for your information on the back of this form.)
4. A description of the method by which anonymity of the subjects will be maintained.
5. A copy of any questionnaire, survey, testing instrument, etc. (if any) to be used in this project.
6. If this is part of a proposal to an outside funding agency, attach a copy of the proposal.

Redacted for Privacy

Signed \_\_\_\_\_ Date August 7, 1978  
 // Principal Investigator

\* Note: Graduate student thesis projects should be submitted by the major professor as Principal Investigator.

1. A brief description of the methods and procedures to be used during this research project.

### Design of Study

#### A. Source of Data:

1. The N of this experiment will consist of 180 employees from the Resources Agency, State of California. All employees will reside and be employed in the greater Sacramento area. Subjects will be randomly selected from a larger pool of employees who smoke and have volunteered to participate in a smoking cessation program. They will respond to a "smoker's questionnaire" (see attached Appendix II) circulated by the Resource Agency via newsletters and memoranda. After random selection, subjects will be assigned to either of two treatment groups (75 subjects each) or the control group (30 subjects). An assessment battery will be administered to all subjects, TI, TII, and control (see attached Appendix I).

#### B. Randomization and Treatment Assignment:

To facilitate randomization and subject assignment, the following technique will be utilized: (1) Utilizing data received from the initial questionnaire (Appendix I), a pool of "interested" smokers will be generated; (2) From this pool 180 participants will be selected by utilizing a table of random numbers; (3) Each treatment (TI, TII, and control) will be randomly assigned a number from one to three; and (4) Subjects will be sequentially assigned to Treatments I, II, and III.

#### C. Treatment Description:

The treatment methods will be based on two approaches currently employed by the American Cancer Society: (1) Treatment I represents the traditional group approach as currently employed by the American Cancer Society in some 2,000 clinics nationwide. The procedure entails twice weekly meetings, two hours each, for a period of one month. (2) Treatment II consists of the "I Quit Kit" which is designed to be a self-directed and self-motivated program. The kit incorporates several of the exercises from the group program as well as parts of Walter Ross' book You Can Quit Smoking in 14 Days.

#### D. Follow-up:

Subsequently, after the four-week treatment period, each subject will be contacted at 4, 8, and 12 weeks. This follow-up data will consist of the number of cigarettes estimated to have been smoked by each subject in the previous 48 hours.

2. A list of the risks and/or benefits (if any) to the subjects involved in this research.

As designed, the treatments employed will not present risk - either physical or psychological - to participating subjects. The only negative aspect will be of a relative and subjective nature. Some subjects will encounter minor physical discomfort as they withdraw from their smoking habit. However, it is emphasized that this is a common phenomenon known to smokers attempting to quit and is independent of the treatment proposed in this study. On the other hand, the health benefits derived from either reducing or quitting the smoking of cigarettes are well documented and, as such, are viewed as positive and beneficial.

3. A copy of the informed consent document and a description of the methods by which informed consent will be obtained.

(The following information will be presented verbally to all participating subjects.)

"A Study of 'On-the-Job' Smoking  
Cessation Methods"

1. Object of Study

(1) To determine if organized smoking programs can be successfully implemented in an occupational setting and (2) to better illustrate the effect of various types of programs. *mode of study*

2. Procedure for Study

Each participating employee will fill out a brief questionnaire giving specific information about their smoking habit. The purpose of this questionnaire is to help researchers better understand smokers and the types of programs that tend to work best when helping smokers "kick the habit." All questionnaires have an identification number and do not require names. Names will not be released and information obtained from the questionnaire will be used only for statistical purposes.

3. Discomfort and Risks: None

This program will not involve any medical or psychotherapeutic techniques and is designed to be "educational", that is, to help smokers learn more about their habit and provide tips on how to quit. On the otherhand - as you have probably already considered - the benefits of becoming a non-smoker are numerous and include improved health, saving money, and providing a non-smoking example for your children.

#### 4. Importance of Study

To determine if stop-smoking programs can be successfully implemented in an occupational setting.

#### 5. Alternative Procedures

Alternative procedures are not available as part of this study. However, there are numerous agencies in the community which offer assistance to the smoker wishing to stop. If you would prefer another approach, information will be provided.

#### 6. Participation and Non-participation

This is strictly a volunteer study, and anyone wishing not to participate or to withdraw from this program may do so at any time.

All records will be kept confidential. If there are any questions, please contact:

Douglas L. Flow  
961-0509

All subjects will be provided with the above information prior to initiation of treatment. Written agreements or contracts will not be utilized in either the recruitment or treatment of subjects volunteering to participate in this program. An "air of informality" will be maintained so that subjects will be free to withdraw from treatment at any time.

#### 4. A description of the method by which anonymity of the subjects will be maintained.

As this study proposes to utilize employee subjects in their occupational setting, the concern for anonymity is paramount. From prior experience in a similar situation, the investigator is aware that some participants will have expressed concern regarding their participation in this study, the personal data requested of them, and the possible "leakage" of this data to "other" fellow employees. Therefore, all data collected (questionnaires 1 and 2) will be coded and anonymous. To facilitate this, each subject will be assigned a code number. The subsequent list of subject names and corresponding numbers will be known only to the investigator and consulting statistician.

5. A copy of any questionnaire, survey, testing instrument, etc. (if any) to be used in this project.

See attached Appendices I and II.

6. If this is part of a proposal to an outside funding agency, attach a copy of the proposal.

This research will not receive any outside financial support.

APPENDIX I

NATIONAL SMOKER TEST

From American Cancer Society's  
Stop Smoking Program -- Leader's Guide, 1971  
(Developed by Daniel H. Horn)

## APPENDIX I

WHY I SMOKE

Here are some statements made by people to describe what they get out of smoking. How often do you feel this way? Answer each question by circling one number after each statement.

	Always	Fre- quently	On the Average	Seldom	Never
A. I smoke cigarettes in order to keep myself from slowing down.	5	4	3	2	1
B. Handling a cigarette is part of the enjoyment of smoking it.	5	4	3	2	1
C. Smoking cigarettes is pleasant and relaxing.	5	4	3	2	1
D. I light up a cigarette when I feel angry about something.	5	4	3	2	1
E. When I have run out of cigarettes I find it almost unbearable until I can get them.	5	4	3	2	1
F. I smoke cigarettes automatically without even being aware of it.	5	4	3	2	1
G. I smoke cigarettes to stimulate me, to perk myself up.	5	4	3	2	1
H. Part of the enjoyment of smoking a cigarette comes from the steps I take to light up.	5	4	3	2	1
I. I find cigarettes pleasurable.	5	4	3	2	1
J. When I feel uncomfortable or upset about something, I light up a cigarette.	5	4	3	2	1
K. I am very much aware of the fact when I am not smoking a cigarette.	5	4	3	2	1
L. I light up a cigarette without realizing I still have one burning in the ashtray.	5	4	3	2	1
M. I smoke cigarettes to give me a "lift".	5	4	3	2	1
N. When I smoke a cigarette, part of the enjoyment is watching the smoke as I exhale it.	5	4	3	2	1
O. I want a cigarette most when I am comfortable and relaxed.	5	4	3	2	1
P. When I feel "blue" or want to take my mind off cares and worries, I smoke cigarettes.	5	4	3	2	1



	Always	Frequently	On the Average	Seldom	Never
Q. I get a real gnawing hunger for a cigarette when I haven't smoked for a while.	5	4	3	2	1
R. I've found a cigarette in my mouth and didn't remember putting it there.	5	4	3	2	1

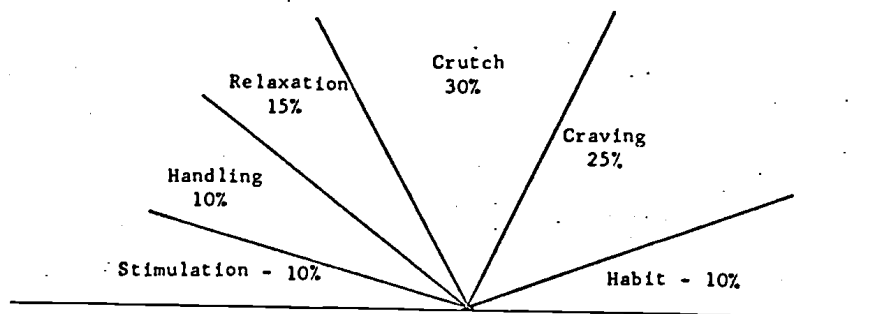
----- SCORING YOUR TEST -----

INSTRUCTIONS: Enter the number you circled over the appropriate space below.  
Line "A" is for Question A, etc. Total the scores to the right.

<u>    </u> A	+	<u>    </u> G	+	<u>    </u> M	=	<u>                    </u> STIMULATION
<u>    </u> B	+	<u>    </u> H	+	<u>    </u> N	=	<u>                    </u> HANDLING
<u>    </u> C	+	<u>    </u> I	+	<u>    </u> O	=	<u>                    </u> RELAXATION
<u>    </u> D	+	<u>    </u> J	+	<u>    </u> P	=	<u>                    </u> STRESS
<u>    </u> E	+	<u>    </u> K	+	<u>    </u> Q	=	<u>                    </u> CRAVING
<u>    </u> F	+	<u>    </u> L	+	<u>    </u> R	=	<u>                    </u> HABIT

Any score higher than 11 indicates you smoke for that reason. Scores 7 or less are low and probably don't apply to you. Scores in between are marginal.

PORTRAIT OF SMOKER TYPES



STIMULATION - 10%

Does your cigarette give you an increased sense of energy?

Do you begin the day with a cigarette?

Do you need that little something to keep you from slowing down during the day?

Do you feel good when you smoke and feel bad when you don't?

TO STOP: Find another source of stimulation, a safe substitute such as a brisk walk, modest exercise, gum, a new hobby.

HANDLING - 10%

Do you enjoy manipulating the cigarette with your hands?

Do you make a production of lighting a cigarette and holding it?

Do you enjoy watching the smoke as you exhale?

TO STOP: Pick something equally satisfying to manipulate other than a cigarette. Toy with a pen or pencil. Try doodling. Finger a coin, piece of jewelry or harmless object. If you need, obtain a plastic cigarette. A real cigarette can be used if you trust yourself not to light it.

Portrait of Smoker Types (continued)

RELAXATION - 15%

Do you enhance pleasurable feelings by having a cigarette?

Do you desire a cigarette after dinner or with a cocktail?

Do you smoke a cigarette as a reward?

TO STOP: It is easy. An honest consideration of the harmful effect of your habit may be enough to help quit. Try a substitute such as eating, drinking, social activity - within reasonable bounds. Consider if you seriously miss cigarettes.

CRUTCH - 30%

When you are tense or angry do you light a cigarette?

Do you use your cigarettes as a crutch?

When handling personal problems do you automatically light a cigarette?

Do you feel cigarettes help you deal with problems effectively?

TO STOP: It is easy to stop when everything is going well, but in time of a crisis you may revert back to cigarettes. Be wary of stressful situations in your future and manage your life to remove pressure. Find new ways to reduce tension or to let off emotional energies.

CRAVING - 25%

Are you looking forward to your next cigarette before the one you now have is put out?

Are you constantly aware when you are not smoking?

Is the time between each cigarette building up pressure for the next?

Do you feel "hooked"?

TO STOP: Quitting is difficult. It may be helpful to smoke more than usual for a day or two, so that the taste of cigarettes is spoiled, and then isolate yourself completely from cigarettes until the craving is gone. Tapering off is not likely to work. Resisting the temptation to go back to smoking is usually easy because the agony of quitting is remembered.

Portrait of Smoker Types (continued)

HABIT - 10%

Do you sometimes smoke a cigarette without realizing it or even wanting it?

Do you smoke automatically, getting no satisfaction out of it?

Is the satisfaction gone?

Do you sometimes find you have two lit cigarettes?

TO STOP: Success is based on awareness that you are smoking. Strategically locate your cigarettes or wrap them up in paper to alert you when you are starting to light one. Then ask yourself, "Do I really want this cigarette?"

## APPENDIX J

BREAKDOWN OF VARIABLES X, Y1, AND Y2

BY SUBJECTS AND GROUPS

# APPENDIX J

## BREAKDOWN OF SMOKING RATES BY BASELINE AND DEPENDENT VARIABLES

Rate	<u>X</u>			<u>Y1</u>			<u>Y2</u>		
	<u>Group</u>	<u>Self Help</u>	<u>Control</u>	<u>Group</u>	<u>Self Help</u>	<u>Control</u>	<u>Group</u>	<u>Self Help</u>	<u>Control</u>
0				32	15		26	18	3
1				1	2				
2				3					
3							2		
4				1					
5		1		2	2		5	1	1
7				1			1	1	
10	3	7	6	8	12		4	13	5
12	1								
15	1	1	1		4		3	8	3
20	18	23	23	6	18		15	14	20
25		3							
30	25	40	21	5	29		3	26	21
35					2			1	
40	12	12	4	3	4		3	5	4
50	1	6	4		5			3	3
60	3	1	1	2	1		2	1	

Group Treatment: N = 64  
 Self-help Treatment: N = 94  
 Control: N = 60