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THE EFFECTS OF COVERT MODELING AND PROGRESSIVE RELAXATION ON THE LOCUS OF CONTROL ORIENTATION AND DRINKING BEHAVIOR OF INPATIENT ALCOHOL ABUSERS

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THE EFFECTS OF COVERT MODELING AND PROGRESSIVE RELAXATION ON THE LOCUS OF CONTROL ORIENTATION AND DRINKING BEHAVIOR OF INPATIENT ALCOHOL ABUSERS

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by

Ronald Willis Goodman

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Dedication

For her love, devotion, and encouragement, I dedicate this work to my wife, Deborah.

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Chapter 1

Introduction

The problem with alcohol is that it is both a beverage and a drug. Many persons consume the beverage-alcohol with few noticeable problems and find that it is a pleasant, relaxing addition to many social occasions. Also, this beverage serves as a special accent to a variety of foods and for many religions, it is used as a symbol in their ceremonies. However, the Department of Health, Education, and Welfare (HEW) (1978) estimates that for approximately 9.3 to 10 million people over the age of 18 and 3.3 million people in the age range of 14 to 17, consumption of the drug-alcohol is a problem that significantly effects their lives. In addition, of the adult population who drink, 26% can be classified as having the potential for problems with alcohol. It is of little surprise that the estimated economic costs of alcohol misuse and alcoholism amounted to nearly 43 billion dollars in 1975 or that The National Institute of Alcohol Abuse and Alcoholism (NIAAA) (1976) budgeted approximately 149 million dollars to its many alcohol-related projects for fiscal year 1976.

The health, psychological, and social problems associated with the drug-alcohol are enormous. Cirrhosis of the liver is the sixth most common cause of death in the United States and alcohol is estimated to be related in 95% of the cases. In fact, alcohol-related deaths are estimated to run as high as 205,000 per year. Alcohol, unquestionably, effects many parts of the body, including the brain and nervous system, and it is implicated in the occurrence of heart disease and cancer. A most tragic health consequence comes to the unborn child, who later becomes the victim of Fetal Alcohol Syndrome (FAS), an impairment to the morphologic and neurologic development of the fetus believed to be related to alcohol usage by the expectant mother. FAS is the third leading cause of birth defects--behind Downs Syndrome and Spina Bifida--and it is the only one of the three that is preventable. Alcohol impairs memory, intellectual capacities, and perceptual abilities. It has been shown to increase aggression to male social drinkers and it is significantly involved in incidences of accidents, crimes, and violence. In fact, it is estimated that one half of all traffic fatalities, one third of suicides, 40% of fatal industrial accidents, 69% of drownings, 83% of fire fatalities, and 70% of fatal falls are alcohol-related (HEW, 1975). As such, there remains an urgent need to address the issues of prevention and treatment of alcoholism and alcohol abuse.

Current Trends in Alcohol Treatment and Research

Traditionally, the treatment of alcohol abuse has consisted of a wide variety of approaches. Most of these approaches focus on the individual and have included individual psychotherapy, transactional analysis, diet control, pharmacological agents (Antabuse), and detoxification (HEW, 1975). Even the group treatment approaches like Alcoholics Anonymous and inpatient group therapy, emphasize the individual and his/her realistic acceptance of an alcohol problem through the efforts of confrontation and support. Family therapy is one of the few exceptions where the family, rather than the alcohol abuser, is treated as the patient (Steinglass, 1976). More recently, new treatment approaches have arisen emphasizing behavior therapy in the treatment of alcohol abuse, e.g., aversion therapy, assertiveness training, relaxation and biofeedback methods, blood alcohol discrimination training, and controlled drinking. These behavioral methods continue to focus on the individual, but they are founded on the principles of learning theory, rather than on the more traditional psychodynamic/biological theories. Wilson (cited in Nathan, Marlatt, & Loberg, 1978) states that:

> The systematic application of behavioral principles and procedures to alcohol use and abuse is a relatively recent development and as yet is not as advanced as the other areas of behavioral research and therapy. However, early indications are that it promises to be as rewarding as the behavioral treatment of other disorders [p. 316].

Another development within the alcoholism field has been the challenge to the traditional disease-medical model of alcoholism. This model is based on the works of Jellinick (1952) and conceptualizes alcoholism as a progressive disease, with abstinence being the only treatment. Alcoholics Anonymous, as well as numerous other treatment programs, subscribe ardently to this viewpoint. The goal of all treatment is, first and foremost, abstinence from alcohol and treatment effectiveness is measured by length of abstinence. The NIAAA continues to endorse abstinence as the most appropriate treatment goal for alcoholism (HEW, 1978).

The challenge to the traditional disease-medical model of alcoholism comes from the behavioral sciences, whereby emphasis is directed toward the treatment of alcoholics by carefully controlled experiments using learning principles and having as their goal controlled drinking (Miller, Hersen, & Eisler, 1974; Miller, Becker, Foy, & Wooten, 1976; Pattison, 1966; Sobell & Sobell, 1973). "Within an operant, as opposed to a disease-model of alcohol abuse, complete abstinence would not be a necessary treatment goal [Miller, et al., 1974, p. 552]."

Pattison (1966) in a review of alcoholism treatment, concludes that alcoholics comprise a complex, heterogeneous population for which the one goal of abstinence may not be sufficient. Instead, he advocates that treatment be tailored to meet the individualized needs of the client. He suggests the following:

> Abstinence is an inadequate criterion of health or successful treatment in alcoholism. It is not to be disregarded, but should be placed in appropriate perspective along with other parameters of health and adaptation [p. 66].

Although abstinence versus controlled drinking and the disease-model versus the learning theory model of alcoholism are not the particular focal points of this study, the controversy is introduced in order to substantiate the viability of using alternative treatment methods and measures with alcohol abusers, rather than being restricted to the use of only the more traditional ones.

In retrospect, it seems rather ironic that the views of Jellinick (1952), which have become the basis of the disease-medical model concept of alcoholism, were, in fact, grounded in the belief that individuals drink compulsively as a means of coping with emotional stress. Further, Jellinick believed that the onset of drinking by alcoholics could be viewed as a learned behavior. Sobell and Sobell (1978) feel that Jellinick's choice of his book title, The Disease Concept of Alcoholism, may have been unfortunate, as it seems to imply that alcoholism can be viewed as a singular, definable disease entity, as opposed to many different species of alcohol problems. Jellinick's motive in advancing the disease concept was primarily to influence medical and sociopolitical processes that would hopefully bring alcoholism into the domain of humane medical treatment, rather than continuing to have it regarded as a moral and legal problem.

Need for the Study

The intent of this study is to explore the use of two selected behavioral techniques (covert modeling and progressive relaxation) with inpatient alcohol abusers. The overall treatment philosophy and goals of the inpatient program are directed toward abstinence. This study will be conducted within the confines of the existing treatment philosophy, but in addition, will attempt to assess the effects of two adjunct behavioral techniques, using locus of control orientation (LOC) as the immediate outcome measure and a follow-up procedure to assess subsequent drinking behavior. O'Leary, Donovan, Hague, and Shea (1975) suggest that the use of LOC orientation is an appropriate treatment goal with alcoholics, as they found that alcoholics significantly change in their perceived LOC toward internality as a function of therapeutic intervention. The authors advance the following rationale in the use of LOC orientation as a therapeutic outcome measure:

> A general function of both individual and group psychotherapy is to help the individual identify problematic life situations, determine how such problems may be contingent upon his behavior and implement changes that allow a more adaptive pattern of living. A necessary condition for change within this framework is the client's acceptance of self-responsibility. The concept of locus of control is directly related to the degree of accountability or responsibility that one perceives oneself to have for events in one's life [p. 359].

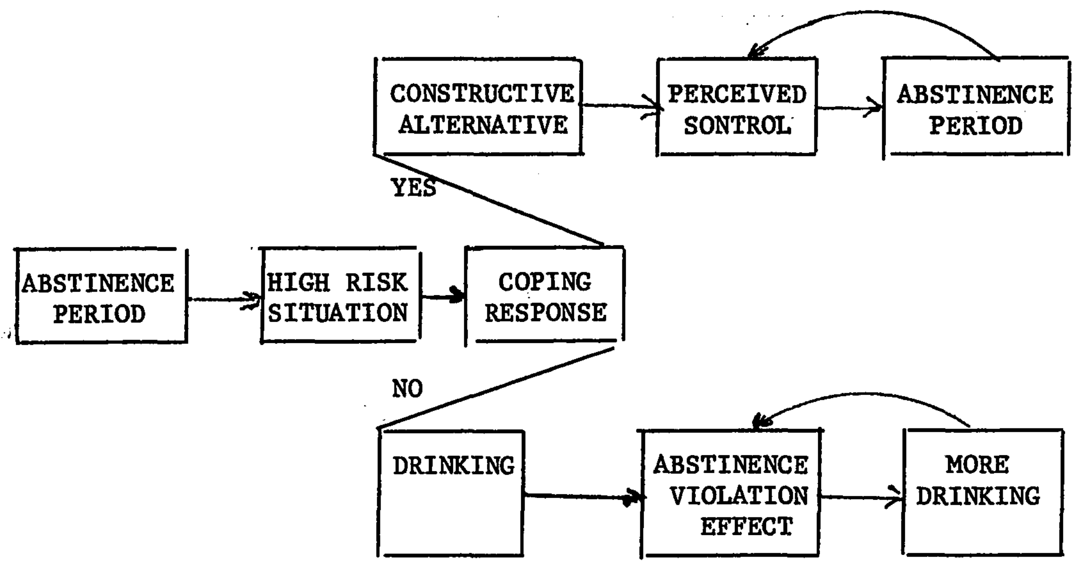
Kilmann, Laval, and Wanlass (1978) found evidence to support the hypothesis that internality is associated with successful psychological adjustment to life events and concluded that: "It is important for educators and mental health professionals to promote an internal locus of control orientation as a preventive and remedial approach to adjustment problems [p. 512]."

In an unpublished doctoral dissertation, Hettinger (1976) attempted to generate a change toward internal LOC by exposing both internal and external outpatient alcoholics to both internal and external alcoholism counselors. She found that external alcoholics who were exposed to internal counselors significantly changed their orientation toward internality. She also found cautious support for the hypothesis that as a subject's I-E score moves toward the internal, he/she is more likely to increase in hours of attendance at Alcoholics Anonymous (AA).

The behavioral procedures of covert modeling and progressive relaxation have been used successfully with alcoholic populations (Hay, Hay, & Nelson, 1977; Parker, Gilbert, & Thoreson, 1978), but the two techniques have not been used in combination with alcoholics.

Marlatt (cited in Nathan et al., 1978) advocates a need to focus treatment attention on the relapse factor, as well as on the need to increase the alcohol abuser's ability to cope with high risk situations. He proposes a schema to explain the relapse process (see Figure 1).

It can readily be seen that the importance of this study lies in providing the alcohol abuser with a constructive alternative coping response (covert modeling and progressive relaxation) to help deal with high risk situations. This, in turn, would increase his/her perceived control (measured by the I-E construct) and subsequently enable him/her to maintain abstinence. Maintaining abstinence, according to Marlatt (cited in Nathan et al., 1978), has the fortuitous effect of again increasing or at least reinforcing the person's belief that he is in control. In support for the purposes of this study is a statement by



Note. From P. E. Nathan, G. A. Marlatt, & T. Loberg (Eds.). Alcoholism: New directions in behavioral research and treatment. New York: Plenum Press, 1978.

Figure 1. Cognitive-behavioral analysis of relapse [G. A. Marlatt].

Marlatt that:

> The effects of both skill training (to deal with high risk situations) and global relaxation technique, would seem to be a particularly effective combination in reducing the risk of relapse for alcoholics [p. 308].

LOC orientation has not been used as an outcome measure to evaluate the effectiveness of covert modeling, but relaxation procedures have been found to significantly alter LOC toward internality with alcoholic subjects (Marlatt & Marques, 1977).

In two studies that are somewhat related to the purposes of this study, Wroblewski, Jacob, and Rehm (1977) combined symbolic modeling and deep muscle relaxation in the treatment of dental fears and the subjects significantly increased in the targeted behavior and Pawlicki (1976) found cautious support for his hypothesis that learning a self-directed behavior modification technique would increase a person's generalized feeling of control over his environment (internality).

It would seem that since most treatment efforts with alcoholics are directed toward acceptance of responsibility for one's actions and toward developing self-control skills that, hopefully, will lead to abstinence, the self-control techniques of covert modeling and relaxation would be an appropriate addition to existing therapeutic programs for alcoholics. Also, it seems therapeutically important to try to help alcohol abusers increase their sense of self-efficiency, so that they might have a better chance of preventing relapse. It is the purpose of this study then, to examine the effects of covert modeling and progressive relaxation on the locus of control orientation and subsequent drinking behavior of alcohol abusing inpatients. In doing so, this study may contribute to the overall treatment efforts aimed at a most urgent problem-alcohol abuse.

Theoretical Rationale

The social learning theory of Julian Rotter serves as the theoretical basis for this study. According to Rotter (1954, 1966), behavior can be predicted utilizing the constructs of behavior potential, expectancy and reinforcement value, which occur as the individual interacts with his/her environment. The expectancy construct is the most useful of these constructs to the purposes of this study, as it relates to the individual's belief that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation (Rotter, 1954, p. 107). In other words, the individual, on the basis of his/her generalized expectancy, will perceive a reward as contingent upon his/her own behavior or upon forces outside of him/herself. Rotter (1954) writes:

> When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a

> belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively enduring characteristics, we have termed this a belief in internal control [p. 1].

Rotter emphasizes that this belief in expectancy of reinforcement should be viewed not as an "all or none" proposition, but rather as existing in varying degrees from person to person. Lefcourt (1976) notes that locus of control is not to be regarded as a trait, but instead as a cognitive/perceptual process.

Internal control orientation within a person has been empirically related with positive mental health adjustment (Crandell & Lehman, 1977; Joe, 1971), low anxiety and fewer neurotic symptoms (Butterfield, 1964; Feather, 1967), more impulse control (James, Woodruff, & Werner, 1965), less severe pathological problems (Shybut, 1968), and less suicide proneness (Williams & Nickels, 1969). Lefcourt (1966) concludes that when a person believes he/she has the power to control his/her life, he/she feels a greater competence and is more likely to handle himself/herself actively and adequately than is someone who perceives his/her life as controlled by outside forces.

There are two additional theories within the broad foundation of social learning theory that need to be presented because of their relationship to this study. Williams (cited by Kissin & Begleiter, 1976) discusses a social learning theory of deviance formulated by Jessor and based on the ideas of Rotter. It seems that Jessor's theory applied to alcohol abuse suggests that the personal belief system of the excessive drinker would include belief in external control and alienation, which in a general sense, would be meaninglessness, helplessness, and social isolation.

The works of Bandura and Walters (1963) provide the final theoretical rationale for this study. They too are social learning theorists, but set themselves apart from Rotter with the criticism that his ideas do not account for a substantial portion of social behavior and learning. It appears to them, that his theory is adequate when the focus is on the prediction and modification of previously learned behavior, but it does not consider the role of imitation and modeling in the acquisition of new behaviors. Bandura and Walters believe that imitation of behavior in a social setting is an integral part of the learning process, and as such, the acquisition and modification of deviant behaviors, like alcohol abuse, can be understood using this theory. Nathan cited by Marlatt and Nathan (1978) writes that:

> The consensus viewpoint among social learning theorists is that almost no acquired human behavior is so simple that it is always learned according to a single learning mechanism. Instead, drinking by nonalcoholics as well as alcoholics must be explained in terms of additional learning mechanisms like imitation or modeling, operant conditioning, and classic conditioning [p. 5].

Definition of Terms

Alcohol Abuser

Any person with an alcohol-related disability, which includes impairment of physical, mental, or social functioning that can be reasonably related to the ingestion of alcohol. Alcohol abuse includes alcoholism, but does not require that alcoholism be present.

Alcoholic

Any person who is addicted to alcohol, which may be characterized by a compulsion to ingest alcohol on a continuous or periodic basis, in order to experience its psychological and physical effects, and sometimes to avoid the discomfort of its absence.

Covert Modeling

A behavioral conditioning procedure in which the subject is instructed to imagine scenes depicting appropriate target behavior(s).

Covert Reinforcement

A behavioral conditioning technique in which the subject imagines rewarding himself/herself following the imagining of appropriate target behaviors, as in covert modeling.

Progressive Relaxation

A behavioral procedure in which subjects are instructed to systematically tense and then relax various muscle groups until a state of calmness and tranquillity is attained.

Limitations

The main limitations of this study appear to be as follows:

1. This study is a field experiment and, therefore, all

variables may not be adequately controlled.

2. The length of treatment is limited by the fact that the patients' maximum inpatient program lasts 3 weeks, thus, possibly limiting the potency of the research treatments.

3. Since most patients are voluntary, rather than committed to the inpatient treatment program, there is a possibility that subjects selected for this study will complete neither the inpatient program nor this research study.

4. Since all subjects will also participate in the regular therapeutic inpatient program, there is a possibility that discussion outside of the experimental sessions will bias the outcome of the research treatments.

5. Due to limited staff, this researcher may be the only counselor to conduct the experimental sessions, thus introducing the problem of experimenter bias.

General Research Hypotheses

The purpose of this study is to investigate the effects of covert modeling (CM) and progressive relaxation (PR) on the locus of control orientation and drinking behavior of inpatient alcohol abusers. The research hypotheses are as follows:

Hypothesis 1--Subjects who complete the combined treatment of CM and PR will show significantly more change toward internality on the LOC scale and more abstinent behavior than subjects who complete the comparison treatments of CM only, PR only, placebo control, and no-treatment control.

Hypothesis 2--Subjects who complete the CM only treatment will show significantly more change toward internality and more abstinent behavior than subjects who complete either the PR only , placebo-control, or no-treatment control.

Hypothesis 3--Subjects who complete the PR only treatment will show significantly more change toward internality and more abstinent behavior than subjects who are assigned to the placebo-control or the no-treatment control groups.

Hypothesis 4--Subjects who complete the treatments CM--PR, CM only, and PR only will show significantly more change toward internality and more abstinent behavior than subjects assigned to the placebo-control and the no-treatment control groups.

Plan of Presentation

The presentation of material gathered for this study has been organized into five chapters. This chapter has been used to present information related to the problem and treatment of alcohol abuse. In addition, it has served to establish the theoretical framework of the study, to define terms, to discuss the limitations, and to state the general research hypotheses.

Chapter 2 serves to present a review of related research. Chapter 3 gives details about the methods and procedures of research. which would include population, ethical considerations, discussion of the instrument, and statistical analysis. Chapter 4 provides an analysis of the data collected to test the research hypotheses. Chapter 5 contains a summary of the study as well as conclusions, discussion of the findings, implications of the findings, and recommendations for further research.

Chapter 2

Review of the Literature

This chapter contains a review of the major literature that is related to the concepts under investigation in this study. The chapter is divided into the following sections:

1. The construct of internal-external control as a personality variable.

2. The construct of internal-external control in relationship to the alcohol abuser.

3. The susceptibility of the internal-external control construct to modification.

4. The use of behavior therapy in the treatment of alcohol abusers.

5. The use of covert modeling as a treatment strategy with alcohol abusers and with nonalcohol abusing populations.

6. The use of relaxation procedures with alcohol abusers.

7. Summary.

The Construct of Internal-External Control as a Personality Variable

The social learning theory of Rotter (1954, 1966) suggests that people develop a generalized expectancy of reinforcement based on interactions with their environment and ensuing reinforcement patterns. This expectancy was thought to be ordered along the dimension of internal versus external control. Joe (1971) in a review of this dimension writes:

> Internal control refers to individuals who believe that reinforcements are contingent upon their own behavior, capacities, or attributes. External control refers to individuals who believe that reinforcements are not under their personal control, but rather under the control of powerful others; luck, chance, fate, etc. Thus, depending on the past reinforcement experience, a person will have developed a consistent attitude tending toward either an internal or external locus, as the source of reinforcement [p. 619].

Or perhaps more simply stated by Lefcourt (1966):

> A generalized expectancy operates across a wide variety of situations and describes the degree to which a person believes that he possesses or lacks the power to control what happens to him [p. 186].

Since the development of the scale to measure this construct of internal-external control (Rotter, 1966), there have been numerous empirical studies attempting to clarify this construct as a personality variable. Among the early researchers, it was hypothesized that, since external subjects tend to view their actions and fate as largely dependent upon an external and often inconsistent environment, then feelings of powerlessness and hopelessness would prevade their psychological functioning. In addition, high anxiety, maladjustment, and symptomology would be more frequent in external subjects, due to these feelings of powerlessness and uncertainty about living in a very capricious world.

Feather (1967) found in an early study, that subjects who report more debilitating anxiety and more neurotic symptoms tended to be higher in external control. Conversely, subjects who scored in the internal direction, tended to report more facilitating anxiety, which is the kind of anxiety that is thought to be necessary for achievement and success.

In a study to determine the relationship between internal-external control and success in stopping smoking, Lichtenstein and Kertzer (1967) found that there was no significant relationship. However, they did note that control scores correlated .41 with IPAT anxiety scores and .34 with neuroticism scores.

Watson (1967) used a sample of 648 undergraduate psychology students in Canada, and found significant support for the hypothesis that external locus of control orientation is positively correlated to manifest anxiety and test anxiety. He concludes by stating that "actual or appraised lack of control produces anxiety [p. 92]."

Hersch and Scheibe (1967) report that internal scorers tend to score in significant directions on the self-report measures; Adjective Check List (ACL) and California Psychological Inventory (CPI). On the ACL, internally-oriented subjects were found to be high on the scales of defensiveness--Achievement, Dominance, Endurance, and Order--and low on the scales of Succorance and Abasement. With regard to the CPI, internal scorers were found to be high on the subscales of Dominance, Tolerance, Good Impression, Sociability, Intellectual Efficiency, Achievement via Conformance, and Well-Being. What emerges is a picture of an internally-oriented person, who is more active, achieving, powerful, independent, and effective, than is the external person.

In a study, which has significant implications for the practice of psychotherapy, Phares, Ritchie, and Davis (1968) first differentiated a sample of 225 students according to internal-external orientation and then administered a personality test to them. Subjects were randomly assigned to groups that received either positive or negative feedback, regarding their personality test results. The authors found no significant difference between internal and external scorers on anxiety reactions to the feedback, but externals recalled significantly more negative feedback material, while internals recalled more total material. Of importance is the finding that internal scorers were more willing to engage in attempts to solve their problems, possibly reflecting their belief that they could, in fact, resolve their difficulties.

Several early studies attempted to relate the dimension of internal-external control to abnormal functioning. Shybut (1968) found that externals were characterized by more severe psychopathology and neuroticism than internally-oriented persons. Externality was also correlated with schizophrenia (Harrow & Ferrante, 1969) and with suicide proneness (Williams & Nickels, 1969).

Joe (1971) reviewed studies related to the internal-external control construct as a personality variable and concluded that:

> These findings tend to form an orderly cluster which is logically and theoretically consistent with the construct of internal-external control. The findings depict externals, in contrast to internals, as being relatively anxious, aggressive, dogmatic, and less trustful and more suspicious of others, lacking in self-confidence and insight, having low needs for social approval, and having a greater tendency to use sensitizing modes of defenses [p. 622].

Another personality variable that has been examined in connection to locus of control orientation, has been psychological adjustment to stressful life events. Crandell and Lehman (1977) used as a measure of life stress and adjustment Langer's Symptom Scale, and found that an accumulation of stressful life events and psychological maladjustment were positively correlated to external control orientation. Kilmann et al. (1978) sampled 164 male and female university students and concluded that externally-oriented subjects reported significantly more difficulty adjusting to life events than did internal scorers. The authors suggest that: "It is important for educators and mental health professionals to promote an internal locus of control orientation as a preventative and remedial approach to adjustment problems [p. 512]."

Several researchers disagree with the conclusion that the internal-external dimension follows a linear relationship with maladjustment. Joe (1971) suggested that a curvilinear relationship may exist, with the extreme scorers in either direction being more pathologically maladjusted. Harrow and Ferrante (1969) in support of this suggestion, found that manic patients often display a grandiosity of thought regarding their ability to deal successfully with life, and they often score at the extreme end of internality. Lefcourt (1976) believes, too, in the curvilinear concept, and states that extreme-internal scorers may suffer from delusions of grandeur and/or paranoia and that extreme-external scorers may well be characterized by depression, withdrawal, and apathy.

The Construct of Internal-External Control in Relationship to the Alcohol Abuser

The alcoholic population continues to be somewhat of an enigma in terms of being able to describe characteristics that distinguish it as a clinical group. The construct of internal-external control has only added to this difficulty in trying to impose homogeneity on an apparently diverse group of people. This section will attempt to examine research that has sought to establish a relationship between the I-E construct and alcoholism.

Some of the earliest researchers who investigated this relationship were Goss and Morosko (1970). As might be expected, they hypothesized that alcoholics would score higher in the external direction on the I-E scale than Rotter's original normative sample mean, which was based on normal, male adults. To their surprise, their alcoholic sample mean was significantly lower (in the internal direction) than the norm group. Also, in corroboration of previous findings, they found that male alcoholics with the lowest I-E scores (internality) reported the least anxiety, depression, and clinical pathology on the Minnesota Multiphasic Personality Inventory (MMPI). The authors note that the fact that alcoholics score in an internal direction, may indicate a kind of functional defensiveness and that this perceived self control may relate to the alcoholic's perception that he can easily and quickly modify his subjective experience through ingestion of alcohol.

In an attempt to replicate these findings, Gozali and Sloan (1971) compared the I-E scores of a group of male alcoholics to non-alcoholic members of a church organization. Again, their findings indicated that the alcoholic group (mean score 6.4) was significantly more internal than the nonalcoholic group (mean score 8.8). Further, the authors report a correlation of .81 between I-E scores obtained in the hospital and those obtained at a 3-month follow-up, suggesting good reliability of the scores. The researchers conclude that this internality may indicate an irrational belief on the part of the alcoholic, that he can, in fact, control his drinking. They offer this final statement:

> We suggest that internal orientation may contribute to a person's proclivity to become an addict, and that alcoholism treatment programs should consider modification of alcoholics' control orientation as a part of their treatment objectives [p. 161].

Distefano, Pryer, and Garrison (1972) continued the spate of replications to corroborate the findings of Goss and Morosko (1970).

However, these authors chose to compare a sample of 50 male-inpatient alcoholics with a sample of 50 emotionally-disturbed patients. Their results indicated that not only were the alcoholics' I-E scores more internal than the comparison groups, but that they were also lower (more internal) than Rotter's normal sample mean. This latter finding was again consistent with the Goss and Morosko results. The researchers suggest that the internal scores may be excessive and deviant or unrealistic.

Other researchers have sought evidence of internality among alcoholics. Gross and Nerviano (1972) tested 266 male alcoholics in a Veterans Administration hospital and obtained a mean I-E score of 7.35, which is more internal than Rotter's norm sample mean of 8.5. They state that "I-E is an important construct for addiction research and treatment [p. 406]," as they note that opiate addicts also obtain internal scores. Bergins and Ross (1973) tested a group of addicts and were able to substantiate the internality of this population.

In an investigation to check the I-E orientation of alcoholics and to determine relationships between I-E scores and subscales on the MMPI, O'Leary, Donovan, and Hague (1974) tested 100 male alcoholics and obtained a mean score of 6.74, which suggested internality compared to Rotter's norm group. The authors also found a significant positive correlation between I-E scores and the MMPI subscales F, D (Depression), Pt (Psychasthenia), and Si (Social Introversion) and a negative correlation with L and K subscales. Apparently, they conclude, external alcoholics are more depressed, anxious, and subject to clinical psychopathology, while internal alcoholics may be more self-confident, calm, sociable, and able to deal effectively with problems.

Lottman, Davis, and Gustafson (1973) found rather interesting results when they attempted to relate locus of control scores and MMPI subscales. They found that I-E scores of external alcoholics were positively correlated with the subscales Hs (Hypochondriasis, D (Depression), Hy (Hysteria), Pt (Psychasthenia), and Sc (schizophrenia). However, the I-E scores of the comparison group, consisting of neurotic and schizophrenic patients, failed to relate in any meaningful way, to the 12 subscales.

Butts and Chotlos (1973) criticized the findings of Goss and Morosko (1970) by calling attention to the methodological flaws in their research, e.g., they failed to satisfactorily match the subjects by age and social class with an appropriate comparison group. To carry their argument further, the authors suggest that the research of Gozali and Sloan (1971) used an inappropriate comparison group of middle-class church people, who might be expected to be more external. Also, that, not only was the mean score of 8.8 for the normal non-alcoholic group higher (more external) than the alcoholic group, but it was also higher than the mean of other normative samples, e.g., 6.57, 6.58, and 7.00. Therefore, in an attempt to overcome these design problems, Butts and Chotlos compared the I-E scores of 42 alcoholic men and 32 alcoholic men in detoxification, with two control groups, one consisting of male workers and the other of men in general visiting a general practitioner (total N = 74). The nonalcoholic control groups were selected and matched by age and social class with the alcoholic groups and in addition, were screened for alcohol problems. Results indicated that alcoholics scored in a more external direction (mean I-E score of 8.28) than did the nonalcoholic control group (mean I-E score of 6.01). Butts and Chotlos suggested also, that social desirability may have been an important, but overlooked factor in the previous studies that showed alcoholics scoring in an internal direction. Hence, they advocate the testing of alcoholic subjects upon entrance into a treatment program, since exposure to a treatment philosophy that advocates self-responsibility (as many do) could conceivably influence the subjects to answer in an internal direction.

In a review of the locus of control studies among alcoholics, Hinrichsen (1976) emphasizes that, although alcoholics scored more externally in the Butts and Chotlos (1973) study, the data from all studies does not indicate that alcoholics are grossly external. In fact, given the number of items on the I-E scale (23), the author feels that the alcoholics' mean score of 8.28 may even be considered internal.

The Goss and Morosko (1970) study was criticized by Nowicki and Hopper (1974) for the following reasons:

1. The results are inconclusive for female alcoholics.

2. There was a wide difference in age between the control group and the alcoholic group.

3. Subjects were drawn only from an outpatient alcoholic population, thus limiting the generalizability of the findings. As such, Nowicki and Hopper conducted their own research, which included female alcoholics in their sample. Their results indicate that female alcoholics tend to be more external scorers and similar in scoring to hospitalized schizophrenics, possibly suggesting a greater degree of disturbance than is commonly found in male alcoholics. The authors' results cannot be directly compared to previously mentioned studies, as they used their own version of the locus of control scale (The Adult Nowicki-Strickland Internal External Control Scale) rather than Rotter's I-E scale. However, their elucidation of the relationship between I-E and woman alcoholics is valuable, in and of itself.

Obitz and Swanson (1976) found results similar to Nowicki and Hopper (1974), using Rotter's I-E scale. That is, women alcoholics score more externally than nonalcoholics, as well as male alcoholics. Again, they suggest a link between externality in women alcoholics and more severe psychological disturbance.

Naditch (1975) also criticized the Goss and Morosko (1970), and the Gozali and Sloan (1971) studies because they failed to employ a comparison group from the same population as their alcoholic samples. To overcome this problem, Naditch divided 517 men in Army basic training by severity of drinking problems and administered the I-E scale. Results show a mean score of 8.00 for abstainers, 9.71 for light drinkers, 9.57 for moderate drinkers, and 11.00 for problem drinkers. There are two problems which plague this study:

1. Since the men tested were in Army basic training, it might be assumed that their mean age would probably fall within the range of 18 to 25 years and thus not really be representative of an alcoholic population age range.

2. The subjects of this study may not have been as seriously alcoholic as subjects in previous studies and thus the results become inconclusive for "serious" alcoholics.

Naditch responds to this design and interpretative criticism by stating:

> There is no reason to expect that a move from problem drinking to more serious alcoholism would result in a sharp shift of locus of control in the internal direction. On the contrary, the increasingly incompetent behavior of the alcoholic would be expected to result in feedback about his efficiency in interacting with the environment, such that his locus of control would be more likely to move in the external direction [p. 96].

Naditch also suggested that internality reported in previous studies, may reflect a shift in locus of control related to treatment influences and thus not an accurate description of alcoholics prior to therapeutic intervention.

In concluding this section, it seems worthwhile to mention several reviews that have examined the research on the relationship between the I-E construct and alcoholism. Lefcourt (1976), who is regarded as one of the authorities on locus of control, suggests that internality on the part of alcoholics may reflect a part of their denial system, which allows them to think/believe that they are in control of their drinking and of their lives. However, he concludes that most of the studies reporting this internality are plagued with design problems, specifically regarding setting, comparison groups, and the tendency of subjects to respond in a socially (treatment program) appropriate direction.

Hinrichsen (1976) reviewed studies that attempted to relate locus of control to alcoholics and concluded that, although the studies may suffer some methodological flaws, they still, on the whole, seem to suggest that alcoholics are not grossly external and that some appear to be internally oriented. He goes on then to state:

> The question that naturally arises is how these data should be interpreted in order to be theoretically meaningful. The emergent post-hoc speculations have included a) statements about a fundamental appreciation by alcoholics of the contingency between their behavior and a preferred source of reinforcement (alcohol) for the reduction of unpleasant feeling states; b) statements to the effect that an alcoholic's knowledge of the self-destructive nature of his drinking behavior implies a kind of dynamic overdetermination of a need to believe that he is in control of and capable of changing his behavior; and c) statements suggesting that an alcoholic's internal control orientation may represent a defensive reaction to a perceived threat of loss of his

behavioral freedom. To the best of my knowledge, none of these hypotheses have as yet been empirically tested [p. 912].

Greenberg, Obitz, and Kaye (1978), in a study that will be cited later, introduce their research with the conclusive review statement that: "The question whether alcoholics, in general, are more externally or internally oriented than comparable groups of non-alcoholics, cannot, yet, be definitely answered [p. 68]."

The Susceptibility of the I-E Construct to Modification

Although the relationship between I-E control and alcoholics has not been empirically resolved, attempts to actively modify and/or observe the modification of I-E control have proceeded vigorously. Donovan, O'Leary, and Schau (1975) and Kilmann et al. (1978) have already been cited as studies that advocate the therapeutic value of changing locus of control orientation toward internality. Joe (1971) points out in his review of locus of control, "that an external expectancy of control can be changed to an internal frame of reference [p. 134]."

This section will first present some of the studies which have attempted to influence or at least observe a shift in locus of control in alcoholics, followed by a few relevant studies using non-alcoholic populations.

The difficulty with locus of control in relation to alcoholics is that no unequivocal evidence has been presented to support the hypothesis that alcoholics are either internal as a group or external. Therefore, a controversy revolves around the question of whether or not alcoholics should be changed toward internality or externality as a therapeutic strategy.

> If the previously reported internal locus of control represents a deviant view of reality and reflects a component of the alcoholics' psychopathology [Distefano, et al., 1972; Gozali, et al., 1972], a shift toward a more external perception of control might be expected to accompany decreases in pathology during the course of treatment [O'Leary, Donovan, O'Leary, 1976, p. 500].

Costello and Manders' (1974) results indicate support for this hypothesis. They tested 14 active alcoholics in a rehabilitation program and a group of 14 recovered alcoholic counselors with at least 3 years sobriety and found that the active alcoholic group was more internal than the recovered alcoholics. The results have been viewed with caution because of the small sample size and the use of an inappropriate comparison group.

Tumilty (1973) hypothesized that externally-oriented alcoholics would be more susceptible to locus of control modification. He used an inpatient population divided into one control group, a group designed to change locus of control in an external direction, and a group designed to change locus of control in an internal direction. His results did not support his hypothesis.

Oziel and Obitz (1975) found evidence to support the hypothesis that "scores on the I-E scale were progressively and reliably more in the internal direction as length of exposure to treatment program increased [p. 160]." Alcoholics who were undergoing their first detoxification were more external than either alcoholics who had been detoxed 3 or 4 times or alcoholics in a rehabilitation program.

> What is suggested is that this perceived internal control on the part of alcoholics may be a consequence of exposure to treatment modalities that stress the importance of self-motivation, self-control, and a "you-can-do-it-if-you-want-to" attitude, rather than a consequence of a pre-disposing personality dimension [p. 161].

O'Leary, Donovan, Hague, and Shea (1975) investigated the shift in I-E control from pre- to post-treatment. It was their contention that I-E scores should not be evaluated as an overall locus of control score, but rather as components of perceived control. The authors cite the work of Miriels (1970) in which he factor-analyzed the Rotter Scale into two subscales: Factor I subscale consists of items that are stated in the first person and deals with life events that are personally relevant to the individual; Factor II subscale consists of items stated in the third person and deals with a general citizen's ability to influence the outcome of sociopolitical events. The researchers tested 40 male veteran alcoholic inpatients with a mean age of 46.3 years and mean educational level of 11.7 years and found results that supported their hypotheses that

1. significant shifts toward internality occur in the alcoholics' perceived personal control (Factor I), and

2. there would be no significant shift in Factor II scores or belief in ability to control sociopolitical events. The authors conclude that:

> The observed shift in overall locus of control appears to be attributable more to an increase in personal control than to a change in sociopolitical attitudes. This finding is consistent with the goals of a treatment program designed to enable an individual to assume greater responsibility for his behavior and to make life changes that increase the probability of adaptive functioning [p. 361].

In a study examining the locus of control orientation in women alcoholics, Obitz and Swanson (1976) found that women alcoholics were more externally oriented than both nonalcoholics and male alcoholics. Further, they discovered that internality of the women increased according to length of stay in treatment.

O'Leary, Donovan, and O'Leary (1976) hypothesized that alcoholic subjects (40 male inpatients, mean age 45, mean educational level 11.4) would evidence significant shifts toward a more internal perceived locus of control as well as an increase in experienced control, measured by Tiffany's Experienced Control Scale (Tiffany, 1967). After 6 weeks of treatment aimed at increased self-responsibility, test scores indicate a significant shift in the internal direction on personal control and a significant increase in experienced control. "Thus at the completion of treatment the alcoholic patients appeared to be less impulsive and more in control of relevant life events [O'Leary, Donovan, & O'Leary, 1976, p. 503]." However, since this study did not employ a no-treatment control group, the results cannot be directly attributable to the various components of the treatment.

In another study employing both the Rotter I-E scale and the Experienced Control Scale, Kennedy, Gilbert, and Thoreson (1978) predicted that self-monitoring would increase actual control of drinking and, therefore, would increase perceived control over internal (urges and emotions) and external (interpersonal and environmental) sources of pleasure. In addition, they hypothesized that internal scorers would be most successful at shifting their scores, since "the generalized expectancies of external subjects might impede behavior aimed toward self-control [p. 239]." Results indicate that internal subjects, who were instructed to self-monitor, evidenced significant change in experienced control as opposed to the control group internals who did not self-monitor. Subjects who monitored themselves most frequently were internal with "the implication that internality, or belief in one's ability to control life events, does lead to more active participation in a program designed to influence life events [p. 243]."

In a study previously mentioned, Greenberg et al. (1978) investigated the relationship among the variables of control orientation, interpersonal needs (measured by the FIRO-B [Fundamental Interpersonal Relations Orientation--Behavior Questionnaire]), and ward adjustment (measured by the Ward Atmosphere Scale) in an alcoholic population. Their sample consisted of 54 male hospitalized alcoholics with a mean age of 48.6, who were divided according to I-E scores and then administered the FIRO-B both pre- and post-test. Results indicate that the FIRO-B can successfully differentiate between internal and external alcoholics along a dimension of social need. That is, internally controlled alcoholics expressed greater need for inclusion and affection than did externally controlled alcoholics. Regarding locus of control, alcoholics tend to perceive themselves in greater control with more treatment and internal alcoholics tended to stay the same over treatment time, while external alcoholics tended to change their orientation. The authors note that: "Somehow it seems true to the construct that a treatment environment, aimed at teaching self control, would have this kind of impact [p. 75]."

In a doctoral dissertation, Schmidt (1978) hypothesized that internal alcoholic subjects would benefit most from treatment which stressed a belief in internal control. He divided his subjects among one control group, which offered only alcohol information and two treatment groups; one advocating a self-directed philosophy, the other encouraging reliance on other group members. The hypothesis was not supported. Instead, he found that internal subjects did more favorably, regardless of which group they were in and that subjects benefited most from the internally directed treatment, regardless of orientation.

Similarly, Ude (1978) divided 97 male alcoholics into four different inpatient treatment groups. By using a pre- and post-measure of locus of control, he found that subjects, who were in the two most intensive treatment groups, significantly changed their locus of control orientation toward internality and that this change in internality correlated better with overall functioning at a follow-up evaluation.

Hettinger (1976) found results consistent with Butts and Chotlos (1973), indicating that an alcoholic sample was more external than a comparable nonalcoholic control group. More importantly, she found that the I-E scores of external alcoholics could be successfully shifted toward internality by matching these people with internally-oriented counselors. Furthermore, persons who were able to lower their I-E scores (become more internal), also increased their hours of attendance at Alcoholics Anonymous meetings.

Caster and Parsons (1977) on the other hand, found that locus of control scores did not change with treatment, indicating a stability of the scores. They did not use Rotter's I-E scale because of the unidimensional quality of the instrument. But, instead, they used Levensen's locus of control scale, which examines factors within the overall locus of control measure; such factors being locus of control-I, where the person sees self as controlling his future; locus of control-C, where chance is seen as controlling the future; and locus of control-PO, where powerful others are perceived as in control.

Hinrichsen (1976) cited earlier in this chapter for his review of the I-E construct and alcoholics, concludes that:

> Unfortunately, the data on alcoholics are inconsistent, with some indications of therapeutically induced shifts toward a more internal locus of control and other data suggesting that little change occurs during a 30-day treatment program.

> Together, these data suggest that the greatest shifts toward internality are associated with longer, more successful treatment [p. 911].

Turning now to studies investigating and/or promoting shifts in locus of control with nonalcohol abusing populations, there are several early studies that dealt with the construct in relationship to the practice and effectiveness of psychotherapy. Gillis and Jessor (1970) postulated that internal-external control may be a useful construct in psychotherapy, as much of contemporary psychopathological discussion centers around the concepts of alienation, feelings of isolation, and the belief that one's destiny is beyond one's personal control. They hypothesized that successful therapy should be characterized by an increased belief in internal control. There were 13 inpatient psychiatric subjects selected for psychotherapy and 16 patients were selected for the control group and matched as closely as possible, diagnostically, to the treatment group. Therapist ratings were used and involved the general categories of marked improvement, some improvement, no significant change, some decrement of change, and marked decrement. A pretest I-E comparison between the two groups yielded mean scores of 9.8 (treatment) versus 11.6 (control), while posttest scores were 9.1 versus 12.1. None of the differences are significant, although a slight shift did occur from pre- to posttest: 9 treatment patients were rated as improved (either some or marked) following therapy. As a subgroup, their mean had shifted from 10.3 to 8.1, significant at the .05 level. In addition, the improved subgroup was significantly higher in internal control than was the control group on the posttest measure.

Although this study is plagued with several design flaws, such as poor matching and assignment to groups, the use of very general, subjective rating categories, and no check on rater reliability, it does cautiously suggest that I-E control may be susceptible to modification by psychotherapy.

Pierce, Schauble, and Farkas (1970) contend that research does show that "clients who begin therapy as internalizers are more likely to be judged as having a successful therapy experience than are externalizers [p. 217]." Also, that success in therapy has been related to an increase in internalization behavior. As such, the authors sought to teach internalization behavior by a systematic, straightforward learning approach, that would, hopefully, accelerate the client's progress in therapy. The subjects (7 female and 8 male) were undergraduate college students seeking help at the college counseling center. There were two experienced therapists, who had been previously rated very highly on qualities of empathy, regard, genuineness, and concreteness, used; one assigned to explain the I-E construct during counseling and then to coach and reinforce the client on internalization behaviors; the other counselor was assigned to the control-group students and conducted more traditional nondirective sessions. Results indicate that I-E scores changed significantly from pre- to post-test for the treatment group and that the more external clients made the greatest shifts toward internality.

Behaviorally-oriented therapy interventions have also been examined in relationship to modification of locus of control. Dua (1970) assigned 30 undergraduate subjects suffering from interpersonal anxiety, to 3 matched groups; one group receiving direct, goal-oriented action therapy, one group receiving cognitive reeducation therapy, and one group served as a no-treatment control group. Subjects were assessed pre- and post- on measures of I-E, Extroversion-Introversion, and emotionality. Regarding I-E measures, subjects in the treatment groups significantly changed their I-E scores toward internality when compared to the control group, while subjects in the action-oriented therapy shifted more toward internality than subjects in the reeducation group. The author concludes that:

> Change in client behavior often produces a clear modification of client's feelings and attitudes and that a client's realization that he can fulfill specific actions, often leads him to reporting that he feels "freer," "happier," or "more enthusiastic [p. 571]."

Pawlicki (1976) found support for his hypothesis that learning a self-directed behavior modification technique would increase one's generalized feeling of control over the environment. In his research design, he compared 29 undergraduates in a self-directed behavior modification course to 31 students enrolled in a community psychology course. The author suggests that the results should be viewed cautiously due to the following:

1. expectancies about gaining control in a self-directed course, may have influenced the students' posttest I-E scores;

2. the two groups were not matched or randomly assigned; and

3. an element of cognitive persuasion by the instructor of the self-directed course was probably present.

Cox, Freundlich, and Meyer (1975) investigated the effectiveness of electromyagraph (EMG) feedback, verbal relaxation procedures, and a medication placebo and found that the EMG biofeedback produced the greater shift toward internality. Similarly, Zaichtowsky and Kamen (1978) studied the procedures of EMG biofeedback, Transcendental Meditation, and meditation that was based on the Benson method. All three methods were found to significantly reduce frontalis muscle tension, but only the biofeedback significantly changed locus of control in an internal direction.

The Use of Behavior Therapy in the Treatment of Alcohol Abusers

The treatment of alcohol abusers is a source of controversy and debate among practitioners and alcoholics alike. As suggested earlier in this paper, most current treatment efforts tend to endorse the philosophy posited by the disease-medical model of alcoholism. Alcoholics Anonymous (AA) in particular, believes in the basic tenets of this model and although nobody can ignore the thousands, perhaps millions, of people that AA have helped, there still remains a substantial number of alcohol abusers that go unaided because of their nonacceptance of AA. Their resistance to AA may be due, in part, to several factors:

1. For many alcohol abusers, acceptance of AA would mean accepting themselves as alcoholics, along with the possible stigma and loss of face.

2. To accept AA would mean accepting the basic tenets of the program which include total abstinence, surrender to a higher power, and essentially devoting a good deal of one's life to living the program; to many, this is a frightening, impractical, or unlikely solution to their problems.

3. Although AA groups vary from place to place, there seems to be a general appeal to a homogeneous subtype within the alcohol abusing population.

Research has shown that persons from low socioeconomic backgrounds with poor social skills and limited education tend not to avail themselves of the therapeutic benefits of AA (Pattison, 1966).

Considering the apparent complexity and heterogeneity of the alcohol abusing population, it does not seem inappropriate to speculate that many within that population might well profit from some sort of adjunct or alternative treatment method. Pattison (1966), in a critique of alcoholism treatment, states that:

> In alcoholism, the establishment of reasonable goals that can be achieved by a patient may be necessary and may not include total abstinence or total psychosocial rehabilitation. The alcoholic population is so diverse that treatment modalities

should be tailored to the client [p. 56].

As such, behavioral methodology has emerged to expand and sometimes challenge the time-honored disease-medical model for treating alcohol abuse. Kepner (1964) surveyed the use of learning theory and behavioral methodology with alcoholics in the Cleveland area and concluded that treatment needs to be aimed at helping alcohol abusers learn new behaviors since "the patient does not have a repertoire of learned adjustive responses and he has never learned techniques of self-control [p. 287]."

In this section, a few research studies will be presented that have employed behavioral theory and techniques in the treatment of alcohol abuse. The study conducted by Sobell and Sobell (1973) is one of the most comprehensive research efforts to date and one that has offered the most compelling evidence that chronic alcoholics can return to controlled drinking. Ardent followers of AA may view this proposition as ludicrous, but objective researchers cannot ignore the striking results. The Sobells implemented what they termed Individualized Behavior Therapy for alcoholics (IBTA), at an inpatient alcoholism treatment facility where 70 severe alcoholics volunteered for the treatment study. Following careful medical and psychiatric screening, 40 subjects were assigned to the controlled drinking (CD) group and 30 were assigned to the nondrinking group (ND), on the basis of majority staff decision. Decisions were based on extensive social and drinking histories and other clinical interview data. Additional criteria consisted of:

1. the patient's desire to be able to drink in a non-problematic manner,

2. the patient could be reasonably expected to learn new drinking behavior, and

3. the environment to which the subject would return would be supportive of controlled drinking.

Subjects within each of the two groups (CD and ND) were then randomly assigned to either an experimental group (CD-E and ND-E) which received behavior therapy or a control group, which received conventional treatment (CD-C and ND-C). All experimental subjects received behavior therapy which was:

> focused directly on drinking behavior, tailoring the treatment as specifically as possible to meet the individual's needs, and emphasized helping the subjects to identify the functions of excessive drinking and to develop alternative, more beneficial ways of dealing with those situations. A problem-solving, rule-learning procedure was a central element of the experimental treatment in all instances [p. 158].

Control group subjects received only conventional treatment, while experimental subjects received the IBTA for 17 sessions in addition to conventional treatment. A follow-up, based on a variety of life adjustment measures, as well as drinking behavior, revealed that at 1-year, "both experimental groups achieved overall functioning superior to that of their respective control groups [p. 159]." During the second year of follow-up the controlled drinking experimental

(CD-E and ND-E) subjects continued to function significantly better than their respective controls, with CD-E subjects functioning at the highest level.

The results of the Sobells' research would seem to suggest that alternative treatment of alcoholics using behavioral procedures is viable and that abstinence need not be the only criterion of successful treatment.

> Results infer that controlled drinking skills might be taught using the same types of skill training procedures--instructions, feedback, modeling, behavioral rehearsal--which have been used successfully in fostering other deficit behaviors in alcoholism [Miller, Becker, Foy, & Wooten, 1976, p. 479].

Miller, Hersen, and Eisler (1974) conducted a study to determine whether or not alcohol abusers could be operantly conditioned to control their drinking responses. Specifically, they divided 40 chronic alcoholics into four groups matched by age, education, length of problem drinking, and initial operant drinking responses. The four groups consisted of the following format:

1. Subjects were given verbal instructions to limit alcohol consumption.

2. Subjects signed written agreements to limit consumption.

3. Subjects were given verbal instructions plus reinforcement for compliance.

4. Subjects signed an agreement plus received reinforcement for compliance.

Results indicated that the alcoholic subjects who received reinforcement in addition to instructions and signed agreements significantly decreased their operant drinking at a posttest measure.

Chaney (1976) working with the assumption that alcoholics need to be taught effective skills by which to cope with high risk relapse situations, investigated the effectiveness of a social skills training program with inpatient alcoholics. His experimental group was exposed to a variety of behavioral procedures--modeling, therapist coaching, group feedback, rehearsal, and practice--in order to teach each patient a number of skills with which to cope effectively with possible relapse situations. There were two control groups employed: one involved having subjects discuss the high-risk situations, but receiving no specific skill training, while subjects in the other control group received only conventional treatment.

A 1-year follow-up assessment showed that subjects in the skill training group had a significant decrease in the duration and severity of relapse episodes compared to the two control groups. These results suggest strong support for the contention that alcoholics need to be taught skills by which they can cope with a variety of high-risk relapse situations.

The Use of Covert Modeling as a Treatment Strategy with Alcohol Abusers and with Nonalcohol Abusing Population

Covert modeling procedures are a relatively recent phenomenon, having been devised in the early 1970s to help clients who had difficulty imagining themselves performing certain target behaviors that were prescribed using other more traditional overt behavioral techniques (Cautela, 1976). Of course, the effectiveness of modeling procedures had been clearly established by this time (Bandura & Walters, 1963; Bandura, Ross, & Ross, 1963), but Cautela believed that the effectiveness of modeling could be achieved using either a live or film model or an imagined model.

Mahoney, Thoreson, and Danaler (1972) present a strong case for covert behavior modification techniques (like covert modeling) by stating that:

> Covert responses play a significant role as reinforcers, punishers, discriminative cues for other (often overt) responses and their modifiability presents a major concern for adaptive behavior change [p. 13].

They go on to suggest that there is a functional relationship between covert behaviors and overt performances and that cognitive forms of self-control have been proven to be therapeutively acceptable.

Wells (1970) describes a procedure which sounds very much like covert modeling, only he calls it the Relaxation-Rehearsal procedure and uses it with clients who have such high anxiety regarding the target behavior that regular systematic desensitization is subjectively impossible. Wells first instructs these clients in the Jacobson method of relaxation and then has them visualize and describe in detail the setting in which the encounter is likely to occur. The client is then led in fantasy through the encounter, rehearsing appropriate behaviors covertly. If anxiety is reported, then the fantasy is stopped and relaxation is reintroduced, with a subsequent return to the fantasy. The effectiveness of behavior rehearsal had already been established (Lazarus, 1966), but now a variant of this procedure was introduced using covert rehearsal processes rather than overt role-playing/ rehearsal. The author points out the value of desensitizing clients to emotionally charged situations, particularly reactions of others, and the value of learning skills by which to cope with these situations. Covert modeling, then, is a form of covert, cognitive behavior rehearsal utilizing the unique features of modeling and reinforcement to shape new target behaviors. Research involving the clinical use of covert modeling will be introduced in this section. The use of covert modeling with alcoholics has been limited, although overt modeling and rehearsal procedures have been used (Chaney, 1976). In a recent study, Hay, Hay, and Nelson (1977) employed covert modeling procedures with a 48-year-old male with a 30-year history of excessive alcohol abuse. Numerous hospitalizations and treatment efforts had been fruitless. The researchers first elicited "trigger" situations from an alcohol interview questionnaire and subsequently formulated appropriate modeling scenes. The subject met with a therapist for two 30-minute sessions each week for the 3-week period of hospitalization. Modeling scenes were presented during the sessions and additionally outside of the sessions via tape recordings consisting of the same scenes.

Follow-up data revealed that the subject reported one 3-day relapse during an 11-month post-hospitalization period, but the relapse situation was not one of the practiced modeling situations. Also, the subject maintained fulltime employment and required no rehospitalization during the 11-month period.

Hay et al. (1977), also report the successful treatment of obsessive-compulsive behavior in a 27-year-old female patient by using the covert modeling procedures. Follow-ups at 3- and 6-months indicated the patient was no longer engaging in any obsessive-compulsive behaviors, a fact that was substantiated by phone calls to her relative. The authors conclude that:

> One advantage of covert procedures, as utilized in the present studies, is that they do not require elaborate therapeutic aids. Thus, covert modeling procedures may be utilized when the nature of the presenting problem prohibits the use of live or filmed models. Additionally, results suggest the potential therapeutic value of teaching covert modeling procedures as a self-control skill [p. 75].

Kazdin (1973) sought to reduce snake-avoidance behavior by using covert modeling procedures: 20 male and 44 female undergraduate students selected for their degree of avoidance of snakes, were assigned randomly to either a covert modeling group in which the model was presented as a coping model; a covert modeling group in which the model was presented as a mastery model; or a scene control group, where similar scenes were presented, but no model was used. Results indicated that both covert modeling groups significantly increased in their approach behavior and reduced their emotional arousal and anxiety, as compared to the control group. Additionally, the group exposed to the coping model evidenced a greater change at posttest, than the mastery model group. The latter finding seems to be consistent with the findings of Meichenbaum (1971) that a greater reduction in anxiety occurs in subjects exposed to a model that is similar to themselves in fear and which displays coping behaviors, rather than when exposed to a mastery model, which displays a nonfearful mastery of the situation. In other words, "the greater the perceived similarity, the greater the imitation [Bandura, et al., 1963, p. 10].

Kazdin (1974a) again investigated the effects of covert modeling on reducing snake avoidance, but this time he sought to determine the particular features of the model which were the most effective. He subjected 25 male and 45 female college students to a 2 X 2 design format, using either a model of same sex and age or of older age and opposite sex and a coping model or a mastery model. Once again, results indicated that "covert modeling can effectively reduce avoidance behavior and the efficacy of the model depended upon similarity of the model to the subjects [p. 337]." A coping model tended to result in greater observational learning than a mastery model for subjects who imagined a model similar in age and same sexed.

In a study to investigate the effects of covert modeling on developing assertive behaviors, Kazdin (1974b) selected 23 females and 22 males on the basis of their reported nonassertiveness. Subjects were then randomly assigned to one of four groups:

1. One group received covert modeling;

2. one group received covert modeling plus reinforcement (favorable consequences followed the model's performance);

3. one group served as a control, whereby scenes were presented, but no model was present; and

4. one group served as a delayed treatment control group.

Subjects were given four pretest and posttest self-report measures, as well as being measured (rated) on a behavioral role-playing test. Results showed that at the conclusion of the four treatment sessions, both the model and the model reinforcement group made substantial improvements in assertive behavior. However, "the anticipated superiority of the model reinforcement subjects is only partially confirmed [p. 250]."

Cautela (1974) sought support for his hypothesis that covert modeling and overt modeling procedures are equally effective: 30 female undergraduates with a fear of laboratory rats, were assigned randomly to one of three treatment conditions--covert modeling, overt modeling, or attention placebo. Behavioral and subjective measures were used as dependent variables, along with a brief test for adequate visual imagery. Cautela's findings support his hypothesis that "Covert modeling can be as effective as overt modeling in reducing college students' fear of laboratory rats [p. 500]."

Kazdin (1976a) questioned whether or not covert modeling could be enhanced by having subjects verbalize their ongoing imagery.

He found that:

1. covert modeling, with or without verbalization by the client, led to improvement in assertive behavior,

2. the efficacy of covert modeling was not increased by having subjects verbalize ongoing imagery, and

3. a nonassertive model was not as effective as the covert modeling.

Lowe (1978), in a doctoral dissertation, compared the effectiveness of different models in covert modeling procedures. He used 60 females with a fear of snakes and divided them randomly into four groups: one consisted of an ideal self as the model, one had an ideal person as the model, one used the real self as the model, and one group served as a control. All of the modeling group subjects showed significant changes in their degree of fear of snakes following three 50-minute treatment sessions. Also, the effectiveness of covert modeling was increased when subjects were asked to imagine models with ideal characteristics, as compared to imagining real self as the model.

The Use of Relaxation Techniques with Alcohol Abusers

Relaxation procedures have been a valuable part of the therapeutic armentarium for many years, particularly since the advent of Jacobson's progressive relaxation techniques (1938). Often, relaxation procedures are paired with other behavioral strategies--systematic desensitization, aversion therapy, covert sensitization--

in order to form a more potent treatment effort. Such is the case with some of the behavioral therapy with alcohol abusers.

Blake (1965) combined the progressive relaxation procedures of Jacobson (1938) with electrical aversive conditioning in an attempt to treat 37 alcoholic patients. His rationale for combining the treatments was that, although the aversive therapy might extinguish the drinking behavior, the results might not be permanent, if the drive or anxiety were left untreated. Therefore, relaxation procedures seemed appropriate. A 6-month follow-up revealed that 54% of the 27 subjects reported abstinent behavior. Blake feels that this percentage compares favorably with figures reported in other research studies involving treatment by disulfiram and by group psychotherapy.

Blake (1967) followed up his previous research by comparing the results to those of a group of 25 patients receiving only electrical aversive conditioning. Although the percentages of abstinence were higher for the combination relaxation-aversive conditioning group, the difference was not statistically significant.

Cautela (1967) introduced a method for treating maladaptive behaviors, which he termed covert sensitization. In this procedure, an aversive stimulus is presented in imagination in order to build an avoidance response to the undesirable behavior. Relaxation is taught to the subject, so that the precipitating anxiety might be overcome and so that the relaxation might serve as a reinforcer. Cautela states that: "One of the reasons for its effectiveness is probably the sense of control the individual feels over his own behavior [p. 46]."

Ashem and Donner (1968) sought to test Cautela's covert sensitization with alcoholics: 23 male alcoholics were assigned to either the covert sensitization group or a control group. Treatment consisted of having the subjects imagine aversive scenes of vomiting when presented with images of alcohol and alcohol-related situations. Relaxation was used as a reinforcer and gradually its presentation came to be contingent on the subject's performing more complex tasks, such as pushing a drink away or attending AA meetings. A 6-month follow-up showed that the treatment group was maintaining sobriety more than the control group.

Jackson (1975) reported that a group of alcoholics using progressive relaxation significantly lowered their vital signs--heart rate, blood pressure, et cetera--after treatment compared to a control group, which received an eclectic therapy approach. However, a self-report scale showed no difference between the two groups.

Marlatt and Marques (1977) found that heavy social drinkers could successfully reduce their consumption of alcohol when they took time each day to perform a simple relaxation exercise, like meditation muscle relaxation, or reading a book quietly. Also subjects who regularly practiced a relaxation method, significantly changed their I-E scores toward internality.

Parker, Gilbert, and Thoreson (1978) divided 30 male alcoholics randomly among the treatment conditions--progressive relaxation, meditation, and quiet rest control group. Both the treatment groups had significantly lowered blood pressure rates following a treatment regime of three 30-minute sessions per week for 3 weeks. The authors conclude that "with regard to the question of whether relaxation techniques are potentially useful in the treatment of alcoholism, the data are encouraging [p. 886]."

Krummel (1978) hypothesized that abstinence rates of alcoholics could be improved by the addition of selected behavioral techniques to an existing alcoholism treatment program: 57 inpatient alcoholics were randomly divided among an assertion-training group, a relaxation group, and a control group, which received the standard treatment offered to all the patients. These adjunct behavioral efforts proved not to be successful in improving abstinence rates. The author suggests that the findings do not support the addition of isolated behavioral interventions in alcoholism treatment.

Investigating the effects of progressive relaxation and meditation with alcoholics, Hendricksen (1978) found that when compared to a treatment placebo group, these treatment methods were effective in altering only one component (confusion-bewilderment) of an overall mood stability measure. On a measure of state anxiety, subjects in the treatment groups did not significantly differ from each other or from the placebo group.

Summary

To date, there is a formidable body of research to indicate that the I-E construct is a meaningful personality dimension. Typically and consistently, this body of empirical research has related externality to poor psychological functioning, maladjustment to life events, high anxiety, suicide proneness, more debilitating anxiety, neuroticism, schizophrenia, and less willingness to engage in remediation of personal problems (Feather, 1967; Harrow & Ferrante, 1969; Kertzer, 1967; Kilmann, et al., 1978; Phares, Ritchie, & Davis, 1968; Shybut, 1968; Watson, 1967; Williams & Nickels, 1969). There are, however, a few who believe that the I-E concept may follow a curvilinear pattern in that extreme internals and extreme externals are more psychologically maladjusted (Joe, 1971; Lefcourt, 1976).

This hypothesized curvilinear relationship may be relevant to some of the studies that have found alcoholics to be more internal than normal comparison groups (Distefano, Pryer, & Garrison, 1972; Goss & Morosko, 1970; Gozali & Sloan, 1971; Gross & Nerviano, 1972). It has been suggested that, if alcoholics are indeed more internally oriented, then this internality may relate to the denial system (or the belief that he/she can control his/her drinking) that so characterizes the alcoholic.

However, some controversy does exist regarding the relationship of alcoholism and I-E control, as some researchers have found alcoholics to be more external (Butts & Chotlos, 1973; Hindricksen, 1976; Naditch, 1975; Nowicki & Hopper, 1974; Obitz & Swanson, 1976). These latter researchers have also roundly criticized the previous findings of internality among alcoholics, because of flaws in the design, such as inappropriate comparison groups, failure to match groups by age or social class, and failure to control for the possibility of social desirability responding.

Hindricksen (1976), in a review of this relationship, concludes that, although the studies may suffer from some methodological flaws, they still, on the whole, suggest that alcoholics are not grossly external and that some are internally oriented.

Joe (1971) believes that it is possible to change the locus of control orientation from an external to an internal frame of reference and Donovan, O'Leary, and Schau (1975) and Kilmann et al. (1978) among others, have advocated the therapeutic value of changing a person's control orientation toward the internal direction.

Regarding alcoholics changing their locus of control orientation, Oziel and Obitz (1975); O'Leary, Donovan, Hague, and Shea (1975); Kennedy, Gilbert and Thoreson (1978); Hettinger (1976); and Greenberg, Obitz, and Kaye (1978) found evidence to support the contention that alcoholics do change their I-E scores toward internality as a function of participating in treatment.

With nonalcohol-abusing populations, Dua (1970); Gillis and Jessor (1970); and Pierce, Schauble, and Farkas (1970) found evidence of a change in I-E scores toward internality as a function of therapeutic intervention. Additionally, Pawlicki (1976) found that subjects who learned a self-directed behavior modification skill, also increased in their generalized feeling of control over their environment.

Although the disease-medical model of alcoholism is the cornerstone of alcoholism treatment, several research studies employing behavioral techniques have proven to be viable alternative treatment methods (Chaney, 1976; Miller, et al., 1974; Sobell & Sobell, 1973).

Covert modeling procedures have been found to be effective in reducing snake avoidance (Kazdin, 1973, 1974a; Lowe, 1978) in increasing assertive behavior (Kazdin, 1974b, 1976a); and in reducing fear of laboratory rats (Cautela, 1974). Additionally, Hay et al. (1977) used covert modeling procedures to successfully treat a case of chronic alcohol abuse and a case of obsessive-compulsive behavior.

And, finally, relaxation procedures have been used with alcoholics in combination with other behavioral techniques and found to be effective (Ashem & Donner, 1968; Blake, 1965; Cautela, 1967).

Jackson (1975), Marlatt and Marques (1977) and Parker et al. (1978), in studies with alcohol abusers, found evidence of the effectiveness of relaxation procedures using a variety of dependent measures. It seems that a number of theoretical questions remain to be investigated. The specific questions this study will address are:

1. Can the addition of covert modeling procedures enhance the effectiveness of an existing alcohol abuse program; that is, to help increase posttreatment abstinent behavior?

2. Can relaxation procedures enhance the effects of covert modeling with alcohol abusers?

3. Is I-E control among alcohol abusers, susceptible to modification by the techniques of covert modeling and progressive relaxation?

4. How does the mean I-E score for this sample compare with other population means, that have employed the Adult Nowicki-Strickland Internal-External Control Scale (ANS-IE)?

This study is initiated with the hope of providing answers to these questions, so that a contribution can be made to the theoretical understanding of the techniques, constructs, and clinical population of this study.

Chapter 3

Methodology

The specific purpose of this investigation was to determine the effects of two adjunct behavioral techniques--covert modeling and progressive relaxation--on the locus of control orientation and drinking behavior of inpatient alcohol abusers.

Chapter 3 includes the procedures and methods of research. Description of the following are presented herein: (a) Population, (b) Procedures, (c) Ethical Considerations, (d) Instrumentation, (e) Research Design, (f) Statistical Analysis, (g) Specific Hypotheses, and (h) Summary.

Population

The sample for this study was drawn from a population of patients receiving treatment for alcohol abuse at Eastern State Hospital in Williamsburg, Virginia. The subjects (N = 50) were from the Northern Neck and Tidewater regions of Eastern Virginia, an area which is mostly rural, but which also includes urban population centers around the cities of Hampton, Norfolk, Newport News, and Williamsburg.

Subjects were screened at the initial appraisal staffing of the hospital and then were asked for volunteer participation in this study. The selection criterion consisted of the following:

1. Alcohol was the primary admitting problem, e.g. subjects were neither addicted to other substances nor were they given any

other psychiatric diagnosis.

2. Subjects had at least a fifth grade education in keeping with the required reading level of the Adult Nowicki-Strickland I-E Scale.

3. Subjects stated that they intended to remain in the treatment program for the entire 3-week period.

If any potential subjects had not completed detoxification, they were placed on a waiting status until such time as they could be fairly tested and briefed about the experimental sessions.

The final sample characteristics featured an age range from 20 to 63 with a mean age of 36.8. The total subject pool of 50 was composed of 41 males, and 9 females; 41 were white, 9 Black. These ratios corresponded fairly closely to the actual unit population ratios for sex, but not in the case of race. Though there was no intention to do so, the selection criterion, in many cases, served to screen out some of the potential Black subjects.

The substance abuse treatment program at Eastern State Hospital lasts approximately 3-weeks and the patients receive a comprehensive program which includes:

1. Program Orientation
2. Detoxification and Medical Assistance
3. Psychological Assessment (if necessary)
4. Educational Instruction on Alcohol
    a. The physiological aspects of alcohol abuse
    b. The psychological aspects of alcohol abuse

5. Introduction to and Participation in the Alcoholics Anonymous Program

6. Participation in Daily Group Therapy

7. Individual Social Casework (on request)

8. Individual Therapy (when necessary or on request)

9. Milieu Therapy

10. Recreational Activities

11. Pharmacological Treatment (Antabuse is given on request by prescription)

12. Discharge Planning.

The overall philosophy and treatment orientation is in the direction of the disease-medical model of alcohol abuse with emphasis on the patient's realistic acceptance of his/her alcohol problems and on taking responsibility for his/her behavior and life.

Procedures

Subjects in this study were randomly assigned to one of five experimental groups: three treatment groups, one placebo control group, and one no-treatment control group. All subjects (N = 50) received the regular inpatient treatment program previously described.

The five groups were as follows:

T_1 subjects (N = 10) received a combination of covert modeling and progressive relaxation for four 30-minute sessions.

T_2 subjects (N = 10) received covert modeling training for four 30-minute sessions.

T_3 subjects (N = 10) received progressive relaxation training for four 30-minute sessions.

C_1 subjects (N = 10) participated in four 30-minute discussion sessions and acted as a placebo control group.

C_2 subjects (N = 10) received no adjunct experimental treatment and acted as a no-treatment control group.

Following the random assignment procedure, subjects were privately read instructions regarding the type and length of treatment they were to receive (See Appendix A). Further verbal explanations were given as needed so as to insure complete understanding of the procedure.

Subjects participating in the covert modeling treatments (T_1 and T_2) were asked to generate two "trigger" situations in which they are likely to drink excessively. These situations were then used to develop the covert modeling scenes for each individual subject. Covert modeling subjects were asked to imagine and verbalize aloud their specific "trigger" situations in detail and then to imagine themselves performing in that situation with some appropriate, coping behavior. Subjects were also instructed to covertly reinforce themselves following successful imagined behavior. Progressive relaxation procedures (Jacobson, 1938) were used with T_1 subjects prior to the presentation of the covert modeling scenes. The modeling scenes were alternatingly presented over the course of the four treatment sessions. Thus, each scene was practiced twice.

Progressive relaxation was also used with T_3 subjects and required them to systematically tense and then relax various muscle groups in the body and to adopt a passive attitude toward relaxing themselves. A tape recording of the relaxation procedure was used, so as to present a consistent and standardized relaxation format to each of the subjects who received the progressive relaxation (T_1 and T_3 subjects).

All subjects in the placebo control group (C_1) engaged in a general discussion with the counselor, related to alcohol usage, family background, program developments, and so forth. This format was designed to allow the patient (subject) the freedom to choose areas for discussion so as to receive some possible therapeutic benefit from the experimental sessions. Also, the general discussion format did not seem to relate in any way to the techniques under investigation, thus, hopefully, ensuring a better differentiation of results.

In order to determine changes in the internality-externality dimension, subjects were tested before and after the experimental treatment using the Adult Nowicki-Stickland Internal-External Scale (See Appendix B). Additionally, subjects participated in a 3-month follow-up procedure (See Appendix C) which was designed to measure their subsequent drinking behavior, e.g., days completely sober and problems related to alcohol usage.

Ethical Considerations

This study was conducted under the following guidelines in order to protect the rights and well-being of the subjects in the study, as well as the integrity of Eastern State Hospital.

1. This research study was approved by the Ethics committees of both Eastern State Hospital and the College of William and Mary.

2. Subjects were assured of their right to informed consent.

3. Participation was voluntary and a decision not to participate in no way affected a patient's hospital status, diagnosis, or right to receive fair and appropriate treatment.

4. Any data collected for use in this study did not affect the subject's patient status, diagnosis, or right to receive fair and appropriate treatment. All test results were explained individually (upon request) following experimental sessions.

5. Confidentiality was maintained throughout the study, which included subsequent release or publication of the study results.

6. Any subject could withdraw from the experimental treatment at any time, for any reason, with no repercussions.

7. All subjects participated in all phases of the usual treatment program for alcohol abuse, thus assuring their right to appropriate therapeutic intervention. (See Appendix D.)

Instrumentation

As a measure of locus of control orientation, subjects were administered the Adult Nowicki-Strickland Internal-External Control Scale (ANS-IE), noncollege form (Nowicki & Duke, 1974). This 40-item instrument was derived from an alteration of the original Children's Nowicki-Strickland Internal-External Scale (Nowicki & Strickland, 1973), in an attempt to make it more appropriate for noncollege educated adults.

Nowicki (1980) states in his unpublished users manual, that the original Rotter I-E scale, although important and meaningful as a psychological construct, is often criticized for the following reasons:

1. The Rotter scale has shown a consistent and significant relationship to social desirability responding and to the denial of psychopathology.

2. The scale items confound personal, social, political, and ideological causation.

3. The forced-choice format of the scale and difficult reading level make it inappropriate for noncollege populations.

For these reasons, Nowicki and Duke (1974) developed a scale (the ANS-IE) that was written in language simple enough for children to understand and with a few alterations could be made appropriate for use with adults. The population under investigation in this study was predominately noncollege; thus, this alternative measure of locus of control seemed appropriate.

Nowicki and Duke (1974) analyzed data gathered from 766 subjects in 12 separate studies to determine psychometric properties of the ANS-IE. They report a split-half reliability ranging from .74 to .86 (N = 158) and test-retest reliabilities of .83 over a 6-week period (N = 48).

Regarding discriminative validity, the ANS-IE scale was found not to be related to scores on the Marlowe-Crowne Social Desirability scale ($\underline{r}$ = .10). Also, the ANS-IE scores were found to be not significantly related to scores on the Scholastic Aptitude Test ($\underline{r}$ = .11). The authors conclude that the instrument is measuring a construct (Internality-Externality) that is apparently unrelated to intelligence.

Evidence to support the construct validity of the scale was obtained by comparing it to Rotter's I-E scale. Resulting correlations of .68, .48, and .59 were obtained in three different samples. Further, ANS-IE scores positively correlated .36 male and .32 female with Eysenck's scale of Neuroticism and .34 male and .40 female with the Taylor Manifest Anxiety Scale. Nowicki and Duke (1974) believe that this evidence is consistent with the construct of internal-external control and with social learning theory.

In addition to the measure of locus of control, the subjects were asked to supply follow-up data regarding post-release drinking behavior. Specific questions were asked regarding total number of completely abstinent days since leaving the hospital and about any legal, social, or economic problems related to alcohol usage. This 3-month follow-up was conducted mostly by telephone and supplemented by mail correspondence when necessary. The total number of abstinent days was then used as an additional dependent measure in this study.

Research Design

The basic design format for this experimental study is the Before and After Control Group (Pretest-Posttest) Design (Kerlinger, 1975).

	Y_b	X	Y_a	(Experimental)
R				
	Y_b	-X	Y_a	(Control)

In this design, subjects are randomly assigned to either the experimental group or the control group and then measured on some dependent variable (Y_b). Following treatment (X) or no-treatment (-X) subjects are again measured on the dependent variable (Y_a), in order to obtain difference or change scores. This design allows for the use of more than one experimental group, which was the case in this study.

The basic strength of this design is that internal validity is improved because the effects of history, maturation, and testing are equated (by random assignment) and thus experimental control is enhanced. The predominant weaknesses of the Before and After Design are that:

1. the pretest may sensitize the subjects to the purposes of the experiment and thus influence change, particularly in attitudes and belief measures, and

2. unless the change of difference scores are substantial, the treatment effects may not be significant.

Statistical Analysis

Data were analyzed statistically by conducting a one-way analysis of variance to test the overall significance of *F* for the five-group means. In addition, a priori hypotheses were tested by the method of orthogonal contrasts. They were as follows:

1. The combined covert modeling--progressive relaxation group versus the covert modeling only, the progressive relaxation only, the placebo, and the no-treatment control group.

2. The covert modeling only group versus the progressive relaxation only, the placebo, and the no-treatment control group.

3. The progressive relaxation only group versus the placebo and the no-treatment control group.

4. The treatment groups (covert modeling--progressive relaxation, covert modeling only, and progressive relaxation only) versus the control groups (placebo-control, and no-treatment control).

Resulting $\underline{t}$ values for the contrasts were tested at the .05 level of significance.

An additional statistical procedure was used in order to more accurately examine the follow-up data. The SPSS subprogram ANOVA was used to perform an analysis of variance within a 5 X 2 factorial design. Here, the factor of problems versus no problems was introduced into the analysis in order to reduce the error variance and to highlight treatment effects. Again the .05 level of significance was used to test the resulting $\underline{F}$ value.

Specific Hypotheses

Null Hypothesis 1

No difference will be found between the covert modeling--progressive relaxation group (CM-PR) (M_1) and the covert modeling only (CM) (M_2), the progressive relaxation only (PR) (M_3), the placebo control (P-C) (M_4) and the no-treatment control (C)(M_5) groups.

$$H_o: M_1 = M_2 + M_3 = M_4 = M_5$$

Alternative Hypothesis 1

The CM-PR group will exceed the CM, PR, P-C, and C groups on measures of locus of control and drinking behavior.

$$H_{1a}: M_1 > M_2 \text{ or } M_3 \text{ or } M_4 \text{ or } M_5$$

Null Hypotheses 2

There will be no difference between the CM group and the PR, P-C, and the C groups.

$$H_o: M_2 = M_3 = M_4 = M_5$$

Alternative Hypothesis 2

The CM group will exceed PR, P-C, and C on LOC and drinking behavior measures.

$$H_{1b}: M_2 > M_3 \text{ or } M_4 \text{ or } M_5$$

Null Hypothesis 3

There will be no difference between the PR group and the P-C and C groups.

$$H_o: M_3 = M_4 = M_5$$

Alternative Hypothesis 3

The PR group will exceed the P-C and C groups on LOC and drinking behavior measures.

$$H_{1c}: M_3 > M_4 \text{ or } M_5$$

Null Hypothesis 4

There will be no difference between the CM-PR, the CM, and the

PR groups when compared to the P-C and C groups on locus of control and drinking behavior measures.

$$H_o: M_1 = M_2 = M_3 = M_4 = M_5$$

Alternative Hypothesis 4

The groups CM-PR, CM, and PR will exceed the groups P-C and C on LOC and drinking behavior measures.

$$H_{1e}: M_1 \text{ or } M_2 \text{ or } M_3 > M_4 \text{ or } M_5$$

Summary

This study was a field experiment that investigated the effects of covert modeling and progressive relaxation procedures on the locus of control orientation and drinking behavior of inpatient alcohol abusers. There were 50 voluntary subjects (41 men, 9 women) from the alcohol abuse unit at Eastern State Hospital in Williamsburg, Virginia, assigned randomly to one of five experimental groups: one group received both covert modeling and progressive relaxation; one group received only covert modeling; one group received only progressive relaxation; one group acted as a placebo-control group; and one group acted as a no-treatment control group and received no experimental treatment.

A Before and After (Pretest-Posttest) Control Group design was implemented utilizing two dependent measures: locus of control and follow-up drinking behavior. Data obtained in this study was analyzed by the statistical procedures, analysis of variance with SPSS subprogram ONEWAY (to test for the overall significance of F) and orthogonal contrasts to test the a priori hypotheses of this study). Further, follow-up data was examined by the method of analysis of variance (SPSS subprogram ANOVA) using a 5 X 2 factorial design.

Chapter 4

Results

The purpose of this study was to examine the effects of covert modeling and progressive relaxation procedures using inpatient alcohol abusers as subjects. A measure of locus of control orientation and a measure of drinking behavior were chosen as dependent variables for this experiment. Regarding the latter variable, a post-release follow-up procedure was used to obtain the data and 45 of the 50 subjects were contacted for a return rate of 90%. In this chapter, specific hypotheses will be presented along with their corresponding statistical results.

Hypothesis 1

Hypothesis 1 states that the mean of Group 1 (covert modeling and progressive relaxation) will be significantly different from the means of Group 2 (covert modeling only), Group 3 (progressive relaxation only), Group 4 (the placebo control) and Group 5 (the no-treatment control) on measures of locus of control and drinking behavior. That is, subjects in Group 1 will, after treatment, show a significant change toward internality and will accumulate significantly more abstinent days when compared to subjects in either of the other four groups.

A ONEWAY analysis of variance was done to evaluate the overall treatment effects on each dependent variable. Tables 1 and 2 summarize

Table 1

Summary of Oneway Analysis of Variance

for Locus of Control Data

Source of Variation	*df*	Sum of Squares	Mean Squares	*F* Ratio	*F* Probability
Between	4	29.60	7.40	0.46	0.76
Within	45	728.89	16.19		

$p < .05$.

Table 2

Summary of Oneway Analysis of Variance

for Follow-Up Drinking Behavior

Source of Variation	*df*	Sum of Squares	Mean Squares	*F* Ratio	*F* Probability
Between	4	4,311.33	1,077.83	1.45	0.24
Within	40	29,719.08	742.98		

$p < .05$.

these procedures. In order to test the more specific hypotheses, the method of orthogonal contrasts was used with resulting _t_-values tested at the .05 level of significance.

A statistical summary of Hypothesis 1 is presented in Tables 3 and 4 for each dependent variable. For the measure, locus of control, the hypothesis is rejected. However, the hypothesis is accepted at the .05 level of significance for the dependent variable, drinking behavior.

The follow-up data, obtained to measure drinking behavior, were also analyzed by the method of Analysis of Variance using a 5 X 2 factorial experiment design to further highlight treatment effects. Table 5 provides a summary of this procedure. The treatment factor in this analysis is significant at better than the .01 level. In addition, a Multiple Classification Analysis (MCA) table is provided in the statistical information, which shows Group 1 to be clearly the most effective treatment. Table 6 summarizes the MCA data.

Hypothesis 2

Hypothesis 2 states that the mean of Group 2 will be significantly different from the means of Groups 3, 4, and 5 on measures of locus of control and drinking behavior. That is, subjects in Group 2 will, after treatment, show a significant change toward internality and will accumulate significantly more abstinent days when compared to subjects in Groups 3, 4, and 5.

Tables 7 and 8 summarize the statistical contrasts. The hypothesis is rejected for both dependent measures, locus of control

Table 3

Hypothesis 1. Contrast 1, Treatment Group 1 versus Treatment Groups 2 and 3 and Control Groups 4 and 5 for Locus of Control

Value	Standard Error	*t* Value	*df*	*t* Probability
5.50	5.69	0.96	45.0	0.34

$p < .05$.

Table 4

Hypothesis 1. Contrast 1, Treatment Group 1 versus Treatment Groups 2 and 3 and Control Groups 4 and 5 for Drinking Behavior

Value	Standard Error	$\underline{t}$ Value	$\underline{df}$	$\underline{t}$ Probability
78.82	39.10	2.02	40.0	0.05

$\underline{p} < .05$.

Table 5

Summary of Analysis of Variance Factorial

Experiment for Follow-Up

Drinking Behavior

Source of Variation	Sum of Squares	*df*	Mean Square	*F*	Significance of *F*
Treatment[a]	3,615.15	4	903.78	4.88	0.003
Problems[b]	21,802.48	1	21,802.48	117.92	0.000
2-Way Interaction Treatment Problems	1,274.21	3	424.73	2.30	0.094

$p < .05$.

Note. Legend.

[a]Treatment = Five experimental treatment groups of this study.

[b]Problems = Two categories representing the fact that subjects either did or did not have problems after release that were related to alcohol usage.

Table 6

Summary of the Multiple Classification Analysis Table from the Analysis of Variance Factorial Experiment for Follow-Up Drinking Behavior

Variable and Category	N	Unadjusted Deviation	Eta	Adjusted for Independents Deviation	Beta
Treatment					
1	10	15.29		1.06	
2	9	- 1.24		2.31	
3	8	- 5.16		0.62	
4	9	2.53		12.02	
5	9	- 13.69		- 16.06	
			0.36		0.33
Problems					
1	33	13.48		14.23	
2	12	- 37.08		- 39.14	
			0.81		0.86

Grand Mean = 69.91

Multiple *R* Squared = 0.767

Multiple *R* = 0.876

Table 7

Hypothesis 2. Contrast 2, Treatment Group 2 versus Treatment Group 3 and Control Groups 4 and 5 for Locus of Control

Value	Standard Error	*t* Value	*df*	*t* Probability
- 2.90	4.41	- 0.66	45.5	0.51

$p < .05$.

Table 8

Hypothesis 2. Contrast 2, Treatment Group 2 versus Treatment Group 3 and Control Groups 4 and 5 for Follow-Up Drinking Behavior

Value	Standard Error	*t* Value	*df*	*t* Probability
12.25	31.63	0.39	40.0	0.70

$p < .05$.

and drinking behavior. Further, an examination of the MCA table (Table 6) for the factorial experiment indicates that Group 2 is not an effective treatment method as its mean deviates only -1.24 from the grand mean.

Hypothesis 3

Hypothesis 3 states that the mean of Group 3 will be significantly different from the means of Groups 4 and 5 on measures of locus of control and drinking behavior. That is, subjects in Group 3 will, after treatment, show a significant change toward internality and accumulate significantly more abstinent days when compared to subjects in Groups 4 and 5.

Tables 9 and 10 display the statistical summaries of the contrasts. The hypothesis is easily rejected at the .05 level for both dependent variables. Again, when the MCA table (Table 6) is examined, it is readily apparent that this treatment is one of the least effective in influencing postrelease drinking behavior.

Hypothesis 4

Hypothesis 4 states that the means of Groups 1, 2, and 3 will be significantly different from the means of Groups 4 and 5 on measures of locus of control and drinking behavior. That is, subjects in Groups 1, 2, and 3 will, after treatment, show a significant change toward internality and accumulate significantly more abstinent days when compared to subjects in Groups 4 and 5. This hypothesis was rejected at the .05 level as can be seen in Tables 11 and 12 which summarize the contrasts for both dependent measures.

Table 9

Hypothesis 3. Contrast 3, Treatment Group 3 versus Control Groups 4 and 5 for Locus of Control

Value	Standard Error	*t* Value	*df*	*t* Probability
- 2.00	3.12	- 0.64	45.0	0.52

$p < .05$.

Table 10

Hypothesis 3. Contrast 3, Treatment Group 3 versus Control Groups 4 and 5 for Follow-Up Drinking Behavior

Value	Standard Error	*t* Value	*df*	*t* Probability
0.83	23.16	0.04	40.0	0.97

$p < .05$.

Table 11

Hypothesis 4. Contrast 4, Treatment Groups

1, 2, and 3 versus Control Groups 4 and 5

for Locus of Control

Value	Standard Error	*t* Value	*df*	*t* Probability
3.00	6.97	0.43	45.0	0.67

$p < .05$.

Table 12

Hypothesis 4. Contrast 4, Treatment Groups 1, 2, and 3 versus Control Groups 1 and 2 for Follow-Up Drinking Behavior

Value	Standard Error	*t* Value	*df*	*t* Probability
- 51.01	49.84	- 1.02	40.0	0.31

$p < .05$.

Chapter 5

Summary, Conclusions, Discussion, and Recommendations

Chapter 5 provides an overview of the results of this investigation by summarizing the study, presenting the conclusions drawn, and discussing the implications and making recommendations for future research in this area.

Summary

Alcohol abuse is a significant and formidable problem which affects the lives of an estimated 10 to 13 million people. Of course, this figure does not adequately reflect the secondary effects of alcohol abuse on the millions of people who have a significant relationship with an alcohol abuser. It is not hard to understand then, the enormous amount of time, money, and energy spent on trying to prevent, treat, and recover from this problem.

This study focused on the treatment and recovery phases of alcohol abuse and was conducted in an attempt to determine whether or not two adjunct behavioral skills (covert modeling and progressive relaxation) could be effective when learned and practiced in conjunction with the more traditional tenets of the disease--medical model of alcohol abuse.

Chaney (1976), Marlatt (cited in Nathan et al., 1978), and Sobell and Sobell (1973) among others have advocated the need to teach alcoholics behavioral self-control skills and to practice new behaviors in order to strengthen the recovery process. In this study, a locus of control scale was used to measure this hypothesized change in perceived self-control and a 3-month follow-up of drinking behavior was used to evaluate effects on the recovery process.

In a review of the literature, it was found that alcoholics can and do change their I-E scores toward internality (self-control) as a function of participating in treatment (Hettinger, 1976; Kennedy, Gilbert, & Thoreson, 1978; O'Leary, Donovan, Hague, & Shea, 1975; Oziel & Obitz, 1965), and that other nonalcohol-abusing populations can also alter their control orientation as a function of therapeutic intervention (Dua, 1970; Gillis & Jessor, 1970; Pierce, Schauble, & Farkas, 1970).

Covert modeling procedures have been found to be effective in reducing snake avoidance (Kazdin, 1973; 1974a; Lowe, 1978) in increasing assertive behavior (Kazdin, 1974b, 1976a); and in reducing fear of laboratory rats (Cautela, 1974). Additionally, Hay et al. (1977) used covert modeling to successfully treat a case of chronic-alcohol abuse and a case of obsessive-compulsive behavior.

The subjects for this study were 50 inpatients receiving treatment for alcohol abuse at Eastern State Hospital in Williamsburg, Virginia. They were randomly assigned to five groups following a pretest administration of the Adult Nowicki-Strickland Internal-External Scale. The groups were as follows:

1. 10 subjects received a combination of covert modeling and

progressive relaxation for four 30-minute sessions;

2. 10 subjects received only covert modeling for four 30-minute sessions;

3. 10 subjects received only progressive relaxation for four 30-minute sessions;

4. 10 subjects were assigned to the placebo-control group and engaged in four 30-minute discussion sessions; and

5. 10 subjects were assigned to the no-treatment control group and received no adjunct behavioral treatment.

All subjects, by virtue of being in the Eastern State program, continued to receive the usual treatment for alcohol abuse. Experimental treatment was followed by a posttest measure of I-E as well as by the 3-month follow-up.

Conclusions

The results for each research hypothesis can be summarized as follows.

Hypothesis 1

The portion of Hypothesis 1 that relates to changes in locus of control orientation was rejected at the .05 level of significance. That is, subjects participating in the treatment group offering a combination of covert modeling and progressive relaxation did not significantly change toward internality on a measure of locus of control when compared to subjects in the other treatment groups (covert modeling only, progressive relaxation only) or the two control groups. However, they did accumulate significantly more abstinent days during a 3-month follow-up period and that portion of Hypothesis 1 which relates to the drinking behavior measure can be accepted at the .05 level.

In addition, this treatment group was clearly shown to be the most effective one among the five experimental groups, according to data summarized in the MCA table which follows as part of the Analysis of Variance factorial experiment. It should be noted also that the factorial experiment, used to analyze the follow-up drinking behavior data, showed the treatment factor to be significant at the .01 level.

Hypothesis 2

The research hypothesis stating that the subjects who received covert modeling treatment would significantly change their locus of control orientation toward internality and accumulate more abstinent days when compared to subjects receiving either progressive relaxation, the placebo control, or the no-treatment control was rejected at the .05 level for both dependent measures.

Hypothesis 3

Hypothesis 3 was rejected at the .05 level for both dependent measures, locus of control and follow-up drinking behavior. That is, subjects who received the progressive relaxation treatment did not show a significant change toward internality or accumulate more abstinent days than subjects who were assigned to one of the two control groups.

Hypothesis 4

Hypothesis 4 stated that subjects who received either the covert modeling--progressive relaxation, the covert modeling only, or the progressive relaxation only would show a significant change toward internality and accumulate significantly more abstinent days when compared to subjects assigned to either the placebo-control or the no-treatment control groups. This hypothesis was rejected for both dependent measures at the .05 level of significance.

Discussion

A question addressed by this study was whether or not progressive relaxation procedures could enhance the effectiveness of covert modeling, since an imagery technique such as covert modeling would seem to require focused attention and a tranquil state of mind. Contrary to previous research findings (Cautela, 1974; Hay et al., 1977; Kazdin, 1973, 1974a) covert modeling, in this study, was not found to be an effective technique by itself. However, when combined with progressive relaxation, covert modeling was effective in increasing alcohol abusers postrelease abstinent days and in reducing problems related to alcohol usage. An explanation for this effect might be that progressive relaxation provides a kind of psychological readiness to engage in covert modeling and thus the person is prepared, less apprehensive, and more easily engaged in practicing the modeling sequences. A good argument can be made regarding the value of preparing a person psychologically for new learnings as well as for the progress that is usually forthcoming if a person is fully engaged in the counseling/teaching process.

While subjects in the combined group did achieve more abstinent days, they showed no significant difference in changing their I-E scores toward internality, or as theory would explain it, a change in perceived self-control. In explaining this phenomenon, a few possibilities are that the Adult Nowicki-Strickland I-E Scale was not sensitive enough to detect the change or that there were not enough experimental sessions for subjects to fully derive the most benefit from the techniques. Another consideration might be that this shift in perceived control created by the covert modeling procedure is too subtle to be measured and, in fact, may operate on some subconscious level. Noteworthy, is the fact that many subjects in this combined group reported dreaming about the modeling sequences or recalling them at unusual times during the day. They wondered if this procedure could be considered hypnosis. Perhaps, there is an element of suggestibility present and that this, along with modeling and rehearsal effects, was a key determinant in achieving more abstinence rather than the expected shift in perceived ability to control one's own destiny.

An examination of the locus of control data presented in Appendix E points to the strengths of the combined method in influencing shifts in control orientation. While not significantly different from the other experimental groups, Group 1 shows that 6 out of 10 people shifted 4 or more points in the internal direction following treatment. The other four groups did not change as much. Of importance also, is that two members of this same Group 1 changed toward externality, but then went on to achieve total abstinence for the 90-day follow-up period. Perhaps this unexpected shift reflected some tendency to become more dependent on outside resources to maintain their recovery from alcohol. In other words, they may have abandoned some of the denial process which at times is characterized by an "I can do it myself" attitude.

Behavioral techniques were shown, in this study, to be useful adjunct treatment strategies with alcohol abusers, as those subjects who were exposed to the combined treatment of covert modeling and progressive relaxation were able to maintain significantly more abstinent days than subjects in any of the other four groups. Based on this finding, it would seem prudent for practitioners in the field of alcohol abuse to gain some measure of proficiency in the use of behavioral methodologies in order that they might supplement their existing repertoire of treatment strategies. Of course, as with other treatment approaches, behavioral methods require assessment skills in deciding whether or not the client will benefit from the particular method that is selected. This may have been an overlooked factor in this study and, therefore, the findings may have been weakened due to inappropriate subject-technique matching.

Also of interest is that the placebo-control group turned out to be an apparently strong treatment format. The group was originally planned to follow a discussion-type format so that the content would not be similar to the behavioral techniques under investigation.

Although this format was maintained, the actual treatment sessions may have more closely resembled an actual counseling session in terms of process effects on the subject. For example, more direct interaction between the investigator and the subject occured in the placebo group than in the progressive relaxation group, since the relaxation group subjects were played a 15-minute tape each session, while placebo subjects interacted with the investigator for the full 30 minutes. The outcome effects of this increased interaction time can only be estimated, but it seems reasonable to assume that the placebo subjects derived additional therapeutic benefits from this arrangement that were beyond those originally planned.

Recommendations

With the above discussion in mind, several recommendations for further research are made.

1. It might be beneficial to increase the number of sessions held with subjects in the hope of increasing the power of the techniques investigated in this study.

2. It might be meaningful to change the design format to eliminate the Placebo-Control Group and the Progressive Relaxation Group, in order to focus more closely on the Covert Modeling procedure and the combined Covert Modeling--Progressive Relaxation Group.

3. It would be helpful to develop a selection criterion for subjects so as to study the techniques with persons who would seem to derive the most benefits from those techniques. For

example, a test for visual imagery would be an important factor in the selection process.

4. It would be interesting to use outpatient alcohol abusers, where they would be able to covertly practice the new behaviors and then to subsequently test them out in the real situation. That way, reinforcements (for the new behaviors) could occur more quickly or adjustments could be made in the modeling sequences in order to increase chances for success.

5. It would be beneficial to allow for a longer follow-up period of perhaps 6 months or at least to follow-up at periodical intervals of say, 3 months, 6 months, and 12 months.

APPENDIX A

INSTRUCTIONS FOR EXPERIMENTAL SUBJECTS

Covert Modeling--Progressive Relaxation Group

You will be participating in four treatment sessions to learn two new skills that can help you in your future adjustment outside of the hospital. You will be taught the self-control skill of covert modeling, which will enable you to visualize situations in which you are likely to drink excessively. However, you will rehearse, in your mind, an appropriate way to handle the situation without drinking, and thereby preparing yourself for these potentially dangerous situations when you leave the hospital. We will use the two high risk situations that you have already described to this researcher and you will be asked, as you practice this procedure, to verbalize out loud your images.

You will also be taught the use of a relaxation procedure which can enable you to reduce stress and tension in your body, thereby helping you to cope more successfully with situations that are upsetting in your life. You may also discover additional benefits of relaxation such as a reduction in your blood pressure, the relief of body aches, particularly headaches, and an increase in your ability to fall asleep at night. This relaxation skill can also be used prior to the use of covert modeling to enhance your concentration and ability to imagine your trigger scenes and appropriate behaviors.

I would like for you to listen to a tape I have prepared which will teach you how to relax yourself. Let yourself be as passive as possible and just follow the instructions on the tape. You will be in complete control at all times and thus free to relax and enjoy the benefits of this procedure. Remember, too, that once you have learned this skill, it will be to your benefit to practice at least twice a day for 20-minutes each.

Covert Modeling Only Group

You will be participating in four treatment sessions to learn a new skill that can help you in your future adjustment outside of the hospital. (Repeat covert modeling instructions.)

Progressive Relaxation Only Group

You will be participating in four treatment sessions to learn a new skill that can help you in your future adjustment outside of the hospital. (Repeat progressive relaxation instructions.)

Placebo Control Group

You will be participating in four treatment sessions designed to allow you to discuss whatever problems, concerns, questions, or thoughts that you might have. The purpose of these sessions is to give you an opportunity to learn to express yourself fully and to provide a safe place in which to "sound off," if you need to. It may help you to list topics or general areas you would like to discuss, prior to the sessions, so that we can make the best use of the time together.

All Subjects

All subjects will be given the following instructions:

Please do not discuss what we do in the sessions with anyone else, as this might confuse the findings of this study. You may discuss anything you wish with anyone else at the conclusion of the experiment. Of course, if you have complaints or concerns about the sessions or the tests, you are urged to address them to either this researcher or to the Patient's Protection Committee for consideration. Also this researcher will provide any information that you request regarding the nature of this study.

Follow-up Instructions

Upon release from the hospital you will be asked to monitor your abstinent behavior. This researcher will contact you after a 90-day period to ask you some questions related to your alcohol usage as well as some questions about your general well-being. Please be assured that this information will not be used against you in any way and that your confidentiality will be strictly guarded. Your cooperation is most appreciated.

APPENDIX B

THE ADULT NOWICKI-STRICKLAND

INTERNAL-EXTERNAL SCALE

Instructions

This is a questionnaire designed to measure your personal belief system. Please answer either yes or no to the following questions. Remember, there are no right or wrong answers. Please answer the items carefully but do not spend too much time on any item.

1. Do you believe that most problems will solve themselves if you just don't fool with them?
2. Do you believe that you can stop yourself from catching a cold?
3. Are some people just born lucky?
4. Most of the time do you feel that getting good grades meant a great deal to you?
5. Are you often blamed for things that just aren't your fault?
6. Do you believe that if somebody studies hard enough he or she can pass any subject?
7. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?
8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?
9. Do you feel that most of the time parents listen to what their children have to say?

10. Do you believe that wishing can make good things happen?

11. When you get punished does it usually seem it's for no good reason at all?

12. Most of the time do you find it hard to change a friend's mind (opinion)?

13. Do you think that cheering more than luck helps a team to win?

14. Did you feel that it was nearly impossible to change your parent's mind about anything?

15. Do you believe that parents should allow children to make most of their own decisions?

16. Do you feel that when you do something wrong there's very little you can do to make it right?

17. Do you believe that most people are just born good at sports?

18. Are most of the other people your age stronger than you are?

19. Do you feel that one of the best ways to handle most problems is just not to think about them?

20. Do you feel that you have a lot of choice in deciding whom your friends are?

21. If you find a four leaf clover, to you believe that it might bring you good luck?

22. Did you often feel that whether or not you did your homework had much to do with what kind of grades you got?

23. Do you feel that when a person your age is angry at you, there's little you can do to stop him or her?

24. Have you ever had a good luck charm?

25. Do you believe that whether or not people like you depends on how you act?

26. Did your parents usually help you if you asked them to?

27. Have you felt that when people were angry at you it was usually for no reason at all?

28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today?

29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?

30. Do you think that people can get their own way if they just keep trying?

31. Most of the time do you find it useless to try to get your own way at home?

32. Do you feel that when good things happen they happen because of hard work?

33. Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?

34. Do you feel that it's easy to get friends to do what you want them to do?

35. Do you usually feel that you have little to say about what you get to eat at home?

36. Do you feel that when someone doesn't like you there's little you can do about it?

37. Did you usually feel that it was almost useless to try in school because most other children were just plain smarter than you are?

38. Are you the kind of person who believes that planning ahead makes things turn out better?

39. Most of the time, do you feel that you have little to say about what your family decides to do?

40. Do you think it's better to be smart than to be lucky?

APPENDIX C

SUMMARY OF FOLLOW-up QUESTIONNAIRE

1. Have you maintained complete abstinence since you left the hospital 90-days ago?
2. If you have not maintained complete abstinence, please tell me how many days have you had absolutely nothing to drink in the 90-day period?
3. Have you had any problems with the law related to alcohol use?
4. Have you had any family conflicts related to the use of alcohol?
5. Have you been re-hospitalized for alcohol problems? If so, for how long?
6. Have you gained or held employment during this 90-day period?
7. Have you had job problems related to alcohol use?
8. Have you attended A.A.? If so, how often?
9. Have you practiced the techniques that you learned in the experimental sessions? Have you found them to be helpful?
   (This question was asked only of subjects in treatment groups 1, 2, and 3.)

APPENDIX D

FORM OF CONSENT TO RESEARCH

Researcher: Ronald W. Goodman

Faculty Advisor: Dr. Fred Adair, College of William and Mary

Subject:____

Date:____

The purpose of this research study is to investigate the effectiveness of two selected behavioral techniques with alcohol abusers. You will be asked to complete a questionnaire, which measures your feelings about your control over life events. You will also be asked to participate in a posttreatment follow-up to assess abstinent behavoir. You will receive the usual alcohol abuse treatment offered at Eastern State Hospital along with this adjunct treatment.

No harmful effects, risks, or discomforts are anticipated in this research and it is hypothesized that you will receive therapeutic benefit from participation in this study. However, due to the nature of research design, you may be assigned to a control group in which you will receive no adjunct treatment. Hopefully, your participation in this group will help increase scientific knowledge in the field of alcohol abuse.

This study is designed to involve you in experimental sessions over the course of your 3-week hospitalization. In addition, you will be asked to monitor your drinking behavior following release and to report the results to this investigator in three months.

As a subject in this study, I am aware that:

1. My participation is purely voluntary.

2. I may refuse to answer any questions, refuse to take part in any portion of the experiment, or withdraw from the research at any time.

3. My behaviors, responses, and answers are to remain wholly confidential and will not be disclosed to hospital staff.

4. My responses are to be grouped with those of other subjects and may be used in an anonymous analysis of the data.

5. I am free to ask questions at any point in the research.

6. My participation and responses will in no way affect my right to receive appropriate treatment, my status as a patient, or my release date.

7. A Patient's Protection Committee exists with Chaplain Morgan as the liaison to the committee. It is the purpose of the committee to approve and monitor all research. All complaints and/or questions may be referred to this committee which exists solely for the benefit and protection of the patients and operates independently of administration restraints.

Subject's Signature_______________

APPENDIX E

DIFFERENCE SCORES BETWEEN PRETEST-POSTTEST LOCUS OF CONTROL MEASURES FOR THE FIVE EXPERIMENTAL GROUPS

	Group 1	Group 2	Group 3	Group 4	Group 5
	Covert Modeling and Progressive Relaxation	Covert Modeling	Progressive Relaxation	Placebo Control	No-Treatment Control
	7	1	0	- 2	5
	1	1	- 1	2	4
	7	1	0	4	0
	8	8	0	- 3	3
	5	1	4	2	4
	- 6*	6	5	1	3
	- 4	0	0	16	0
	1	- 1	- 1	1	- 1
	4	- 6	- 1	2	2
	9	0	8	3	2
Mean	3.2	1.1	1.4	2.6	2.2
SD	5.1	3.7	3.1	5.1	1.9

*Minus signs indicate a change toward externality.

APPENDIX F

TOTAL NUMBER OF ABSTINENT DAYS FOR THE FIVE EXPERIMENTAL GROUPS

	Group 1	Group 2	Group 3	Group 4	Group 5
	Covert Modeling and Progressive Relaxation	Covert Modeling	Progressive Relaxation	Placebo Control	No-Treatment Control
	90	90	90	89	66
	84	90	90	90	70
	90	90	90	89	90
	90	90	90	80	70
	89	90	45 YES	90	90
	89	76	21 YES	60 YES	50
	90	42 YES*	2 YES	85 YES	50
	90	20 YES	90	20 YES	15 YES
	90	30 YES		49 YES	5 YES
	50				
Mean	85.20	65.55	64.75	72.44	56.22
SD	12.50	29.34	36.70	24.58	29.91

*YES indicates that this subject had problems related to alcohol usage.

APPENDIX G

FREQUENCY DISTRIBUTION OF SAMPLE AGES

Age	F	Age	F
20	1	36	4
21	1	37	2
23	2	38	2
24	1	39	2
25	2	44	1
26	4	47	1
30	3	49	1
31	4	50	1
32	4	53	1
33	1	56	1
34	1	59	1
35	3	63	1

Mean Age: 36.8

APPENDIX H

FREQUENCY DISTRIBUTION OF SAMPLE PRETEST

INTERNAL-EXTERNAL SCORES

Score	F	Score	F
3	1	15	3
5	1	16	2
6	1	17	2
7	2	18	3
8	6	19	2
9	3	22	2
11	6	23	1
12	4	24	2
13	4		
14	4		

Mean I-E Score: 13.4

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Abstract

THE EFFECTS OF COVERT MODELING AND PROGRESSIVE RELAXATION ON THE LOCUS OF CONTROL ORIENTATION AND DRINKING BEHAVIOR OF INPATIENT ALCOHOL USERS

Ronald W. Goodman

The College of William and Mary in Virginia, May 1981

Chairman: Professor Fred L. Adair

Alcohol abuse is a significant and formidable problem which affects the lives of an estimated 10 to 13 million people. Of course, this figure does not adequately reflect the secondary effects of alcohol abuse on the millions of people who have a significant relationship with an alcohol abuser. It is not hard to understand then, the enormous amount of time, money, and energy spent on trying to prevent, treat, and recover from this problem.

This study focused on the treatment and recovery phases of alcohol abuse and was conducted in an attempt to determine whether or not two adjunct behavioral skills (covert modeling and progressive relaxation) could be effective when learned and practiced in conjunction with the more traditional tenets of the disease--medical model of alcohol abuse.

Chaney (1976), Marlatt (cited in Nathan et al., 1978) and Sobell and Sobell (1973) among others have advocated the need to teach alcoholics behavioral self-control skills and to practice new behaviors in order to strengthen the recovery process. In this study, a locus of control scale was used to measure this hypothesized change in perceived self-control and a 3-month follow-up of drinking behavior was used to evaluate effects on the recovery process.

In a review of the literature, it was found that alcoholics can and do change their Internal-External (I-E) scores toward internality (self control) as a function of participating in treatment (Oziel & Obitz, 1951; O'Leary, Donovan, Hague, & Shea, 1975; Kennedy, Gilbert, & Thoreson, 1978; Hettinger, 1976) and that other nonalcohol-abusing populations can also alter their control orientation as a function of therapeutic intervention (Dua, 1970; Gillis & Jessor, 1970; Pierce, Schauble, & Farkas, 1970).

Covert modeling procedures have been found to be effective in reducing snake avoidance (Kazdin, 1973, 1974a; Lowe, 1978) in increasing assertive behavior (Kazdin, 1974b, 1965a); and in reducing fear of laboratory rats (Cautela, 1974). Additionally, Hay et al. (1977) used covert modeling to successfully treat a case of chronic alcohol abuse and a case of obsessive-compulsive behavior.

The subjects for this study were 50 inpatients receiving treatment for alcohol abuse at Eastern State Hospital in Williamsburg, Virginia. They were randomly assigned to five groups following a pretest administration of the Adult Nowicki-Strickland Internal-External Scale. The groups were as follows:

1. 10 subjects received a combination of covert modeling and progressive relaxation for four 30-minute sessions;
2. 10 subjects received only covert modeling for four 30-minute sessions;
3. 10 subjects received only progressive relaxation for four 30-minute sessions;
4. 10 subjects were assigned to the placebo-control group and engaged in four 30-minute discussion sessions;
5. 10 subjects were assigned to the no-treatment control group and received no adjunct behavioral treatment.

The results were as follows:

1. Subjects assigned to Group 1 were not significantly different from subjects in Groups 2, 3, 4 and 5 on a measure of locus of control change. They were, however, significantly different on a measure of follow-up drinking behavior.
2. Subjects assigned to Group 2 were not significantly different from subjects in Groups 3, 4, and 5 on either a measure of locus of control change or follow-up drinking behavior.
3. Subjects assigned to Group 3 were not significantly different from subjects in Groups 4 and 5 on either dependent measure.
4. Subjects assigned to Groups 1, 2 and 3 were not significantly different from subjects in Groups 4 and 5 on either dependent measure.

Recommendations were made for further research in this area.

APPENDIX

APPENDIX A

INSTRUCTIONS FOR EXPERIMENTAL SUBJECTS

Covert Modeling--Progressive Relaxation Group

You will be participating in four treatment sessions to learn two new skills that can help you in your future adjustment outside of the hospital. You will be taught the self-control skill of covert modeling, which will enable you to visualize situations in which you are likely to drink excessively. However, you will rehearse, in your mind, an appropriate way to handle the situation without drinking, and thereby preparing yourself for these potentially dangerous situations when you leave the hospital. We will use the two high risk situations that you have already described to this researcher and you will be asked, as you practice this procedure, to verbalize out loud your images.

You will also be taught the use of a relaxation procedure which can enable you to reduce stress and tension in your body, thereby helping you to cope more successfully with situations that are upsetting in your life. You may also discover additional benefits of relaxation such as a reduction in your blood pressure, the relief of body aches, particularly headaches, and an increase in your ability to fall asleep at night. This relaxation skill can also be used prior to the use of covert modeling to enhance your concentration and ability to imagine your trigger scenes and appropriate behaviors.

I would like for you to listen to a tape I have prepared which will teach you how to relax yourself. Let yourself be as passive as possible and just follow the instructions on the tape. You will be in complete control at all times and thus free to relax and enjoy the benefits of this procedure. Remember, too, that once you have learned this skill, it will be to your benefit to practice at least twice a day for 20-minutes each.

Covert Modeling Only Group

You will be participating in four treatment sessions to learn a new skill that can help you in your future adjustment outside of the hospital. (Repeat covert modeling instructions.)

Progressive Relaxation Only Group

You will be participating in four treatment sessions to learn a new skill that can help you in your future adjustment outside of the hospital. (Repeat progressive relaxation instructions.)

Placebo Control Group

You will be participating in four treatment sessions designed to allow you to discuss whatever problems, concerns, questions, or thoughts that you might have. The purpose of these sessions is to give you an opportunity to learn to express yourself fully and to provide a safe place in which to "sound off," if you need to. It may help you to list topics or general areas you would like to discuss, prior to the sessions, so that we can make the best use of the time together.

All Subjects

All subjects will be given the following instructions:

Please do not discuss what we do in the sessions with anyone else, as this might confuse the findings of this study. You may discuss anything you wish with anyone else at the conclusion of the experiment. Of course, if you have complaints or concerns about the sessions or the tests, you are urged to address them to either this researcher or to the Patient's Protection Committee for consideration. Also this researcher will provide any information that you request regarding the nature of this study.

Follow-up Instructions

Upon release from the hospital you will be asked to monitor your abstinent behavior. This researcher will contact you after a 90-day period to ask you some questions related to your alcohol usage as well as some questions about your general well-being. Please be assured that this information will not be used against you in any way and that your confidentiality will be strictly guarded. Your cooperation is most appreciated.

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These consist of pages:

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APPENDIX C

SUMMARY OF FOLLOW-up QUESTIONNAIRE

1. Have you maintained complete abstinence since you left the hospital 90-days ago?
2. If you have not maintained complete abstinence, please tell me how many days have you had absolutely nothing to drink in the 90-day period?
3. Have you had any problems with the law related to alcohol use?
4. Have you had any family conflicts related to the use of alcohol?
5. Have you been re-hospitalized for alcohol problems? If so, for how long?
6. Have you gained or held employment during this 90-day period?
7. Have you had job problems related to alcohol use?
8. Have you attended A.A.? If so, how often?
9. Have you practiced the techniques that you learned in the experimental sessions? Have you found them to be helpful? (This question was asked only of subjects in treatment groups 1, 2, and 3.)

APPENDIX D

FORM OF CONSENT TO RESEARCH

Researcher: Ronald W. Goodman

Faculty Advisor: Dr. Fred Adair, College of William and Mary

Subject:____

Date:____

The purpose of this research study is to investigate the effectiveness of two selected behavioral techniques with alcohol abusers. You will be asked to complete a questionnaire, which measures your feelings about your control over life events. You will also be asked to participate in a posttreatment follow-up to assess abstinent behavoir. You will receive the usual alcohol abuse treatment offered at Eastern State Hospital along with this adjunct treatment.

No harmful effects, risks, or discomforts are anticipated in this research and it is hypothesized that you will receive therapeutic benefit from participation in this study. However, due to the nature of research design, you may be assigned to a control group in which you will receive no adjunct treatment. Hopefully, your participation in this group will help increase scientific knowledge in the field of alcohol abuse.

This study is designed to involve you in experimental sessions over the course of your 3-week hospitalization. In addition, you will be asked to monitor your drinking behavior following release and to report the results to this investigator in three months.

As a subject in this study, I am aware that:

1. My participation is purely voluntary.

2. I may refuse to answer any questions, refuse to take part in any portion of the experiment, or withdraw from the research at any time.

3. My behaviors, responses, and answers are to remain wholly confidential and will not be disclosed to hospital staff.

4. My responses are to be grouped with those of other subjects and may be used in an anonymous analysis of the data.

5. I am free to ask questions at any point in the research.

6. My participation and responses will in no way affect my right to receive appropriate treatment, my status as a patient, or my release date.

7. A Patient's Protection Committee exists with Chaplain Morgan as the liaison to the committee. It is the purpose of the committee to approve and monitor all research. All complaints and/or questions may be referred to this committee which exists solely for the benefit and protection of the patients and operates independently of administration restraints.

Subject's Signature_______________

APPENDIX E

DIFFERENCE SCORES BETWEEN PRETEST-POSTTEST LOCUS OF CONTROL MEASURES FOR THE FIVE EXPERIMENTAL GROUPS

	Group 1	Group 2	Group 3	Group 4	Group 5
	Covert Modeling and Progressive Relaxation	Covert Modeling	Progressive Relaxation	Placebo Control	No-Treatment Control
	7	1	0	- 2	5
	1	1	- 1	2	4
	7	1	0	4	0
	8	8	0	- 3	3
	5	1	4	2	4
	- 6*	6	5	1	3
	- 4	0	0	16	0
	1	- 1	- 1	1	- 1
	4	- 6	- 1	2	2
	9	0	8	3	2
Mean	3.2	1.1	1.4	2.6	2.2
<u>SD</u>	5.1	3.7	3.1	5.1	1.9

*Minus signs indicate a change toward externality.

APPENDIX F

TOTAL NUMBER OF ABSTINENT DAYS FOR THE FIVE EXPERIMENTAL GROUPS

	Group 1	Group 2	Group 3	Group 4	Group 5
	Covert Modeling and Progressive Relaxation	Covert Modeling	Progressive Relaxation	Placebo Control	No-Treatment Control
	90	90	90	89	66
	84	90	90	90	70
	90	90	90	89	90
	90	90	90	80	70
	89	90	45 YES	90	90
	89	76	21 YES	60 YES	50
	90	42 YES*	2 YES	85 YES	50
	90	20 YES	90	20 YES	15 YES
	90	30 YES		49 YES	5 YES
	50				
Mean	85.20	65.55	64.75	72.44	56.22
SD	12.50	29.34	36.70	24.58	29.91

*YES indicates that this subject had problems related to alcohol usage.

APPENDIX G

FREQUENCY DISTRIBUTION OF SAMPLE AGES

Age	F	Age	F
20	1	36	4
21	1	37	2
23	2	38	2
24	1	39	2
25	2	44	1
26	4	47	1
30	3	49	1
31	4	50	1
32	4	53	1
33	1	56	1
34	1	59	1
35	3	63	1

Mean Age: 36.8

APPENDIX H

FREQUENCY DISTRIBUTION OF SAMPLE PRETEST

INTERNAL-EXTERNAL SCORES

Score	F	Score	F
3	1	15	3
5	1	16	2
6	1	17	2
7	2	18	3
8	6	19	2
9	3	22	2
11	6	23	1
12	4	24	2
13	4		
14	4		

Mean I-E Score: 13.4

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Abstract

THE EFFECTS OF COVERT MODELING AND PROGRESSIVE RELAXATION ON THE LOCUS OF CONTROL ORIENTATION AND DRINKING BEHAVIOR OF INPATIENT ALCOHOL USERS

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Alcohol abuse is a significant and formidable problem which affects the lives of an estimated 10 to 13 million people. Of course, this figure does not adequately reflect the secondary effects of alcohol abuse on the millions of people who have a significant relationship with an alcohol abuser. It is not hard to understand then, the enormous amount of time, money, and energy spent on trying to prevent, treat, and recover from this problem.

This study focused on the treatment and recovery phases of alcohol abuse and was conducted in an attempt to determine whether or not two adjunct behavioral skills (covert modeling and progressive relaxation) could be effective when learned and practiced in conjunction with the more traditional tenets of the disease--medical model of alcohol abuse.

Chaney (1976), Marlatt (cited in Nathan et al., 1978) and Sobell and Sobell (1973) among others have advocated the need to teach alcoholics behavioral self-control skills and to practice new behaviors in order to strengthen the recovery process. In this study, a locus of control scale was used to measure this hypothesized change in perceived self-control and a 3-month follow-up of drinking behavior was used to evaluate effects on the recovery process.

In a review of the literature, it was found that alcoholics can and do change their Internal-External (I-E) scores toward internality (self control) as a function of participating in treatment (Oziel & Obitz, 1951; O'Leary, Donovan, Hague, & Shea, 1975; Kennedy, Gilbert, & Thoreson, 1978; Hettinger, 1976) and that other nonalcohol-abusing populations can also alter their control orientation as a function of therapeutic intervention (Dua, 1970; Gillis & Jessor, 1970; Pierce, Schauble, & Farkas, 1970).

Covert modeling procedures have been found to be effective in reducing snake avoidance (Kazdin, 1973, 1974a; Lowe, 1978) in increasing assertive behavior (Kazdin, 1974b, 1965a); and in reducing fear of laboratory rats (Cautela, 1974). Additionally, Hay et al. (1977) used covert modeling to successfully treat a case of chronic alcohol abuse and a case of obsessive-compulsive behavior.

The subjects for this study were 50 inpatients receiving treatment for alcohol abuse at Eastern State Hospital in Williamsburg, Virginia. They were randomly assigned to five groups following a pretest administration of the Adult Nowicki-Strickland Internal-External Scale. The groups were as follows:

1. 10 subjects received a combination of covert modeling and progressive relaxation for four 30-minute sessions;
2. 10 subjects received only covert modeling for four 30-minute sessions;
3. 10 subjects received only progressive relaxation for four 30-minute sessions;
4. 10 subjects were assigned to the placebo-control group and engaged in four 30-minute discussion sessions;
5. 10 subjects were assigned to the no-treatment control group and received no adjunct behavioral treatment.

The results were as follows:

1. Subjects assigned to Group 1 were not significantly different from subjects in Groups 2, 3, 4 and 5 on a measure of locus of control change. They were, however, significantly different on a measure of follow-up drinking behavior.
2. Subjects assigned to Group 2 were not significantly different from subjects in Groups 3, 4, and 5 on either a measure of locus of control change or follow-up drinking behavior.
3. Subjects assigned to Group 3 were not significantly different from subjects in Groups 4 and 5 on either dependent measure.
4. Subjects assigned to Groups 1, 2 and 3 were not significantly different from subjects in Groups 4 and 5 on either dependent measure.

Recommendations were made for further research in this area.