1997

Applying the transtheoretical model of change to court-ordered/ DUI outpatient treatment clients

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APPLYING THE TRANSTHEORETICAL MODEL OF CHANGE TO COURT ORDERED/DUI OUTPATIENT TREATMENT CLIENTS

A Dissertation

Presented to

The Faculty of the School of Education

The College of William and Mary in Virginia

In Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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by

Cynthia M. Levy

February 1997

APPLYING THE TRANSTHEORETICAL MODEL OF CHANGE TO COURT ORDERED/DUI OUTPATIENT TREATMENT CLIENTS

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Approved March 1997

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Chair of Doctoral Committee

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DEDICATION

To my family;

my husband Fred,

and my children Joshua and Elana

for their unfailing love, support, and encouragement

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ACKNOWLEDGEMENTS

There were numerous people who provided me with support, understanding, and encouragement throughout my doctoral work and this dissertation. I am grateful to all of them. I extend a special appreciation to the following people for their invaluable assistance:

To my father for paying the bills for my graduate work, for providing hours of assistance on the statistical analysis and how to operate the computer, and for obtaining a laser jet printer for me for this work;

To Rick Gressard, my advisor, for his efforts to help me make sense out of the statistical analysis and organize them into a coherent whole, and for his encouragement and support throughout this project;

To Gloria Carsia, Judy Doster, Sherrie Anderson, Jennie Keesee, Sheila Franceschi, and Anita Lockley, the secretaries who copied my surveys and graciously agreed to ask the clients to complete the surveys for me;

To the many counselors who allowed me to survey their clients; and

To Colonial Community Services Board, Middle Peninsula/Northern Neck Community Services Board, Peninsula Alcoholism Services, and Portsmouth Community Services Board for allowing me to conduct my study at their agency.

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APPLYING THE TRANSTHEORETICAL MODEL OF CHANGE

TO COURT ORDERED/DUI OUTPATIENT TREATMENT CLIENTS

ABSTRACT

This study applied the Transtheoretical model of change to a court ordered/DUI client population to aid counselors in developing a more effective differential treatment model. Clients were individuals convicted of DUI and referred for treatment to one of 4 community mental health centers. At their first meeting, 150 clients completed surveys measuring stage of change (SOC), processes of change, self-efficacy, and decisional balance concerning their drinking. Demographic data was also taken. After treatment, number of sessions attended and successful or unsuccessful discharge was recorded.

Results found significantly more men (122) than women (28). There were significantly more men (81%) than women (51%) in the Precontemplation SOC, with significantly more women (25%) than men (10%) in the Action SOC. A comparison of SOC with the volunteer alcoholism treatment clients in DiClemente & Hughes (1990) study showed significantly more Precontemplators and significantly fewer Action clients.

All 10 processes of change were significantly higher both in the Action SOC and Contemplation SOC than in the Precontemplation SOC. Self-efficacy scores were higher than temptation scores throughout all 3 SOC and did not vary according to the SOC. Cons of drinking were higher than the pros during all 3 SOC. Pros of drinking did not vary according to the SOC but the cons varied with both Contemplators and Action clients reporting significantly higher scores than Precontemplators. Approximately 64%

of clients completed treatment successfully, 32% completed unsuccessfully, and 4% moved away during treatment regardless of agency, counselor, or stage of change. Results support application of this model to a court ordered population.

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APPLYING THE TRANSTHEORETICAL MODEL OF CHANGE TO COURT ORDERED/DUI OUTPATIENT TREATMENT CLIENTS

CHAPTER 1

Introduction

Statement of the Problem

This study investigated how individuals who have been convicted of Driving Under the Influence (DUI) and subsequently court-referred for outpatient substance abuse treatment can be classified by the Transtheoretical Model of Change. The theoretical components studied were clients' readiness to change, processes of change, confidence to change, and decisional balance about the pros and cons of changing their drinking behavior. The results of this study can be utilized to develop a more effective differential treatment model in working with this population.

Justification for the Study

Driving under the influence of alcohol has been viewed as a serious problem in the United States for over twenty years. Although many programs instituted to alleviate this problem have shown some success, there is a growing sense that these court ordered/DUI programs have been less effective than anticipated (Mulligan & McCarty, 1986). There is a need for more effective treatment matching to reduce the recidivism

and treatment drop out rates. The following studies summarize the extent of the DUI problem and the effectiveness of court ordered/DUI treatment.

According to the Bureau of Justice Statistics Special Report (1992), the number of arrests in the United States for DUI increased 21.7% between 1980 and 1989 while the number of licensed drivers increased by 13.9%. During this same period, the number of DUI arrests per 100,000 licensed drivers grew by 6.8%; from 982 per 100,000 licensed drivers in 1980 to 1,049 per 100,000 licensed drivers in 1989. During 1989, over 1.7 million drivers were arrested for DUI. Also, in 1989, 45,555 motor vehicle fatalities occurred; about 49% of which were alcohol related.

The Peninsula Virginia Alcohol Safety Action Program's (ASAP) 1993 Annual Report stated there were 13,762 people arrested for DUI in the state of Virginia during 1992. During this time, 379 people were killed in alcohol-related crashes which was 45.2 % of all traffic fatalities. Also, 11,493 people were injured in alcohol-related crashes or 15.0 % of all traffic injuries. It further reported that from July 1, 1992 to June 30, 1993 (FY 93) there were 2,257 individuals arrested for DUI in the Peninsula area (which includes Newport News, Hampton, Williamsburg, James City Co., York Co. and Poquoson). This was down from a figure of 3,208 individuals arrested for DUI in FY 1989.

Many court systems have been responding to the problem of DUI by referrals to substance abuse education and/or counseling programs as part of the adjudication process. This is part of a general increase in court ordered counseling over the past several decades. Court systems have been increasingly referring clients for counseling for such problems as DUI, first time drug offenders, domestic violence, child abuse and

neglect, etc. (Riordan & Martin, 1993). For example, during FY 93, 1,761 of the 2,257 people arrested for DUI in the Peninsula area of the state of Virginia participated in the ASAP program. Nearly one-third of those participants, or 546 people, were recidivists. ASAP case managers referred 766 participants for education and 997 participants for treatment. There were 787 individuals who were returned to court for noncompliance and 1,307 who successfully completed the program (Peninsula ASAP Annual Report, 1993, ps. 6-9).

The results of these increased court referrals are that an increasingly higher percentage of clients in community mental health centers are court ordered into treatment. For instance, a recent survey of the client population in a community mental health center in eastern Virginia examined all clients admitted to Substance Abuse Services from July 1, 1991 to June 30, 1992. During this time there were 329 individuals admitted for substance abuse counseling. Of those, 55.3% were criminal justice referrals and 44.7% were non-criminal justice referrals. The largest source of criminal justice referrals was ASAP/DUI which made up 38.9% of all admissions and 70.3% of criminal justice admissions (ECBCO, 1993).

Court ordered clients present varying treatment difficulties for their counselors. Although court ordered clients do choose counseling as an alternative to jail or other negative consequences, many present a well developed denial system in treatment (Lehmer, 1986); including anger, hostility, suspicion, overconfidence and silence (Riordan & Martin, 1993). Cavaiola (1984) studied the resistance demonstrated by court ordered/DUI clients. He stated they go through stages of resistance including: anger at the system, testing the limits, compliance stage, anger at the counselor, and self-

depreciation before accepting the need for treatment. He also reported that a problem in working with this population is that there is scant research which specifies which treatment modalities can most effectively be utilized with them. Several researchers recommended that counselors develop innovative skills and techniques for working with the court ordered/DUI clients (Cavaiola, 1984; Larke, 1985).

There has been extensive debate about the effectiveness of court ordered treatment (Anglin, Brecht & Maddahian, 1989; Anglin & Hser, 1991; Donovan, 1989; Miller & Hester, 1986a; Mulligan & McCarty, 1986; Rosenberg & Spiller, 1986). In reviewing the literature, Wells-Parker, Anderson, McMillan and Landrum (1989) concluded that the results of the studies done on court ordered/DUI treatment using random assignment and control groups had supported a small effect of some interventions on DUI recidivism. Miller and Hester (1986a) reviewed the literature on the effectiveness of court ordered/DUI treatment. They concluded that court orders do increase clients' compliance with treatment recommendations, but that the ultimate impact on drinking behavior depends on the effectiveness of the program itself. They also concluded that court ordered/DUI clients respond similarly to voluntary clients undergoing the same treatment. Packard (1987) compared DUI offenders with voluntary clients in an outpatient alcohol treatment facility. She concluded that the DUI offenders represented a different population than clients referred from other sources and that treatment interventions needed to be based on the specific needs and characteristics of each population. Several studies have also found different personality and behavior traits among DUI offenders versus other drivers (Donovan, 1989; Donovan & Marlatt, 1982; McMillen, Pang; Wells-Parker & Anderson, 1991).

A number of studies have shown that treatment matching of client characteristics can increase the overall effectiveness of counseling (Brennan, 1992; Green, French, Haberman & Holland, 1991; Wells-Parker, Anderson, Landrum & Snow, 1988). Donovan (1989) reported that the outcome in DUI treatment interventions varies as a function of variables such as educational level, blood-alcohol level at the time of the arrest, and drinking category (little problem versus greater problem). Wells-Parker et al. (1989) reported that studies of DUI offenders have indicated that education programs benefit individuals with less severe alcohol problems but not offenders with more severe alcohol problems. Miller and Hester (1986b) reviewed the literature on matching problem drinkers with optimal treatment. They concluded that clients show greater improvement when matched with treatment that is congruent with their cognitive style than clients who are not matched; that clients with severe alcohol problems benefit more from intensive treatment while clients with less severe problems benefit more from minimal interventions; and that clients who choose their treatment approach from among alternatives show greater acceptance of, compliance with, and improvement following treatment than those clients offered only a single program.

In summary, successful court ordered/DUI treatment can be best described by the client from a court ordered 90 day inpatient program for substance abusers who said "I personally thank the city of Alexandria for locking me up because I was in total denial (of my addiction) and I really didn't know that until I was accepted into the . . . program" (Nichols, 1990, p. 109). Unsuccessful court ordered/DUI treatment can be described by another client of that same program who said " All you've done is arrested that (substance abuse) problem for the time (being). . . Warehousing inmates - it ain't

going to solve the drug problem." (p. 109)

These studies demonstrate the extent of the DUI problem and the effectiveness of court ordered/DUI treatment, and show the importance of further exploration to deal with this issue. Further, they demonstrate the importance of counselors increasing their understanding of these clients in order to provide them with treatment that will match the clients' individual characteristics more effectively.

Theoretical Rationale

In recent years there has been considerable interest in how people can successfully change dependent behaviors such as smoking, obesity, alcoholism, and drug abuse (Curtis & Stricker, 1991; DiClemente & Prochaska, 1982; Marlatt, Baer, Donovan & Kivlahan, 1988; Marlatt & Gordon, 1985; Miller & Heather, 1986; Prochaska & DiClemente, 1985; Tuchfeld, 1981).

The Diagnostic and Statistical Manual of Mental Disorders (4th ed.) (DSM IV) defines Substance Dependence as "a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues use of the substance use despite significant substance related problems." (p. 176) The diagnostic criteria for Substance Dependence are:

> A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:
>
> 1. tolerance, as defined by either of the following:

a. a need for markedly increased amounts of the substance to achieve intoxication or desired effect

b. markedly diminished effect with continued use of the same amount of the substance

2. withdrawal, as manifested by either of the following:

a. the characteristic withdrawal syndrome for the substance

b. the same (or a closely related substance) is taken to relieve or avoid withdrawal symptoms

3. the substance is often taken in larger amounts or over a longer period than was intended

4. there is a persistent desire or unsuccessful efforts to cut down or control substance use

5. a great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances), use the substance (e.g., chain-smoking), or recover from its effects

6. important social, occupational, or recreational activities are given up or reduced because of substance use

7. the substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g., current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption) (p.181)

Such a definition allows for the study of commonalities across various dependent

behaviors. One important area of study has been the process of how people successfully change dependent behavior. James Prochaska and Carlo DiClemente have spent the past 14 years developing the Transtheoretical Model of Change to explain how people intentionally change dependent behaviors either by themselves or in treatment (Prochaska, 1984; Prochaska & DiClemente, 1982, 1984, 1992). They theorized that changing any dependent behavior is never an all-or-nothing phenomenon (Prochaska & DiClemente, 1982). It is a process involving different stages. Appropriate action includes the issue of timing - not only what to do but when to do it. Many treatment interventions focus on giving people the skills to effect behavior change - such as assertive techniques, substituting alternatives for problem behaviors, avoiding or countering stimuli that produce problem behaviors, etc. However, these interventions may be irrelevant to a great majority of problem drinkers who are not yet ready to change. It would be much more effective to match these types of clients with the techniques of motivational interviewing described by Miller (1983) and by Miller and Rollnick (1991) aimed at raising the clients' motivation to change. These techniques are designed to increase motivation by encouraging the clients to articulate their concerns about their alcohol use and move toward decision-making with the aid of information from the counselor.

The Transtheoretical model states that people changing dependent or other behaviors move through a series of five stages using a combination of 10 processes, self efficacy, and a decisional balance (Prochaska & DiClemente, 1992; Prochaska, DiClemente, & Norcross, 1992). The stages of change represent specific constellations of attitudes, intentions, and/or actions surrounding the specific behavior. Each stage represents a period of time as well as a set of tasks needed for movement to the next

stage. Although the time a person spends in each stage may vary, the tasks are assumed to be invariant.

The first stage is Precontemplation. Individuals here have no intention to change their behavior in the foreseeable future. Precontemplators are unaware or underaware of any problems with their behavior. They tend to be resistant to becoming aware that their behavior is problematical and defensive about their actions. They are not convinced that the negative aspects of their problem behavior outweigh the positives. However, families, employers, the legal system, etc. are often well aware that Precontemplators have a problem and may pressure these individuals into treatment. Precontemplators may believe they are taking action by entering treatment but the action is to change others, not themselves. They do what is necessary to pacify powerful others and thus to take the pressure off themselves. They may demonstrate change while the pressure is on but quickly return to their old ways once the pressure is off. For the most part they are at high risk for dropping out of therapy. In order to move to the next stage of change, precontemplators need to acknowledge the problem, increase their awareness of the negative aspects of the problem, and accurately evaluate their self-regulation capacities.

The second stage is Contemplation. This is the stage where individuals become aware that a personal problem exists. They are seriously thinking about change but have not yet made a commitment to take action. They seek information on the problem and begin to reevaluate themselves. They tend to evaluate the losses and rewards that successful change would bring (Velicer, DiClemente, Prochaska, & Brandenburg, 1985). This stage can take months or years to complete for self-changers. Prior to any single attempt to quit smoking, for example, Prochaska, Crimi, Lapsanski, Martel and Reid

(1982) found that self-changers appeared to spend 12 - 24 months seriously thinking about quitting smoking. In another study of self-changers, Prochaska and DiClemente followed a group of 200 smokers in the Contemplation stage for two years and found that the modal response of this group was to remain in the Contemplation stage for the entire two years (DiClemente & Prochaska, 1985; Prochaska & DiClemente, 1984). Contemplators would have to make a firm decision to take action and begin preliminary actions to move to the next stage of change. This author believes that both legal action, such as a DUI, and appropriate therapeutic interventions can shorten the time needed in the Contemplation stage by confronting the clients' denial and raising their awareness of their problem behaviors.

Preparation is the stage where individuals are ready to change and are beginning to take some action. They are planning to change in the next month and have had unsuccessful change attempts in the past year. DiClemente, Prochaska, Fairhurst, Velicer, Velasquez and Rossi (1991) found that these individuals reported small behavioral changes such as smoking five cigarettes less or delaying their first cigarette of the day for 30 minutes longer than precontemplators or contemplators. Although they have made some reductions, these individuals have not yet obtained abstinence. They need to set goals and priorities and to make a firm commitment to follow through on their plans in order to move to the next stage. Again, this author believes that court ordered/DUI counseling can encourage clients' to move through the Preparation stage more quickly by giving them the added "push" to take action on their problem behavior.

The fourth stage is Action. This is the stage where individuals change their behavior, experiences, and/or environment in order to overcome their problem. This

stage involves the most overt modification of behavior and requires a considerable commitment of time and energy. Individuals are in the Action stage if they have successfully altered their dependent behavior for a period of one day to six months (Prochaska & DiClemente, 1986). These individuals need to learn how to use key processes such as counterconditioning, stimulus control, and contingency management to stop their habitual behaviors and to adopt more productive patterns (Fitzgerald & Prochaska, 1990). They must be aware of the pitfalls that would undermine their effective action. And they need effective strategies to prevent relapsing to their problem behaviors if they are to proceed to the next stage. This author believes that this is the stage where court ordered/DUI clients can learn the necessary skills to abstain from drinking and to resolve their daily problems without resorting to alcohol to cope.

The fifth and final stage is Maintenance. This stage begins from six months after the initial action to 3 years or more. This is the stage where individuals work to prevent relapse and to consolidate the gains achieved during the action stage.

However, relapse is the norm for problems such as alcoholism and drug addiction (Prochaska & DiClemente, 1984). Thus, Prochaska and DiClemente envision the change process as occurring in a spiral pattern. Successful change usually requires repeated recycling through the 5 stages of change. Each time relapsers recycle through the stages, they potentially learn from their past mistakes and can try something different the next time around (DiClemente et al. 1991). This author would add that even if court ordered/DUI counseling ends with the client relapsing after they have completed treatment, they have potentially learned information of value for their next change attempt.

The change processes are covert and overt activities and experiences that people engage in when they attempt to change their problem behaviors. They are summarized in Table 1:

Table 1

Change Processes

Consciousness raising	increasing information about self and problem: observations, confrontations, interpretations, bibliotherapy
Self-reevaluation	assessing how one feels and thinks about oneself with respect to a problem: value clarification, imagery, corrective emotional experience
Self-liberation	choosing and commitment to act or belief in ability to change: decision-making therapy, New Year's resolutions, logotherapy techniques, commitment enhancing techniques
Counterconditioning	substituting alternatives for problem behaviors: relaxation, desensitization, assertion, positive self-statements
Stimulus control	avoiding or countering stimuli that elicit problem behaviors: restructuring one's environment (e.g., removing alcohol or fattening foods), avoiding high risk cues, fading techniques
Reinforcement	rewarding one's self or being rewarded by others for

management	making changes: contingency contracts, overt and covert reinforcement, self-reward
Helping relationships	being open and trusting about problems with someone who cares: therapeutic alliance, social support, self-help groups
Dramatic relief	experiencing and expressing feelings about one's problems and solutions: psychodrama, grieving losses, role playing
Environmental reevaluation	assessing how one's problem affects physical environment: empathy training, documentaries
Social liberation	increasing alternatives for nonproblem behaviors available in society: advocating for rights of repressed, empowering, policy intervention

Note. From "In Search of How People Change: Applications to Addictive Behaviors," By J. O. Prochaska, C. C. DiClemente & J. C. Norcross, 1992, American Psychologist, 47 (9), 1108.

Self-efficacy and decisional balance are two additional measures that can affect whether people take action on their dependent behavior, maintain their changes, or relapse. Self efficacy is the individuals' confidence they can resist the dependent behavior across a variety of tempting situations. The decisional balance is the relative weight the individual gives to the pros and cons of the dependent behavior.

This study applied the Transtheoretical model of change to individuals who have

been convicted of a DUI, assessed by ASAP as having an alcohol problem, and court ordered into outpatient substance abuse treatment. While this theory has been extensively researched with self-changers and people volunteering for treatment for smoking cessation, it has been less studied with alcohol abusers and has not yet been generalized to a court ordered/DUI population. Yet, counselors working with this population need to be able to understand and to develop effective treatment strategies for these court ordered/DUI clients. Matching clients to their stage of change and focusing treatment on issues relating to the change processes, decisions about drinking, and clients' confidence about resolving their problems would appear to reduce client resistance, facilitate their understanding of their problem, and help them make well-informed decisions about their drinking behavior. Thus, the Transtheoretical model of change appears to have strong applicability to this population. However, treatment matching can not be done until we have a greater understanding of how court ordered/DUI clients present in treatment. That was the focus of the present study.

Definition of Terms

1. **Court ordered/DUI clients** - clients who have been arrested for Driving under the Influence, have been assessed by the Alcohol Safety Action Program (ASAP) as having a significant alcohol problem, and who have been subsequently referred to a community mental health agency for substance abuse treatment.

2. **Decisional balance** - the relative weight an individual gives to the pros and cons of drinking. The decision to change drinking is partially based on the balance the

individual gives to pros and cons of drinking.

3. **Processes of change (or change processes)** - strategies that people utilize in the attempt to alter their drinking.

4. **Self-efficacy** - the individuals' confidence they can resist drinking across a variety of tempting situations.

5. **Stages of change** - specific constellations of attitudes, intentions, and/or actions surrounding drinking that determine how ready the individual is to change his or her drinking behavior.

6. **Transtheoretical model of change** - the theory developed by James Prochaska and Carlo DiClemente in the past 14 years to explain the structure of how individuals intentionally change their behavior with or without therapy.

7. **Volunteer** - a client who agrees to substance abuse treatment without the pressure of a court order.

Research Hypotheses

The hypotheses of this study were:

1. There will be a significantly greater percentage of court ordered/DUI clients than volunteer clients in the Precontemplation stage of change and a significantly smaller percentage of court-ordered/DUI clients than volunteer clients in the Action stage of change.

2. Clients in the Action stage of change at the beginning of treatment will attend significantly more treatment sessions and be significantly more likely to successfully

change.

3. There will be an interaction between the stages of change and the processes of change. Individuals in the Precontemplation stage of change will use nine of the processes of change less than individuals in the remaining stages, but will use social liberation more than individuals in the Contemplation and Action stages of change. Individuals in the Contemplation stage will use the change processes of consciousness raising, dramatic relief, environmental re-evaluation, and self re-evaluation more than the other 2 stages being studied. And individuals in the Action stage will use the change processes of self-liberation, counterconditioning, stimulus control, reinforcement management and helping relationships more than the other 2 stages being studied.

4. Self-efficacy will increase from Precontemplation to Contemplation to Action stages of change while temptation to drink in those same drinking situations will steadily decrease across the stages.

5. The decisional balance will also vary according to the stages of change. The pros of drinking will outweigh the cons of drinking for clients in the Precontemplation stage; the pros and cons of drinking will be equivalent for clients in the Contemplation stage; and the cons of drinking will outweigh the pros of drinking for clients in the Action stage.

Sample Description and General Data Gathering Procedures

Subjects were drawn from individuals who have obtained a DUI and have been

referred by ASAP for outpatient substance abuse treatment at a community mental health agency. At their first meeting at the local community mental health agency, the secretary asked the subjects to participate in the study, review the letter of informed consent, and to complete the four questionnaires assessing the variables in the study. Brief demographic data was also taken from client information forms provided by the mental health agency. This information was held in a locked file until the client completed treatment and was returned to ASAP either successfully or unsuccessfully.

After the client completed treatment, the author obtained the clients' discharge summary, scored the questionnaires, recorded the scores, recorded the number of sessions attended, noted whether the client completed successfully or unsuccessfully, and analyzed the data. Data collection was to continue until at least 25 minimum subjects had been found in each stage - precontemplation, contemplation, and action. However, due to the large number of Precontemplators found, data collection continued until 150 surveys had been obtained. At the end of the study all client identifying data was destroyed.

Limitations of the study

One possible limitation of this study involves generalizability. Most of the clients seen at the community mental health agency report incomes below $30,000. Thus, the results many not be applicable to individuals arrested for DUI who have incomes higher than $30,000. Also, much of the data gathered will be from self-report measures. It will thus be susceptible to biases inherent in such measures. Thirdly, the author was one of the counselors providing treatment to the clients. Hopefully, this limitation was counteracted by not scoring the questionnaires until after the client had completed treatment.

CHAPTER 2

Review of the Literature

Research using the Transtheoretical Model of Change

The Transtheoretical model of change has been extensively researched. Numerous studies provide strong support for the stages of change and a common set of change processes used to progress through these stages (DiClemente et al., 1991; Prochaska, DiClemente, Velicer, Ginpil & Norcross, 1985). Stages of change have been studied with outpatient therapy clients (DiClemente & Hughes, 1990; McConnaughy, DiClemente, Prochaska, & Velicer, 1989), self-changers (DiClemente, Prochaska & Gilbertini, 1985; Wilcox, Prochaska, Velicer & DiClemente, 1985), adolescents (Stern, Prochaska, Velicer & Elder, 1987; Pallonen, Murray, Schmid & Pirie, 1990), middle-aged Finnish men (Pallonen, Fava, Salonen & Prochaska, 1992), and Mexican-Americans (Gottlieb, Galavotti, McCuan & McAlister, 1990). The Institute of Medicine's (1989) report on the prevention and treatment of alcohol problems identifies these stage of change as a key treatment matching variable. And Marlatt (1985) reports that the Transtheoretical model of change is the most comprehensive theory of the stages of change as applied to the cessation of drug use.

Several measures have been used successfully to assess the stages of change. One

measure is a categorical classification system. Another measures the attitudes and behaviors relevant to four stages. This is called the University of Rhode Island Change Assessment Scale or URICA (McConnaughy, Prochaska & Velicer, 1983). This questionnaire better measures degrees of intention and attitudes related to change than the categorical measure of stage classification. Appendix A indicates the five profiles identified in a study of outpatient alcoholism treatment using the URICA (DiClemente & Hughes, 1990). Their sample of subjects were 224 adults volunteering for outpatient alcoholism treatment. The subjects were relatively homogenous from the perspective of a common problem or basic demographic data. However, they were different on the stages of change profiles as seen in Appendix A.

Appendix A demonstrates that Group #1 was the Precontemplation group. These 63 clients were characterized by above average scores on Precontemplation (M = 56.3), very low scores on Contemplation (M = 38.9), and below average scores on Action (M = 47.6) and Maintenance (47.6). They were neither contemplating nor engaging in any change. They seemed to be maintaining the status quo with their drinking problem and resisting the idea that they had a problem.

Group #2 was the Ambivalent group. The 30 subjects in this cluster were characterized by above average scores on all four stages (Contemplation was M = 52.5; Action was M = 52.3; and Maintenance was M = 56.5) with particularly high scores on Precontemplation (M = 64.5). This was an anomalous profile with a high degree of endorsement across all subscales. Individuals in this cluster seemed reluctant or ambivalent to change their alcohol problem and endorsed conflicted statements. They also affirmed that they did not have an alcohol problem but were more ready to be

involved in the change process.

Group #3, the Participation group, consisted of 51 subjects who reported a high level of investment and involvement in change. Their scores were well below average on Precontemplation (M = 41.4) and above average on Contemplation (M = 59.7), Action (M = 61.9), and Maintenance (M = 56.7).

Group #4 was called the Uninvolved or Discouraged Cluster. These 27 subjects were characterized by below average scores on all the subscales (Precontemplation was M = 46.1, Contemplation was M = 45.8) with very low scores on Action (M = 37.7) and Maintenance (M = 32.2). These individuals had a low level of endorsement overall and seemed listless in affirming their ability to take action. They seemed uninvolved in changing their behavior and the researchers believed that they might have represented individuals who had given up on change.

And the Contemplation cluster, group #5, consisted of 53 individuals who were characterized by low scores on Precontemplation (M = 44.5), higher scores on Contemplation (M = 54.6), and low to average scores on Action (M = 46.4) and Maintenance (M = 51.7). These subjects seemed interested in changing and were seriously thinking about it, but were not yet ready for action. DiClemente and Hughes (1990) recommended that future research attempt to replicate these cluster profiles with a different sample and to find immediate and long term outcome measures of the differing profile groups.

One important implication of the Transtheoretical Model of Change is that the amount of progress clients will make in treatment tends to be a function of their pretreatment stage of change. Prochaska and DiClemente (1992) reported their study to

promote smoking cessation. The 870 subjects enrolled in this study were randomly assigned by their stage of change to one of 4 interventions: standardized, individualized, interactive and personalized. The amount of success smokers reported after intervention was directly related to the stage they were in before the intervention - regardless of the intervention utilized.

Another implication is the importance of matching an individual's stage of change with the type of treatment offered. Action-oriented therapy may be quite effective with people in the Action stage but very ineffective with people in the Contemplation stage. Prochaska and Costa (1989) (unpublished manuscript cited in Prochaska, DiClemente & Norcross, 1992) compared the stage of change scores of people entering psychotherapy with those of clients currently engaged in therapy. They found that over time, clients who remained in treatment progressed from being prepared for action into taking action. As engagement in therapy increased the clients reduced their defensiveness and resistance.

Rollnick, Heather, Gold and Hall (1992) were interested in matching treatment strategies with clients in the different stages of change. They theorized that treatment interventions designed to produce behavior change would be irrelevant to clients in the Precontemplation or the Contemplation stages of change. Since these clients do not believe they have a problem they are not motivated to change. Those clients would be much better served by employing treatment techniques such as described by Miller (1983) which are aimed at raising the level of clients' motivation to change. Clients in this model are encouraged to articulate their concerns about their alcohol use and move towards decision-making.

Rollnick et al. (1992) identified 141 excessive drinkers in medical settings who were not seeking help for an alcohol problem. The majority of subjects were males (93.6%) with low levels of alcohol dependence. The subjects were recruited via a screening instrument which asked general questions about their alcohol use along with questions about smoking, diet and general fitness. Subjects meeting criteria for excessive alcohol use were approached to participate in the study.

Rollnick et al. (1992) found that 28.8% of the subjects placed in the Precontemplation stage, 44.6% placed in the Contemplation stage and 26.6% placed in the Action stage. They did not find a factor corresponding to the Maintenance stage but attributed that to the specific population under study. They also found that there was a clear tendency for increasing readiness to change, as seen in the allocated stage of change, to be associated with an increasing likelihood of intending to cut down on drinking in the future. This research thus supported the application of the stages of change model to this population.

The processes of change are the second major dimension of the transtheoretical model of change. They represent a temporal dimension indicating when particular shifts in attitudes, intention, and behaviors occur. They are covert and overt activities and experiences that people engage in when they attempt to change their problem behaviors (Prochaska, DiClemente & Norcross 1992). The change processes were first identified theoretically in a comparative analysis of the leading systems of therapy (Prochaska, 1979). They were selected by examining the recommended change techniques across different theories. At least 10 principal components analyses on the processes of change items, done with various response formats and diverse samples, have yielded similar

patterns (Norcross & Prochaska, 1986; Prochaska & DiClemente, 1983; Prochaska & Norcross, 1983; Prochaska, Velicer, DiClemente & Fava, 1988). A common and finite set of change processes has been identified across diverse problem areas such as smoking, psychological distress, obesity, alcohol abuse, cocaine use, dietary fat reduction, exercise adoption, heroin use, HIV risk reduction and smoking cessation (Norcross & Prochaska, 1986; Norcross, Prochaska, & Hambrecht, 1991; Prochaska & DiClemente, 1985; Prochaska & Norcross, 1983; Prochaska et al., 1988; Rossi, 1992).

Most individuals taking action to modify dependent behaviors do not successfully maintain their gains on their first attempt. They often make several revolutions through the change cycle either with or without formal intervention before achieving successful change (DiClemente & Hughes, 1990). Fitzgerald and Prochaska (1990) stated that while many individuals appear to learn from their former attempts and do successfully change, others appear to chronically contemplate change or to chronically relapse. Their study investigated the processes that separate successful changers from those who chronically contemplate and those who chronically relapse. Subjects were grouped according to stage of readiness to change and assessed every 6 months on change processes, self-efficacy, and decisional balance.

They found that chronic relapsers scored lower on self-liberation that relapsers who were ultimately successful. Self-liberation is the change process that underlies commitment and personal choice. It involves the recognition of alternative strategies in the effort to give up the dependent behavior and the acknowledgement of responsibility for the consequences of a particular decision. Chronic relapsers were also not as likely to use coping strategies such as stimulus control and helping relationships. They

concluded that supportive relationships with family, friends or health care professionals serves to enhance coping skills, combat demoralization, and maintain the commitment to quit despite a relapse episode. Chronic relapsers also seemed to consistently overutilize the self-reevaluation process. For the chronic relapsers, a continual reevaluation of whether or not their behavior is "ego-dystonic" appears to undermine their efficacy to maintain abstinence. They recommended that treatment should focus on helping these individuals become more consistent in how they view themselves as smokers along with relapse prevention training to increase their self-efficacy.

Chronic contemplators are underprepared to take any action on their problem despite any stated motivation to change. They tended to utilize dramatic relief and social liberation more frequently than those who successfully change. Their preoccupation with emotional warnings about the dangers of their dependent behavior may inhibit them from taking any action. Treatment needs to focus on increasing the dissonance between knowledge and behavior in order to maximize preparedness for the decision to quit. Counselors should expose the paradox of dramatic relief - that emotional arousal about smoking does not, of itself, lead to a successful quit attempt.

Prochaska and DiClemente (1992) describe how self-efficacy and decisional balance are two additional measures that can affect whether people take action on their dependent behavior, maintain their changes, or relapse. They describe self efficacy as the individuals' confidence they can resist the dependent behavior across a variety of tempting situations. Self-efficacy is based on Bandura's (1977) work demonstrating its importance in behavior change.

Prochaska and DiClemente (1992) discuss how they developed the decisional

balance from Janis and Mann's (1977) model of decision making in order to better explain how motivational considerations are related to the stages of change. The decision to change an dependent behavior is partially based on the relative weight the individual gives to the pros and cons of the behavior.

Research has also been done on significant predictors of change. Prochaska et al. (1985) found that the change processes, self-efficacy, temptations to smoke and the pros and cons of smoking were significant predictors of change in smoking behaviors. Prochaska, Norcross et al. (1992) investigated salient predictors of therapy attendance and outcome. Subjects were 184 hospital staff members who were at least 10% overweight and were enrolled in a behavioral treatment program for weight control. The clients were assessed at the beginning, middle, and end of a 10 week program on their processes and stages of change, self-efficacy, social support, weight history and demographics. Clients remaining in treatment demonstrated significant shifts from contemplation to action. Prochaska, Norcross et al. (1992) also found that clients showed significant shifts in the change processes used as a result of treatment: counterconditioning, contingency management, stimulus control, interpersonal control, and social liberation increased while medication use, wishful thinking, and minimizing threats decreased. The investigators found that change processes used at midtreatment, followed by their stage of change scores, were the best predictors of treatment attendance and outcome. They were better predictors than age, socioeconomic status, problem severity and duration, goals and expectations, self-efficacy, and social support.

Prochaska, Velicer, Guadagnoli, Rossi and DiClemente (1991) performed a cross-sectional and longitudinal analysis of the stages of change, change processes, self-

efficacy, and decisional balance on 544 smokers interested in self-change. Subjects were assessed every 6 months for 2 years. As the change processes have been described earlier, this paragraph will focus on self-efficacy and the decisional balance. Prochaska et al. (1991) found that self-efficacy and temptation followed linear patterns across the stages of change. Self-efficacy levels steadily increased while temptation to smoke steadily decreased across the stages of change. They were about equal throughout the action stage and self-efficacy did not become greater than the temptation to smoke until the maintenance stage. Prochaska et al. also found that the decisional balance variable changed the most from precontemplation to contemplation and from contemplation to action. The pros of smoking clearly outweighed the cons of smoking until the contemplation stage when the cons began to surpass the pros. Both the cons and the pros of smoking decreased in importance across the action and maintenance stage.

These variables emphasize the importance of adequate preparation before taking action. Having the cons of smoking outweigh the pros appears to be one important preparation that occurs during the contemplation stage. The self-efficacy findings suggest that the action stage is the highest time for relapse as self-efficacy and temptation are nearly equal. Individuals in the action stage need to rely on learned change processes to enhance self-efficacy and to reduce temptations to avoid relapse.

Critique

This summary of the current research on the Transtheoretical model of change demonstrates that its viability to guide our understanding of how people change dependent

behaviors has been firmly established. Many individuals with obvious problems with dependent behaviors such as alcohol abuse, drug abuse, family violence, etc come to an awareness of and a motivation to change their behavior through the court system. In court ordered/DUI treatment, they have the opportunity to learn the change processes needed to change their problem behavior, examine their motivation to change, and develop greater self-confidence to change. However, treatment which mistakenly assumes that a client is ready to take action before the client is ready could also increase their resistance to change or produce merely compliant behavior while in court ordered/DUI treatment and a reversion to their previous behavior upon completion of court involvement. Thus, court ordered/DUI treatment can be quite helpful to clients providing their treatment matches their stage of change and encourages a greater understanding of the dependent process.

This study applied the Transtheoretical model of change to the court ordered/DUI population. It compared court ordered/DUI clients on their stages of change, change processes, self-efficacy and decisional balance to determine the difference and similarities with self-changers and volunteer clients researched previously. This study therefore adds to our understanding of this theory as well as how to better counsel this population of clients.

Interaction between stages of change and change processes

Prochaska, DiClemente, and Norcross (1992) summarized the research performed on integrating the stages of change with the processes of change (DiClemente et al.,

1991; Norcross, Prochaska, & DiClemente, 1986; Prochaska & DiClemente, 1983, 1984). Table 2 condenses the results from cross-sectional research involving thousands of self-changers from each of the five stages of change for smoking cessation and weight loss.

Table 2
Stages of Change in Which Particular Processes of Change are Emphasized

Precontemplation	Contemplation	Preparation	Action	Maintenance
Consciousness raising				
Dramatic relief				
Environmental reevaluation				
	Self-reevaluation			
		Self-liberation		
			Reinforcement management	
			Helping relationships	
			Counterconditioning	
			Stimulus control	

Note. From "In Search of How People Change: Applications to Addictive Behaviors," By J. O. Prochaska, C. C. DiClemente & J. C. Norcross, 1992, American Psychologist, 47 (9), 1109.

They concluded that during the precontemplation stage, individuals used eight of the change processes significantly less than individuals in any other stage. They processed less information about their problems, spent less time and energy reevaluating themselves, and experienced fewer emotional reactions to the negative aspects of their problems. Precontemplators were less open about their problems and they did little to overcome them. In therapy, they were the most resistant clients.

Contemplators were most open to consciousness-raising techniques, were more likely to use bibliotherapy, were open to dramatic relief experiences, and were more likely to reevaluate themselves and the effects their dependent behaviors had on their environments.

Movement to the preparation stage involved increased use of the processes of change. Subjects also began to take small steps toward action by using counterconditioning and stimulus control to begin reducing their use of dependent substances.

During the action stage, people utilized greater levels of willpower or self-liberation. They increasingly believed they had the ability to change their lives effectively. They also successfully used counterconditioning and stimulus control to prevent relapse. They relied increasingly on support and understanding from helping relationships.

Successful maintenance built on each of the processes that came earlier. Maintainers assessed the conditions under which they were likely to relapse and developed alternative responses for coping without resorting to their dependent behaviors.

DiClemente and Prochaska (1985) reported their work on the longitudinal patterns of change. Subjects were 872 smokers and exsmokers from Rhode Island and Texas who responded to newspaper articles and advertisements. Subjects agreed to complete an extensive questionnaire and were interviewed at the start of the study and at 5-6 month intervals over the next 2 years. They investigated which variables - initial measures of the 10 change processes, smoking temptation, efficacy, and decisional balance - could predict which subjects would remain in the same groups over time and which would

change groups. They performed a stepwise discriminant function analysis to predict change in group membership at the 6-month follow-up. They assigned subjects to one of five groups according to the stages of change:

1. Long-term quitters: 247 subjects who had quit smoking on their own and had been abstinent for at least 6 months.
2. Recent quitters - 134 subjects who had quit smoking on their own in the 6 months before the study
3. Contemplators - 187 subjects who had been smoking regularly for the past year with no attempt to quit but were seriously thinking about quitting in the next year.
4. Immotives - 108 subjects who smoked regularly and reported that they did not intend to quit during the next year.
5. Relapsers - 196 subjects who were currently smoking but had made an attempt to quit in the past year that had lasted at least 24 hours.

They found that contemplators who became recent quitters at the follow-up tended to have higher cons and self-reevaluation scores and lower consciousness raising and temptation levels than subjects who became immotives. Recent quitters who relapsed had higher self-reevaluation and lower self-efficacy and helping relationships scores than those who became long term quitters. The successful maintainers were less preoccupied with smoking and changing their perception of themselves as a smoker and they were more confident they could abstain. In addition, they relied on, or experienced more support from, helping relationships.

Relapsers who gave up on change tended to have higher dramatic relief, helping

relationships and counterconditioning scores and lower self-reevaluation, stimulus control, self-liberation, and social liberation scores than did relapsers who became recent quitters or contemplators. Immotives who changed tended to have higher self-reevaluation and con scores and lower social liberation and pro scores.

In summary they reported that, although 13 of the 14 prediction variables contributed to at least one function, the variables varied greatly in their contributions to prediction. The variables had both positive and negative loadings. Consequently, using some processes was detrimental in some cases. For example, recent quitters who relapsed tended to have higher self-evaluation scores and lower helping relationships scores. Thus, for this group, continuing to evaluate the self with little social support appears to be a sign of preoccupation and pending relapse. However, greater self-reevaluation tends to predict progress for contemplators. Prochaska and DiClemente (1985) used the same constructs of the stages and processes of change to compare the change processes used to cope with smoking, weight control, and psychological distress. They created separate Processes of Change Questionnaires for these problems and administered them to the population mentioned above in a 2 year longitudinal study. They compared the 6 change processes (consciousness raising, self-liberation, reinforcement management, helping relationships, dramatic relief, and stimulus control) that are measured by the same items with only the name of the problem being different.

They found that the ranks for the six processes were nearly identical across the three problem areas. However, they also found important differences in the absolute level of using particular change processes across the three problem areas. In the action stage, people coping with weight control relied on consciousness raising more than

people coping with distress who in turn relied on consciousness raising more than people coping with smoking. Self-liberation was also relied on by people coping with weight control significantly more than by people dealing with distress or smoking. On the other hand, helping relationships were relied on more by distressed people than by overweight people. And stimulus control techniques were used more to control weight than distress. Weight control contemplators and maintainers relied significantly more on consciousness raising and stimulus control techniques than did smokers.

They concluded that people losing weight read more articles and books, think more about feedback, make more commitments to change, and modify stimuli in their environment more than people intending to quit smoking. On the other hand, distressed people turn more to helping relationships to cope with distress than do people trying to lose weight.

Rossi (1992) explored the generalizability of the change processes across samples of 3,473 participants in studies of nine problem behaviors: smoking cessation, alcohol abuse, cocaine use, dietary fat reduction, exercise adoption, heroin use, HIV risk reduction, psychological distress, and weight control.

He utilized separate processes of change questionnaires for each problem area. The number of change process scales on each questionnaire ranged from 8 to 11 and the number of items from 32 to 55. Reasons for the different number of process scales for the different questionnaires included: 1. some processes failed to emerge from the principal components analysis done on the original item data, 2. some processes were not relevant for some problem areas, 3. new change processes were tested in some studies, 4. the weight control questionnaire was done on the telephone which limited the amount

of data that could be collected. He replicated the hierarchical structure of the processes of change with 8 to 12 first-order factors representing specific processes of change and 2 general second-order factors representing experiential and behavioral process composites. For the alcohol abuse sample (N = 175) the experiential-behavioral correlation was .75 and the goodness-of-fit was .97. The results were consistent with expectations: scales theorized as experiential loaded on the experiential factor and scales theorized as behavioral loaded on the behavioral factor for 7 of the 9 problem behaviors. He concluded that the results confirm the 2-factor hierarchial structure of the process of change model.

Snow (1992) examined the change strategies associated with successful long-term sobriety for alcohol abusers (that is, in the action and maintenance stages of change). He recruited 191 subjects with 1 month to 27 years continuous abstinence and surveyed them on demographic, problem history, degree of AA involvement, current change process use, and self-efficacy measures. He separated them based on varying experience with AA, including exposure, frequency of meeting attendance, and degree of affiliation. He found few differences between the groups on demographic or self-efficacy indices, although there was a trend for past or current AA attenders and medium affiliates to report slightly greater alcohol use prior to quitting compared to self-changers or low affiliates. Snow reported that the clearest and most consistent findings were demonstrated by group differences in coping activity. He stated that process use differed significantly depending on AA exposure and that greater levels of AA experience were associated with a higher pattern of behavioral processes use. Stimulus control, behavioral management, helping relationships, and to a lesser extent consciousness

raising showed a positive linear pattern with increasing AA experience, including exposure, frequency of current meeting attendance, and degree of affiliation. He speculated that this was due to the fact that AA stresses the importance of a lifelong commitment to behaviorally-oriented change processes in the maintenance of sobriety.

Critique

It is interesting to note that, while 10 change processes seem to be firmly established for smoking, other problem behaviors are associated with differing numbers of change processes. Further research is indicated to firmly establish the change processes utilized in these other problem behaviors.

It is also interesting to note how Prochaska and DiClemente (1985) found that while the ranks of use of the change processes were the same among smokers, weight problems, and psychological distress, the absolute use of the differing processes changed among the various problems. This study attempted to answer the question of how a typical court ordered/DUI alcohol abuse population compared in their absolute use of the differing processes.

Interaction between stages of change and self-efficacy

Bandura (1977) proposed that self-efficacy was the critical underlying framework which explained and predicted psychological changes gained in counseling. He defined efficacy as "the conviction that one can successfully execute the behavior required to

produce the outcomes" (p. 193). He hypothesized that people's expectations of their personal efficacy determined whether they would attempt coping behavior, how much effort they would expend, and how long they would sustain this effort in the face of obstacles and aversive experiences.

Bandura (1977) described how people are frightened of and tend to avoid threatening situations which they believe they can not cope but get involved in situations which they believe they are capable of handling. He further theorized how, the stronger the perceived self-efficacy, the more active people's efforts would be to cope. When people do persist in situations that are subjectively threatening but in fact relatively safe, they can master these experiences and further enhance their self-efficacy and reduce their defensive behavior.

He proposed that expectations of personal efficacy come from performance accomplishments, vicarious experiences, verbal persuasion, and physiological states. Successes raise mastery expectations while repeated failures lower them, especially if the failures occur early. Seeing others perform threatening activities without adverse consequences can generate expectations that they too can cope. People can also be persuaded into believing they can cope successfully with what they have been unable to do in the past. And finally, people are more likely to expect success when they are not beset by emotional arousal then when they are tense and agitated.

DiClemente (1981) operationalized Bandura's construct of self-efficacy to study smoking cessation. He asked subjects to rate on a 5-point Likert scale how confident they were they could abstain from smoking across a number of situations and summed the results in a single self-efficacy score. Later studies included a similar 5-point Likert

scale measuring the temptation to smoke or drink (DiClemente, Prochaska, & Gilbertini, 1985; DiClemente & Hughes, 1990; Prochaska et al., 1991). Velicer, DiClemente, Rossi and Prochaska (1990) applied self-efficacy to the study of relapse in smoking cessation.

DiClemente, Prochaska and Gilbertini (1985) found that self-efficacy was an important variable in understanding and predicting changes in dependent behaviors. They defined abstinence self-efficacy as an individual's confidence in his or her ability to abstain from engaging in the dependent behavior in various situations that are cues or triggers to perform that behavior. Subjects were 957 volunteers representing five stages of change in smoking cessation: immotives, contemplators, recent quitters, long-term quitters, and relapsers. They were assessed initially and at a 3 to 5 month follow-up. DiClemente, Prochaska and Gilbertini concluded that the self-efficacy scale was a reliable instrument to assess subject's personal efficacy in smoking cessation. They found that their subjects' expectations of their ability not to smoke across various situations accurately represented their actions. Efficacy scores demonstrated value in discriminating which subjects were likely to succeed in quitting and which were likely to experience a relapse. However, Prochaska and DiClemente (1992) reported that the predictive ability of self-efficacy was much more salient in the later stages of change - i.e., only after some action had been initiated by the individual - than in the earlier ones.

DiClemente (1986) broadened the research focus from smoking cessation to include alcohol and eating disorders. He concluded that the self-efficacy construct can be operationalized for a variety of dependent behaviors and called for further research

in alcohol and eating problems. He further concluded that self-efficacy evaluations had value in discriminating which individuals are likely to succeed in sustaining behavior change and which are likely to relapse. He analyzed that data from the 2 year longitudinal study of self-change with smoking cessation and found that self-efficacy levels remained consistently low during the precontemplation and contemplation stages of change, increased substantially during the action stage and reached very high levels during the maintenance stage. In contrast, temptation levels decreased during the stages of change in a mirror image of confidence levels. During the action stage, temptation levels remained quite high and leveled off in the maintenance stage. He concluded that self-efficacy appeared to be a useful construct for exploring successful change in dependent behaviors whether this happens in the context of treatment or in unaided change.

DiClemente and Hughes (1990) evaluated the stages of change and self-efficacy with 142 adults entering outpatient alcoholism treatment. They used a questionnaire called the University of Rhode Island Change Assessment Scale (URICA) to measure the stages of change. This provides a continuous measure of the attitudes representing each of the stages of change but yields somewhat different profiles than the discreet stages of change. They found that the Pearson first-order correlation of total scores on temptation and self-efficacy for their sample was substantial and negative ($r = -.64$). They also found that the Uninvolved group showed the highest level of temptation and the lowest level of self-efficacy. They concluded that the large difference between these variables indicated a sense of helplessness or hopelessness which supported the hypothesis that this cluster represented individuals who were discouraged over the possibility of change. The

precontemplation group reported the lowest level of temptation and were the only group to have efficacy levels greater than their temptation levels. They concluded that this group was quite confident of their ability to abstain from drinking across a wide range of situations - whether real or imagined. DiClemente and Hughes (1990) further concluded that this group of subjects were denying or minimizing the severity of their alcohol problem and inflating their sense of confidence. Their ambivalent group demonstrated high levels of temptation and the highest level of self-efficacy for all the groups. The correlation between temptation and self-efficacy was small for this group. This relationship was very consistent in the other groups. They theorized that the lack of relationship between temptation and self-efficacy in this group may explain their ambivalence as the subjects had difficulty evaluating their ability to abstain from temptations to drink. They found that both the participation and the contemplation groups had similar profiles on their self-efficacy measures. The more temptation they reported, the lower their self-efficacy scores were.

Critique

Most of the research done in the area of stages of change and self-efficacy has been done with smoking cessation. The study with alcohol abusers (DiClemente & Hughes, 1990) demonstrated interesting differences from smoking cessation. The alcohol precontemplators showed more confidence levels than temptation levels despite serious alcohol problems. There was also a pattern found indicating hopelessness for change with very high temptation levels and very low efficacy levels.

Also, much of the research has been done on self-changers completing self report questionnaires at home. This may have limited generalizability to the population of alcohol abusers typically seen in outpatient mental health centers. The DiClemente & Hughes (1990) study indicates a much greater level of denial seen in alcohol abusers than in smokers. This leads to the question do court ordered/DUI alcohol abuse clients show greater denial because they are not typically coming to counseling on their own volition or do they have less denial because they have been confronted with some powerful community messages that their drinking has become a significant problem. This study attempted to answer this question for this population.

Interaction between stages of change and decisional balance

The last critical process in modifying dependent behaviors that has been identified in the Transtheoretical model is decision making. Janis and Mann (1977) conceptualized decision making as a conflict model. They stated that sound decision making involves careful screening of all relevant considerations that enter into a decisional "balance sheet" of comparative potential gains and losses. They described the four major considerations, or types of expected consequences, as:

1. utilitarian gains and losses for self - the expected instrumental effects of the decision on personal utilitarian objectives
2. utilitarian gains and losses for significant others - the expected instrumental effects of the decision on the goals of the groups and/or persons with which the person is identified or

affiliated

3. self-approval or disapproval - internalized moral standards, ego ideals and aspects of self-image - e.g., "Will I feel proud or ashamed of myself if I make this choice?"
4. approval or disapproval by significant others - "Will my friends and other important people in my life feel that I made the right choice?" (ps 137-139)

They also stated that many decisions, especially those involving health, involve loss. The greater the loss the greater the conflict about taking health-promoting decisions. In the case with dependent behaviors, the drive to reduce or abstain from the behavior would be opposed by the drive to continue with the behavior. This leads to "pros" and "cons" for the different courses of action. These simultaneously opposing tendencies within the person to accept and reject a given course of action leads to conflict and can be seen in hesitation, vacillation, feelings of uncertainty, and signs of acute emotional stress whenever the decision comes to the person's attention.

When the "cons" outweigh the "pros" of changing the dependent behavior, defensive avoidance of making a decision occurs. They list a number of tactics of this defensive avoidance such as: selective inattention to relevant information, distracting the self, buck-passing, oversimplifying, distorting, evading, omitting major considerations, exaggerating favorable consequences, minimizing unfavorable consequences, denying aversive feelings, minimizing personal responsibility, etc.

Janis and Mann (1977) also described five stages of decision making and the major concerns associated with each. They are as follows:

1. Appraising the Challenge - "Are the risks serious if I don't change?"
2. Surveying Alternatives - "Is this alternative an acceptable means for dealing with the challenge?"
3. Weighing Alternatives - "Which alternative is best?"
4. Deliberating about Commitment - "Shall I implement the best alternative and allow others to know?"
5. Adhering despite Negative Feedback - "Are the risks serious if I don't change? if I do change?" (p. 172)

Orford (1986) applied Janis & Mann's (1977) model of decision making to the Transtheoretical model of change. He described how individuals in the precontemplation stage of change will utilize the defensive tactics summarized in the decision making model to avoid making a decision. However, as the "pros" of changing the dependent behavior begin to outweigh the "cons", individuals will begin to move toward taking action.

Orford (1986) stated he believed that Janis and Mann's (1977) first two stages of decision making - appraising and surveying alternatives - corresponded to the contemplation stage of change. He then stated that their third and fourth stages - selecting an alternative and acting on that choice - corresponds to the action stage of change. And, he stated that their fifth stages - consolidation - is similar to the maintenance stage. Another similarity is Janis and Mann's (1977) description of how people may contemplate a decision for sometime before taking action and that there may be many reversions to earlier stages of the process.

Finally, Orford (1986) identified three cautions in applying a decision making

model to dependent behaviors. First, he repeated a saying that problem drinkers seek change only because of livers, lovers, livelihood, or the law. He asked if changes are confined to those times when one of those factors happens. Second, he stated that the moral or spiritual aspects of the change process are largely missing in the model. Third, he reported that the emphasis on decision making to change dependent behavior minimizes the possibilities that some changes occur because the dependent behavior loses its meaning, or functional significance - i.e., as a person ages, the formerly dependent behavior simply ceases to perform the functions that the older person values.

Velicer, DiClemente, Prochaska and Brandenburg (1985) developed a measure to study the decision making process in smoking cessation. They administered this questionnaire to over 700 subjects as part of a larger, longitudinal study. They identified two scales through principal components analysis which they labeled the Pros of Smoking and the Cons of Smoking. They found that the mean of the Pro scores was high during the first 3 stages and then dropped sharply during the action and maintenance stages. They also found that the mean of the Con scores was very low during the precontemplation stage then rose sharply for contemplators and relapsers, and then dropped again during the action and maintenance stages. In addition, they found that the two decisional balance scales were among the best predictors of future behavior for precontemplators and contemplators but were not significant predictors of change for people who had already quit smoking at a 6 month follow-up.

Prochaska, Velicer and Rossi (1993) identified the two decisional balance measures as critical constructs of the Transtheoretical model. They did not find the eight factors that Janis and Mann (1977) theorized but did find that the pros and cons of the

behavior in question need to be balanced when making decision. They also found that the balance between the pros and cons varies according to the stages of change. They studied the generalization of the relationship between the stages of change and decisional balance across 12 problem behaviors: smoking cessation, quitting cocaine, weight control, high fat diets, adolescent delinquent behaviors, safer sex, condom use, sun exposure, radon exposure, sedentary lifestyle, mammography screening, and physicians' preventive practices with smoking cessation. This study drew on 12 separate samples with a total N of 3,858. All of the groups were accidental samples or samples of convenience since they were expected to have subgroups representing all or most of the stages of change. They did a principal components analysis with varimax rotation on the decisional balance items for each of the 12 samples. They found that internal validity of the 2 factor model of decisional balance was strongly supported across all of the sample populations. They also found that for all 12 problem behaviors, the cons of changing the problem behaviors outweighed the pros for those in the precontemplation stage. In all the samples except the cocaine quitters (who were also the only sample to have a sizeable subgroup who were hospitalized or in a residential program) the pros of changing outweighed the cons in the action stage. In 7 out of 12 samples, they found that the cross over between the pros and cons of the problem behavior happened during the contemplation stage. They concluded that interventions to facilitate successful change should target increasing the pros of changing to individual in the precontemplation stage thus facilitating their progress to the contemplation stage. Once this has occurred, intervention should then target decreasing the cons of changing thereby leading the individual to further progress from contemplation to action. They also concluded that

their results strongly supported the generalizability of these transtheoretical constructs across a variety of populations.

Prochaska (1993) found that progression from precontemplation to action is a function of approximately one standard deviation increase in the pros of a healthy behavior change and approximately one-half of a standard deviation decrease in the cons of a healthy behavior change. He utilized two research samples for this study. The first was the study mentioned above. He found that with 10 of the 12 samples, the increase in the pros was at least twice as great as the decrease in the cons of a healthy behavior change moving from precontemplation to action. He also found that the average amount of decrease in the cons was approximately 0.5 standard deviation. The second sample was from DiClemente et al. (1991) and had 1466 smokers representing the precontemplation, contemplation and preparation stages of change. He found that the cons of smoking for those in the preparation stage was 52.0 compared to 42.4 for those in the precontemplation stage. The magnitude of the difference, 9.6 T points or .96 SD was consistent with the prediction. The difference of 9.6 T points falls within the 95% confidence range. The pros of smoking for those in the preparation stages was 48.0 compared to 53.6 for those in the precontemplation stage. The magnitude of the difference, -5.6 T points or .56 SD was greater than 5 T points while the prediction stated that it should be less than 5 T points.

Prochaska (1993) concluded that to help individuals in the precontemplation stage we need to develop interventions that can increase by about 1 SD the pros of a healthy behavior change or the cons of not changing. He recommended applying individual change processes and public health policies. For example, processes such as

consciousness raising and self-evaluation can increase the perceived pros of healthy behavior change. Also helping individuals become aware of the many negative consequences of not quitting smoking or drinking can increase the perceived cons of not changing for these individuals. In addition, public health policies such as taxes on tobacco or alcohol, or reduction in health insurance and life insurance premiums for quitting smoking or drinking can raise the pros of quitting.

Comparable Populations

A more complete description of court ordered/DUI clients can be found in a recent survey of the client population in a typical outpatient community mental health center in eastern Virginia (ECBCO, 1993). The survey examined all clients admitted to Substance Abuse Services from July 1, 1991 to June 30, 1992. During this time there were 329 individuals admitted for substance abuse counseling. Of those, 55.3% were criminal justice referrals and 44.7% were non-criminal justice referrals. The largest source of criminal justice referrals was ASAP/DUI (38.9% of all admissions and 70.3% of criminal justice admissions). Individuals referred by the Alcohol Safety Action Program (ASAP) are predominantly people charged with driving under the influence (DUI) whose impairment is considered significant enough to warrant treatment. Other criminal justice referrals include those from the police, Community Diversion Incentive, Probation and Parole, and corrections. Among all clients, alcohol was the most frequently reported primary drug of abuse (68.4%), with cocaine/crack (11.9%) and marijuana/hashish (4.0%) the next most frequently reported primary drugs. ASAP

clients almost exclusively reported alcohol as their primary drug of abuse (97.7%). For all admissions, 74.5% of the clients were between the ages of 20 to 39 and 47.1% were in the 25 to 34 age range. Whites comprised 69.0%, blacks made up 29.8% and 1.2% were other races. There were 70.2% males and 29.8% females. Overall, 71.4% of the clients reported having an educational level of completed high school or vocational school or above and 29.2% reported some college or above. Generally, the clients had low incomes; 59.9% reported incomes below $9,999, 24.3% reported incomes between $10,000 and $19,999, 10.6% were in the $20,000 to $29,999 range, and the remaining 5.0% reported earning more than $30,000 annually.

Treatment for all substance abuse clients was delivered primarily through group therapy sessions of approximately 90 minutes in length. In addition, clients generally received some individual counseling of approximately 40 minutes in length. On the average clients received 12 group and 4 individual sessions during the course of treatment. The treatment completion rate for all clients was 46.8%. ASAP clients, however, had a 72.5% rate of treatment completion.

Another study comparing DUI offenders with voluntary clients in an outpatient alcohol treatment facility was Packard (1987). She found no significant differences on demographic variables but highly significant differences on 10 of 12 drinking measures. The DUI offenders drank less and reported less disruption in their interpersonal and occupational functioning due to drinking. They also had fewer blackouts and were less likely to demonstrate personality changes while drinking. They were considerably more impaired in the area of legal difficulties. She concluded that the DUI offenders represented a different population than clients referred from other sources and that

treatment interventions needed to be based on the specific needs and characteristics of each population.

Rugel and Barry (1990) worked with 28 court ordered/DUI males in 4 separate treatment groups. They found that group members decreased their denial of their drinking problems and decreased their general level of psychopathology following 12 weeks of group counseling. They also found that the individuals who experienced the group as most accepting experienced the greatest degree of self-acceptance following each group session. Rugel (1991) described how the Transtheoretical model of change can be applied to group therapy with substance abusers.

CHAPTER 3

Data Collection

Population

Subjects were drawn from the population of individuals in the Virginia Peninsula area who had been convicted of driving under the influence (DUI) and then referred for substance abuse treatment at a local community mental health center by ASAP. One hundred fifty individuals completed surveys to participate in this study between March 27, 1995 and June 26, 1996. Demographic information is listed in Table 3 below.

Treatment Procedures

The Virginia Alcohol Safety Action Program was established by the state of Virginia in 1973 to reduce the incidence of drunk driving. According to the Peninsula ASAP's annual report of FY '93, this program has six components: enforcement, judiciary, case management, education/treatment, public education and information, and evaluation. After individuals have been arrested and convicted of a DUI, they meet with an ASAP case manager who assesses their substance abuse needs, refers them to appropriate services, monitors their progress, and provides reports to the courts

Table 3

Client Demographic Information

	Precon-templation	Contem-plation	Action	Total
Mean Age	35.9	38.5	36.8	36.3
Gender:				
Male	99	11	12	122
Female	15	6	7	28
Race/Ethnic Group:				
Native American	1	0	0	1
African American	21	5	3	29
Hispanic American	0	0	1	1
Caucasian	92	12	15	119
Marital Status:				
Single	43	6	5	54
Married	28	3	6	37
Separated	17	3	4	24
Divorced	24	5	4	33
Widowed	2	0	0	2
Highest Level of Education:				
6th-8th Grade	9	0	1	10
9th-11th Grade	19	2	4	25
12th Grade	63	10	10	83
One or more years college	23	5	4	32
Mean Personal Income	$18,702	$9,188	$16,193	$17,306
Mean Household Income	$21,310	$9,371	$18,125	$19,554

(Peninsula ASAP, p. 8). Clients elect to participate in ASAP over jail and loss of license.

The goal of the education/treatment component is to assist the DUI recipients to achieve rehabilitation goals through therapeutic activities and for individuals with alcohol and other drug problems to make meaningful lifestyle changes leading to drug free lives. Referrals are made to several state licensed local treatment agencies to accomplish these goals. Both licensed and unlicensed counselors whom these agencies employ provide counseling services. ASAP allows contracted facilities to determine minimal standards for counselor competency and experience.

The agencies who participated in this study were Colonial Community Services Board (CCSB), Middle Peninsula/Northern Neck Services Board (MPCSB), Peninsula Alcoholism Services (PAS), and Portsmouth Community Services Board (PCSB). According to the CCSB's Mission Statement (1980), the Substance Abuse Services Department works to prevent substance abuse and to improve the lives of those individuals who have a substance abuse problem in Williamsburg, James City County, York County and Poquoson. The counseling centers of the MPCSB counsel people in the Gloucester and Northern Neck region of Virginia. PAS counsels individuals with alcohol problems living in Hampton and Newport News. And Portsmouth Services Board counsels individuals living in the Portsmouth area of Virginia. A total of 73 participants came from Colonial Community Services Board (CCSB), 59 came from the counseling centers of Middle Peninsula/Northern Neck Community Services Board (MPCSB), 17 came from Peninsula Alcoholism Services (PAS), and 1 came from Portsmouth Community Services Board (PCSB). PCSB was removed from the agency analysis due

to having had only 1 client.

There were 23 counselors who participated in this study. However, 13 of them had only 1 client, 3 had only 2 clients, and 2 had only 4 clients. The remaining 5 were used for the analysis. Counselor 1 and 2 worked for the Colonial Community Services Board. Counselor 1 treated 54 of the clients and Counselor 2 treated 12 of the clients. Counselors 3, 4, and 5 worked for the Middle Peninsula/Northern Neck Community Services Board. Counselor 3 treated 41 of the clients, Counselor 4 treated 7 of the clients, and Counselor 5 treated 9 of the clients.

At their first meeting at the local community mental health agency, the secretary asked the subjects to participate in the study; review the letter of informed consent; and complete the URICA, the Processes of Change Questionnaire, the Alcohol Self-Efficacy Scale, and the Decisional Balance Measure (see Appendix B). Brief demographic data was then taken from client information forms provided by the mental health agency (see Appendix C). This information was held in a locked file until the client completed treatment and was returned to ASAP either successfully or unsuccessfully.

After the client completed treatment, the author obtained the clients' discharge summary, scored the questionnaires, recorded the scores, recorded the number of sessions attended, noted whether the client completed successfully or unsuccessfully, and analyzed the data. Data collection was to continue until at least 25 minimum subjects had been found in each stage - precontemplation, contemplation, and action. However, due to the large number of Precontemplators, data collection continued until 150 surveys had been obtained. At the end of the study all client identifying data was destroyed.

Measurement Instruments

Demographic Information Sheet

Basic demographic data on the subjects' age, gender, ethnicity, educational level, personal and household income, and marital status was obtained from the mental health agency's client information forms.

University of Rhode Island Change Assessment Scale (URICA)

This is a 32 item scale developed as a continuous measure of attitudes representing each of the stages of change. It consists of four 8-item subscales: Precontemplation, Contemplation, Action, and Maintenance. Each item is answered on a 5-point Likert scale. Scores range from 8 to 40 on each of the 4 scales. Higher scores indicate greater agreement with statements reflecting attitudes, cognitions, and affect associated with each stage of change. Standardized (T) scores ($M = 50$, $SD = 10$) will be used to report URICA scale scores. These scores then will be compared to the five profiles developed by DiClemente and Hughes (1990) from adults entering outpatient alcoholism treatment. Those subjects placing in the precontemplation cluster, contemplation cluster, and the participation cluster will be used for the data analysis as these clusters most closely correlate with the Precontemplation, Contemplation, and Action stages of change.

The URICA has demonstrated solid psychometric properties for scale composition

and theoretical consistency. In its initial use with adult outpatient psychiatric samples, internal consistency reliability coefficients were calculated and the following Cronbach's coefficient alpha were determined for the four scales: Precontemplation, .88; Contemplation, .88; Action, .89; and Maintenance, .88 (McConnaughy et al., 1983). A follow up study was done to cross validate the stages of change scale scores with a new clinical population. The internal consistency reliability coefficients were calculated and the following Cronbach's coefficient alpha were determined for the four scales: Precontemplation, .70; Contemplation, .84; Action, .84; and Maintenance, .82. These reliability coefficients were comparable to, though slightly lower than, those of the original sample. To explore the internal validity, a split-sample design was examined. Each subsample yielded results similar to the whole sample cluster analysis (McConnaughy et al., 1989). These 2 studies produced profiles using a cluster analytic techniques to classify subjects into 5 to 8 distinct and relevant stage of change profiles.

DiClemente and Hughes (1990) evaluated this measure with a group of 224 adults entering outpatient alcoholism treatment. They performed a principal components analysis to reassess the factor structure of the URICA with this alcoholism treatment population. They basically replicated the original 4 components but found they could eliminate 4 items and produce a 7 item subscale measuring each of the stages of change (This is the version which will be used in this study). They found that internal consistency (Cronbach's Alpha) was moderate to high for the Precontemplation (.69), Contemplation (.75), Action (.82), and Maintenance (.80) subscales. They then performed a cluster analysis using a hierarchical agglomerative method (minimum variance) with squared Euclidean distance as the distance measure and a complete linkage

hierarchical agglomerative method. Both the hierarchical tree and the clustering coefficient were used to determine the number of clusters. They found that the 5 clusters discussed earlier adequately differentiated the subjects. Then, to further ensure the internal validity of the 5-cluster solution, they altered the data by adding subjects to examine the stability of the cluster solutions. All of the original 5 clusters maintained their initial profile structures. They also examined external (criterion related) validity of these 5 clusters by examining group differences on other measures obtained in the study

The URICA has also been used with a sample of inpatient alcoholism treatment subjects (Prochaska & DiClemente, 1992), with women coming into a weight loss clinic (Surel-Rangel, Cousins, DiClemente & Dunn, 1988 paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy cited in Prochaska & DiClemente 1992), and with head injury patients (Lam et al., 1988). In these studies, relevant profiles to that described above were found. Stage-specific profiles were related to progress and participation in the Lam study.

More recently, Carbonari and DiClemente (1994) have developed a more sophisticated scoring system for the URICA which results in a continuous score being obtained for readiness to change rather than discrete scores. They used a Confirmatory Factor Analysis to confirm the existence of this second order factor both at the item and the Scale level. They then found a simple scoring scheme for the readiness to change scale by weighting them :-1,1,1,1. Or: Sum the means of Contemplation + Action + Maintenance - Precontemplation. They then correlated the component score and the readiness score and then both scores to the URICA scales. They found that a single

readiness score was highly related to the best possible component. They then assessed the validity of the Readiness Scale and found the magnitude of the Canonical Correlations predicting profile membership from the Readiness score were .866 (outpatients) and .861 (aftercare clients). Finally, using ANOVA and Student-Newman Keuls, they found the number of distinct groupings using the Readiness score. The ANOVA was significant at $\underline{F}$ (2, 908) = 434.25, $p < .0001$ for the outpatient sample and at $\underline{F}$ (4, 647) = 338.76, $p < .0001$ for the aftercare sample. The post hoc tests for the outpatient sample identified 4 profile groups:

1. Precontemplation profile
2. Discouraged profile
3. Contemplation and Ambivalent profiles
4. Participation profile.

The post hoc tests for the aftercare sample identified 3 profile groups:

1. Precontemplation and Discouraged profiles
2. Contemplation and Ambivalent profiles
3. Participation profile.

Also, in a recent conference attended by the author (DiClemente, 1996), DiClemente reported that the Precontemplation and Discouraged clusters correspond to the Precontemplation stage of change and that the Contemplation and Ambivalent clusters correspond to the Contemplation stage of change.

For this study, 150 surveys were completed resulting in 114 individuals in the Precontemplation group, 8 in the Contemplation group, 19 in the Action group, 9 in the Ambivalent group, and 0 in the Discouraged group. Due to the Carbonari and

DiClemente (1994) study, the Contemplation and Ambivalent groups were combined giving a total of 17 in the Contemplation group. As there were no clients placing in the Discouraged group, this fulfilled both the outpatient and aftercare profile groups of Carbonari and DiClemente (1994). As the original goal of finding 25 subjects in each group was not obtained due to the extreme disproportions, the readiness to change measure was also taken. Hypotheses were then tested using both stages of change, readiness to change scores, and readiness to change T scores. Due to the large disproportions in sample sizes between the 3 groups, homogeneity of variance was violated on several of the ANOVAS. Therefore, individual sample sizes were used in the calculation of critical values.

Processes of Change Questionnaire

Clients' use of change processes to modify their drinking behavior were measured by the Processes of Change Questionnaire. This is a 65 item test which measures frequency of occurrence on the change processes for alcohol on a 5 point Likert scale (1 = never to 5 = repeatedly).

This measure was originally developed as a 40 item test to assess the processes of change for smoking cessation. Prochaska et al. (1988) established content validity by having four trained judges select items from a pool and assign them to one of the processes. They deleted items where agreement was not reached. The remaining 65 items were randomly ordered. Subjects (N = 970) responded to two 5-point Likert scales measuring the frequency of occurrence, or current use, (1 = never to 5 =

repeatedly) and measuring the importance of each item content, or retrospective use, (1 = not helpful to 5 = extremely helpful). A reduced set of 4 core items was selected that best measured each of the 10 processes.

The convergent validity coefficients ranged from .34 to .72 with most values around .60. Considering that different processes may have been used in different quit attempts (retrospective versus current), they judged the results to support the construct validity of the instrument. The within-method correlations between the 10 processes were generally in the low .30 range, indicating limited overlap between the scales.

The coefficient alpha was calculated for the 4-item scales for each of the 10 scales of both the retrospective version and the current version. The reliabilities ranged from .69 to .92 and were considered acceptable.

Prochaska et al. (1988) also administered the Jackson Desirability Scale to a subset of the sample (N = 250) to measure the response distortion of social desirability as a potential threat to validity. This was correlated with the 10 processes of change scores. These correlations ranged from .01 - .15, demonstrating no evidence of social desirability responding. They also reported that the distribution of responses showed no evidence of either a centrality or an extremity response pattern. And, they concluded that the clear differentiation of the 10 processes argued against a halo effect. They also did a confirmatory analysis with a subset of the sample (N = 770) using LISREL VI computer program 6 months later. This analysis confirmed the 10 process model.

Prochaska et al. (1991) administered the Processes of Change Questionnaire to 544 self-changers for smoking cessation every 6 months for five rounds as part of a combined cross-sectional and longitudinal analysis of the Transtheoretical Model of

Change. They found alpha coefficients for the 10 processes of change ranging from .78 for reinforcement management to .91 for dramatic relief.

Rossi (1992) replicated the hierarchial structure of the processes of change across samples of 3,473 subjects in studies of 9 different problem behaviors; smoking cessation, alcohol abuse, cocaine use, dietary fat reduction, exercise adoption, heroin use, HIV risk reduction, psychological distress, and weight control. Separate processes of change questionnaires were developed for each problem. The number of processes of change scales on each questionnaire ranged from 8 to 11 and the number of items ranged from 32 to 55. There were several reasons for the different number of scales including: some processes failed to emerge from the analyses conducted on the original data, some processes were not relevant for some problem behaviors, and new processes were tested in some studies. The 5 point Likert scale indicating frequency of process use was utilized for all items.

Rossi's (1992) alcohol abuse sample consisted of 175 subjects recruited via newspaper ads targeted at former problem drinkers. The alcohol processes of change questionnaire had 8 scales and 32 items. The range for internal consistency was .70 - .85 with the median range being .78.

Alcohol Abstinence Self-Efficacy Scale

Subjects' self confidence about remaining abstinent from alcohol was assessed by the Alcohol Abstinence Self-Efficacy Scale. This is a 40 item instrument representing cues related to drinking. Individuals are asked to respond how "tempted" they would be

to drink in each situation on a 5 point scale (from 1 = not al all to 5 = extremely). They are also asked to rate how "confident" they are that they would not drink in that situation on a similar 5 point scale. Scores are summed separately for Temptation and Self-efficacy. This scale was developed by DiClemente, Gordon, and Gilbertini (1983) (as cited in DiClemente, 1986; DiClemente & Hughes, 1990) as a 49 item measure. It was based on similar scales made for smoking and other dependent behaviors which have demonstrated relevance and solid psychometric properties (DiClemente, 1986; DiClemente, Prochaska & Gilbertini, 1985). Their initial reliability and validity estimates for this scale demonstrated high internal consistency (Spearman & Brown = .95) for each scale and a substantial negative correlation (-.58) between temptation and self-efficacy. They found 3 components: negative affect, social influence, and a combination of testing personal control and temptations to drink. Correlations between the total scale and each component were high: .95 for negative affect, .83 for social influence, and .88 for tested and tempted. (DiClemente, Gordon & Gilbertini, 1983 cited in DiClemente, 1986).

DiClemente and Hughes (1990) administered this questionnaire to 142 adults entering outpatient alcoholism treatment. The mean scores for respondents was 160 for temptation (SD = 37) and 139 for self-efficacy (SD = 41). The Pearson first-order correlation of total scores on Temptation and Self-efficacy for the entire sample was substantial and negative (r = -.64).

DiClemente, Carbonari, Montgomery and Hughes (1994) deleted 9 items which did not perform well in early analysis. They administered this questionnaire to 266 adults who applied for alcoholism treatment at a community mental health center over

a 2 year period. They found 4 factors: negative affect (NA), social/positive (SP) (items representing social situations and using alcohol to enhance positive states), physical and other concerns (PO) (items representing physical pain, concerns about others, and dreams about drinking), and withdrawal and urges (WU) (items representing withdrawal, craving and testing willpower). They calculated Cronbach Alpha values for each of these subscales. These were as follows: NA - .88; SP - .82; PO - .83; WU - .81; and total - .92. They also calculated the temptation responses and found a similar factor solution. They found Coefficient Alpha for the temptation factor as follows: NA - .99; SP - .86; WU - .70; and PO - .60. DiClemente et al. (1994) also found a moderate negative correlation between the confidence and the temptation scales of -.65.

They examined the construct validity by correlating the subscales with several demographic variables and with the subscales of the Alcohol Use Inventory (AUI). They found small but significant correlations between the AASE subscales and the AUI subscales. Most relationships were negative; indicating that more problems on the AUI correlated to lower self efficacy to abstain from drinking. Their results supported the independence and relevance of the AASE to other constructs measuring alcohol problems, patterns and severity. They concluded that "abstinence efficacy is not simply a reflection of the severity of alcohol dependence, withdrawal symptoms or benefits of drinking." (p. 147). They also concluded that the AASE demonstrated a solid subscale structure, no substantial gender differences, and strong indices of being a reliable and valid measure of abstinence efficacy.

Decisional Balance Measure for Alcohol

Velicer et al. (1985) constructed a 24 item decisional balance measure to study the decision-making process across the stages of change for smoking cessation. Respondents answer each item on a 5-point Likert scale of importance (1 = not important to 5 = extremely important) for their decision to smoke. They administered this questionnaire to 960 subjects who volunteered to participate to the study in response to newspaper articles and ads. Principal components analysis identified 2 orthogonal components that they labeled the pros of smoking and the cons of smoking. The pros scale represented items on the pleasure, tension reduction, self-image, and habit factors identified as the basic reason for cigarette use. The cons scale represented the health, example, aesthetics, and mastery considerations associated with motives for quitting. This comparison provides a measure of an individual's status on their decision to continue or discontinue cigarette smoking. The scales were successful in differentiating among 4 groups representing the stages of change as well as a group that had relapsed after a period of successful smoking cessation. They found that internal consistency for the Pro scale of smoking was .87 and for the con scale was .90.

Prochaska et al. (1985) demonstrated the predictive utility of the decisional balance measure. The decisional balance measure was one of 14 variables they investigated as predictors of change in smoking status for self-change efforts at smoking cessation. Adult subjects (N = 866) were grouped in 5 stages of change and assessed on 14 variables. These variables were used as predictors of change 6 months later. They found that the pros and cons scales were predictors of change in the

precontemplation and contemplation stages.

Prochaska et al. (1993) generalized the decisional balance measure to 12 problem behaviors: smoking cessation, quitting cocaine, weight control, high fat diets, adolescent delinquent behaviors, safer sex, condom use, sun exposure, radon exposure, sedentary lifestyle, mammography screening, and physicians' preventive practices with smoking cessation. They performed a principal components analysis with varimax rotation on the decisional balance items for each of the 12 samples. They found that 2 components were retained in each analysis and that these 2 components accounted for 40 to 80% of the total variance across samples. They found 2 categories labeled the pros and cons. Internal consistency (alpha) coefficients ranged from .75 to .95. They also found that the probability that 12 out of 12 studies would yield a 2 component structure on the decisional balance is .003. They concluded that the internal validity of the 2 factor model of decisional balance was strongly supported across each of the studies in which it was tested.

King and DiClemente (1993) developed a 42 item questionnaire to study the decision making process in abstaining from alcohol. They administered this measure to 209 male volunteers recruited from an inpatient alcoholism treatment program. Principal components analysis identified 2 orthogonal components that they labeled the pros of drinking and the cons of drinking. They found that internal consistency for the Pro scale of drinking was .85 and for the con scale was .88.

Measurement Instrument Completion Summary

It should be noted that, while the majority of surveys were completely answered, 17 individuals did not complete the Self-efficacy portion and 3 did not complete the Temptation portion of the Alcohol Abstinence Self-Efficacy Scale. The author believes this was due to the impulsive nature of the clientele who noticed that the both pages described the exact same situations but failed to notice that they asked different questions on those same situations. The author also had to ask a number of individuals to complete the Self-Efficacy portion of the survey after it had been turned in blank. Also, 3 other individuals did not complete either the pros or the cons section of the Decisional Balance Measure for Alcohol. And 3 individuals did not complete portions of the Processes of Change Questionnaire; one individual did not compete the self-reevaluation or helping relationship portions, one did not complete the consciousness raising or social liberation portions, and one individual did not complete the stimulus control portion.

Discharge Summary

Finally, the clients' discharge summary was viewed to note how many treatment sessions the clients attended and whether they completed treatment successfully or unsuccessfully. A successful termination means that the client has completed the mutually agreed on goals for counseling. An unsuccessful termination means that the client has not completed these goals.

Research Design

The research design was the Causal-Comparative Method. This method is "aimed at the discovery of possible causes and effects of a behavior pattern or personal characteristic by comparing subjects in whom this pattern or characteristic is present with similar subjects in which it is absent or present to a lesser degree." (Borg & Gall, 1989, p. 537). It is used instead of the experimental method when the variables do not easily allow experimental manipulation. Another advantage is that many relationships can be studied in one research project. However, this method does not establish causality.

Data Analysis

Chi-square analyses by group (n = 3) on the basic demographic data of gender, ethnicity, level of education, and marital status was done to determine if there were any significant differences between groups. Analysis of variances by group (n = 3) was done on age, personal income, and household income for the same reason. If there was a significant difference, the Student Newman-Keuls method was done as a follow-up test to determine which means differ significantly from which other means.

A Multivariate analysis of variance (MANOVA) was performed on the 3 different agencies compared to the clients' stage of change, readiness to change, readiness to change T scores, processes of change, self-efficacy scores, and decisional balance scores. If there was a significant difference, ANOVAS were performed to determine which dependent variables were significant and then a Student Newman-Keuls method was done

as a follow-up test to determine which means differed significantly from which other means. An ANOVA was also done comparing agency and mean number of sessions attended and a Chi Square analysis was performed on agency compared to discharge status.

A series of Analysis of variances were performed on the 5 different group counselors who counseled more than 7 clients compared to the clients' stage of change, readiness to change, readiness to change T scores, processes of change, self-efficacy scores, decisional balance scores, and mean number of sessions attended. If there was a significant difference, the Student Newman-Keuls method was done as a follow-up test to determine which means differ significantly from which other means. A Chi Square analysis was then done on these group counselors compared to discharge status.

To answer the first research question, a Chi-square goodness of fit test was done to determine whether the observed proportions of court ordered/DUI clients placing in the precontemplation cluster, contemplation cluster, and the participation cluster would differ significantly from DiClemente and Hughes (1990)'s proportions of 28% subjects placing in the Precontemplation Cluster, 23% subjects placing in the Participation Cluster, and 24% subjects placing in the Contemplation Cluster.

For the second research question, an Analysis of variance (ANOVA) was done to determine whether there was a significant difference between individuals in the 3 stage of change profiles measured with regard to the mean number of treatment sessions attended. If there was a significant difference, the Student Newman-Keuls method was done as a follow-up test to determine which means differ significantly from which other means. Also, a chi-square test was done to determine if there was a significant

difference between the proportion of clients in the different stage of change profiles successfully completing treatment. Then, stepwise multiple regressions were performed on the readiness to change and readiness to change T scores compared to the number of sessions attended and the clients' discharge status.

For the third, fourth, and fifth research questions; a Multivariate analysis of variance (MANOVA) was performed to determine whether there was a significant difference between individuals in the 3 different stage of change profiles and their mean scores on their change processes, self-efficacy, and decisional balance scores. ANOVAS were performed on all significant scores to determine which dependent variables were significant. If there was a significant difference, the Newman-Keuls method was done as a follow-up test to determine which means differ significantly from which other means. Stepwise multiple regressions were also performed on readiness to change and readiness to change T scores compared to mean scores on change processes, self-efficacy, and decisional balance scores.

A $p < .05$ level of significance was used to determine acceptance or rejection of each hypothesis.

Statistical (Null) Hypotheses

1. There will be no difference between the percentage of court ordered/DUI clients and volunteer clients placing in the precontemplation cluster as measured by the URICA. And, there will be no differences between the percentage of court ordered/DUI clients and volunteer clients in the participation cluster as measured by the same

instrument.

2. There will be no differences in the number of treatment sessions attended or the percentage successfully completing treatment between clients in the participation cluster at the beginning of treatment and clients in the precontemplation or contemplation cluster.

3. There will be no interaction between the stages of change, as measured by the URICA, and the processes of change, as measured by the Processes of Change Questionnaire, for the court ordered/DUI clients.

4. There will be no interaction between court ordered/DUI clients' self-efficacy and temptation, as measured by the Alcohol Abstinence Self-Efficacy Scale, and the stage of change profiles.

5. There will be no interaction between the decisional balance measure, as assessed by the Decisional Balance Questionnaire for Alcohol, and the stage of change profiles.

Ethical Considerations

This study followed the ethical guidelines for research stated by the American Counseling Association. In addition, the research proposal was submitted to the Committee for Research on Human Subjects at the College of William and Mary. Informed consent and confidentiality were emphasized. All subjects were asked to sign a consent form to participate in the study. These consent forms followed the format stated in Borg & Gall (page 99, 1989). All client information was kept in a locked file

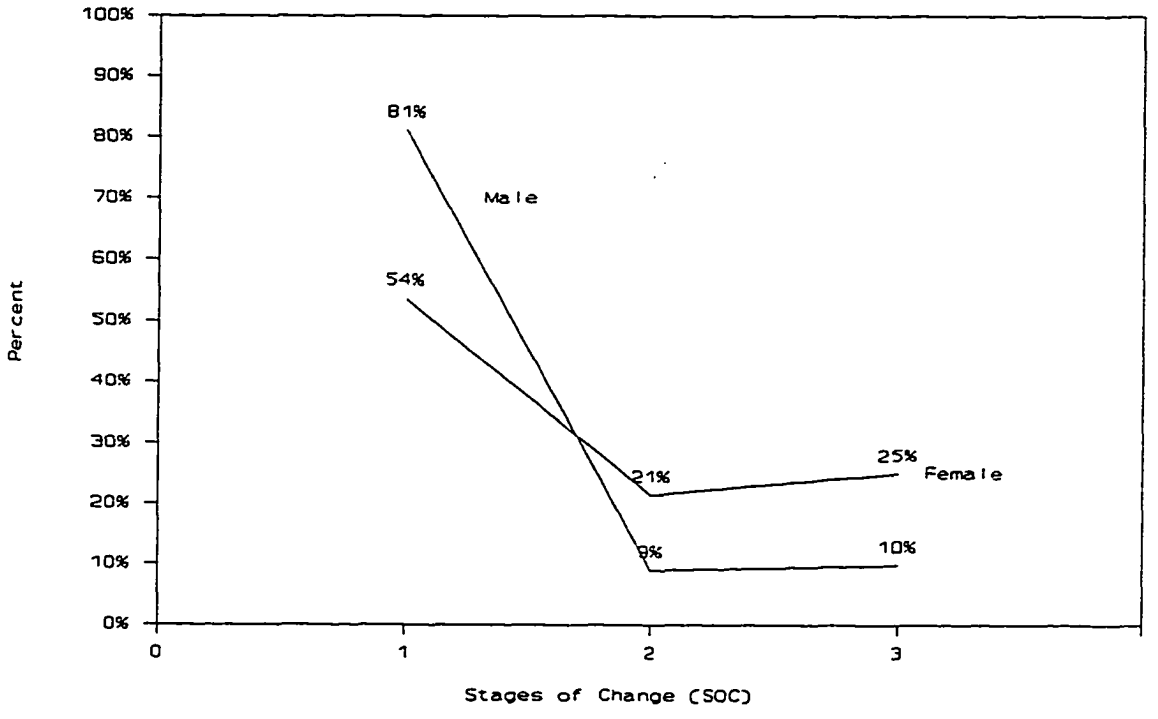
cabinet until the end of the study. At that time, all subject materials were destroyed. Any subjects who are interested will be sent a copy of the results. As there is no area of deception, there was no need for debriefing with the subjects. However, the experimenter offered to discuss the purpose of this study at greater length with anyone interested.

CHAPTER 4

Results

Demographic Analysis

Chi-square analyses by group (n=3) on the basic demographic data of gender, ethnicity, level of education, and marital status were performed to determine if there were any significant differences between the groups. (See Appendix D.) There was a



SOC Code: 1 - Precontemplation; 2 - Contemplation; 3 - Action.

Figure 1. Gender vs Stage of Change

significant difference between stages of change and gender where X^2 (2, $\underline{N}$ = 150) = 9.51, $\underline{p} < .01$. Figure 1 graphs the results. There was a significant difference between the Precontemplation stage and the Contemplation stage where X^2 (1, $\underline{N}$ = 131) = 5.39, $\underline{p} < .05$. There was also a significant difference between the Precontemplation and the Action stage where X^2 (1, $\underline{N}$ = 133) = 6.62, $\underline{p} < .05$. But, there was no significant difference between Contemplation and Action stages. In summary, there were significantly more men in the Precontemplation stage and significantly more women in the Contemplation and Action stages. There were no significant differences between stage of change and ethnicity, level of education, or marital status.

Analysis of variances by group was also performed on age, personal income, and household income. (See Appendix D.) There was no significant difference between age and stage of change. The ANOVA for stage of change and level of personal income was significant at, $\underline{F}$ (2, 147) = 3.98, $\underline{p} < .05$. The Student Newman-Keuls found that the Precontemplators' income was significantly higher than that of the Contemplators. There was no significant difference with the Action subjects. Similar results were found between household income and stage of change, $\underline{F}$(2, 147) = 3.87, $\underline{p} < .05$. The Student Newman-Keuls reveals that the Precontemplators' income was significantly higher than the Contemplators. There was no significant difference with Action people.

Agency and Counselor Analysis

Analyses were also performed to determine if the different agencies or counselors attracted different types of clients or if they affected the number of sessions the clients

attended and/or the clients' discharge status (i.e, successful, unsuccessful, or moved out of the area). (See Appendix E.) A MANOVA was performed on the 3 different agencies compared to the clients' stage of change, readiness to change, readiness to change T score, processes of change, self-efficacy scores, and decisional balance scores. This was not significant.

However, the Analysis of variance comparing on the agency with the number of sessions the clients attended was significantly different at $F(3, 146) = 4.29$, $p < .01$. A Student Newman-Keuls revealed that Peninsula Alcoholism Services was significantly greater than either Colonial Community Services Board or Middle Peninsula/Northern Neck Community Services Board.

However, it was noticed that the program at PAS serving the downtown Newport News/Hampton population is significantly longer than the other programs. The 3 clients from this program who participated in this study attended 70, 82, and 93 sessions respectively. When the Analysis of Variance was redone removing these 3 outliers, there was no significant difference between the 4 agencies in terms of number of sessions attended.

A Chi Square analysis was then done on the agencies compared to discharge status. There was no significant difference.

A MANOVA was performed on the 5 different group counselors compared to the clients' stage of change, readiness to change, readiness to change T scores, processes of change, self-efficacy scores, and decisional balance scores. This was significant at $F(4, 99) = 1.47$, $p < .05$. Table 4 shows the significant dependent variables at a $p < .05$ level from the followup ANOVAs and the Student Newman Keuls Procedures results.

Table 4

Student Newman Keuls Results for Group Counselor Analysis

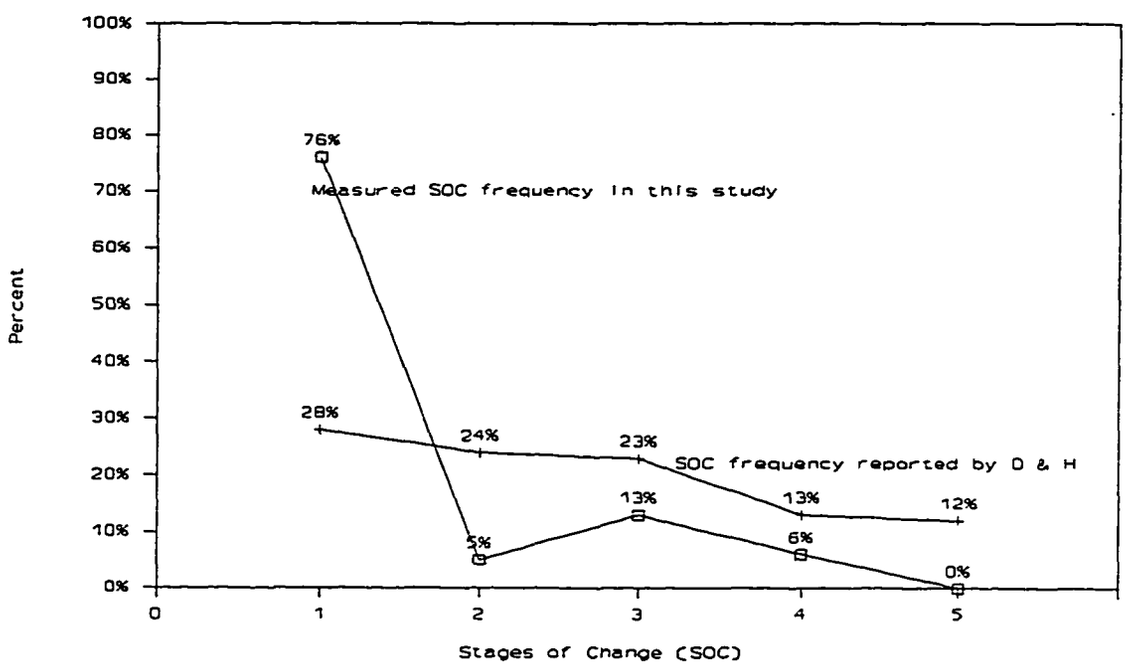
Variable	Counselor(s) significantly different at $p < .05$ level: Counselor	Counselor
stage of change	4	3,1
readiness to change	4,1	3
readiness to change T scores	1	3
self-reevaluation	none	none
self-liberation	4	5,3
helping relationship	4	3,5,1,2
dramatic relief	none	none
environmental reevaluation	4,1	3

It should be noted that Counselor 4 led a women's group for MPCSB. Her clients used for the analysis were 6 women. Three of them were in the Action stage of change, 1 was in the Contemplation stage of change, and 2 were in the Precontemplation stage of change.

An ANOVA was performed on group counselor by number of sessions attended. This was not significant. Also, the Chi-Square done between group counselor and discharge status was not significant.

Research Hypotheses Analysis

The first research hypothesis was: there will be a significantly greater percentage of court ordered/DUI clients than volunteer clients in the precontemplation stage of change and a significantly smaller percentage of court-ordered/DUI clients than volunteer clients in the action stage of change. Results are printed in Appendix F. A nonparametric Chi Square goodness of fit test was performed comparing the data from this study with that of DiClemente and Hughes (1990)'s data. Results were significant X^2 (4, $\underline{N}$ = 150) = 175.82, $\underline{p}$ < .001. Figure 2 clearly shows the dramatic differences



SOC Code: 1 - Precontemplation; 2 - Contemplation; 3 - Action; 4 - Ambivalent; 5 - Uninvolved.

Figure 2. Reported Results vs DiClemente & Hughes (1990) Results

between these 2 different populations. Follow-up Nonparametric Chi-Square goodness of fit tests were done between the Precontemplation stage compared to DiClemente and Hughes (1990)'s Precontemplators and the Action stage compared to the previous study's

Action subjects. The Precontemplation was significant at X^2 (2, $\underline{N}$ = 150) = 171.429, $\underline{p} < .001$. And the Action was significant at X^2 (2, $\underline{N}$ = 150) = 9.044, $\underline{p} < .01$. Thus, the first null hypothesis was rejected.

The second research hypothesis was: clients in the Action stage of change at the beginning of treatment will attend significantly more treatment sessions and be significantly more likely to successfully complete treatment than clients in the Precontemplation and Contemplation stages of change. Results are printed in Appendix G. The ANOVA comparing stage of change with the number of sessions attended was significant at $\underline{F}(2, 147) = 11.55$, $\underline{p} < .05$. The follow-up Student Newman Keuls Procedure revealed that, as predicted, clients in the Action stage attended significantly more sessions than either the clients in the Contemplation stage, or the clients in the Precontemplation stage.

However, the results changed when the outliers from PAS were removed from the analysis. These 3 clients, who attended 70, 82, and 93 sessions respectively, were coincidently all in the Action stage of change. When the ANOVA comparing the stage of change with the number of sessions attended was performed without these 3 clients, the results were not significant.

A Chi Square analysis was also performed comparing the stage of change with the discharge status (i.e., the clients completed treatment successfully, unsuccessfully, or moved out of the area in the middle of treatment). Results were not significant.

Stepwise multiple regressions were then performed comparing the readiness to change scores and T scores with the number of sessions attended and the clients' discharge status. Results on the readiness to change scores comparing successful

completion with the other 2 types of completions showed that the number of sessions attended had a $\underline{R}^2 = .038$ at a $\underline{p} < .05$ level and adding the discharge status produced a $\underline{R}^2 = .092$ at a $\underline{p} < .001$ level. Comparing readiness to change scores unsuccessful completion with the other 2 types of completion showed that the number of sessions had a $\underline{R}^2 = .038$ at a $\underline{p} < .05$, and that adding the discharge status produced a $\underline{R}^2 = .071$ at a $\underline{p} < .01$ level.

Results were very similar in comparing the readiness to change T scores with the number of sessions attended and the discharge status. When the stepwise multiple regression on the readiness to change T scores compared successful completion with the other 2 types of completions, results showed that the number of sessions attended had a $\underline{R}^2 = .040$ at a $\underline{p} < .05$ level and adding the discharge status produced a $\underline{R}^2 = .092$ at a $\underline{p} < .001$ level. Comparing readiness to change T scores unsuccessful completion with the other 2 types of completion showed that the number of sessions had a $\underline{R}^2 = .040$ at a $\underline{p} < .05$ level, and that adding the discharge status produced a $\underline{R}^2 = .068$ at a $\underline{p} < .01$ level.

Thus, the second null hypothesis was not rejected. It is believed that the significant difference found between the stages of change and the mean number of sessions attended initially was due to the 3 outliers from PAS. When these clients were removed, there was no significant difference found between the 3 groups. No difference was found between the stage of change and the discharge status. Differences found in the stepwise multiple regression comparing both the readiness to change scores and the readiness to change T scores with the mean number of sessions attended and the discharge status accounted for from 4% to 9% of the overall variance. In summary,

there was basically no difference found between the stage of change, the readiness to change, or the readiness to change T scores and either the number of sessions attended or the client's discharge status.

The third, fourth, and fifth research questions asked if there would be significant differences between clients in the 3 different stages of change and their mean scores on their processes of change, self-efficacy, and decisional balance scores. Results are printed in Appendix H. To answer these questions, a MANOVA was performed on these variables. The MANOVA was significant at F (2,123) = 2.21, $p < .001$. Followup ANOVA results showed that all 10 of the processes of change were significantly different at $p < .05$ between the 3 stages of change. They also revealed that there was no significant difference on the self-efficacy scores between the 3 stages of change. And, finally, there was no significant difference between the pro decisional balance score but there was a significant difference on the cons of drinking at $p < .001$.

Student Newman Keuls Procedures were then performed on the significant variables. Results found that for all these significant variables, both the Action stage of change and the Contemplation stage of change were significantly higher than the Precontemplation stage of change.

The third research question stated: There will be an interaction between the stages of change and the processes of change. Individuals in the Precontemplation stage of change will use nine of the processes of change less than individuals in the remaining stages, but will use social liberation more than individuals in the Contemplation and Action stages of change. Individuals in the Contemplation stage will use the change processes of consciousness raising, dramatic relief, environmental re-evaluation, and self

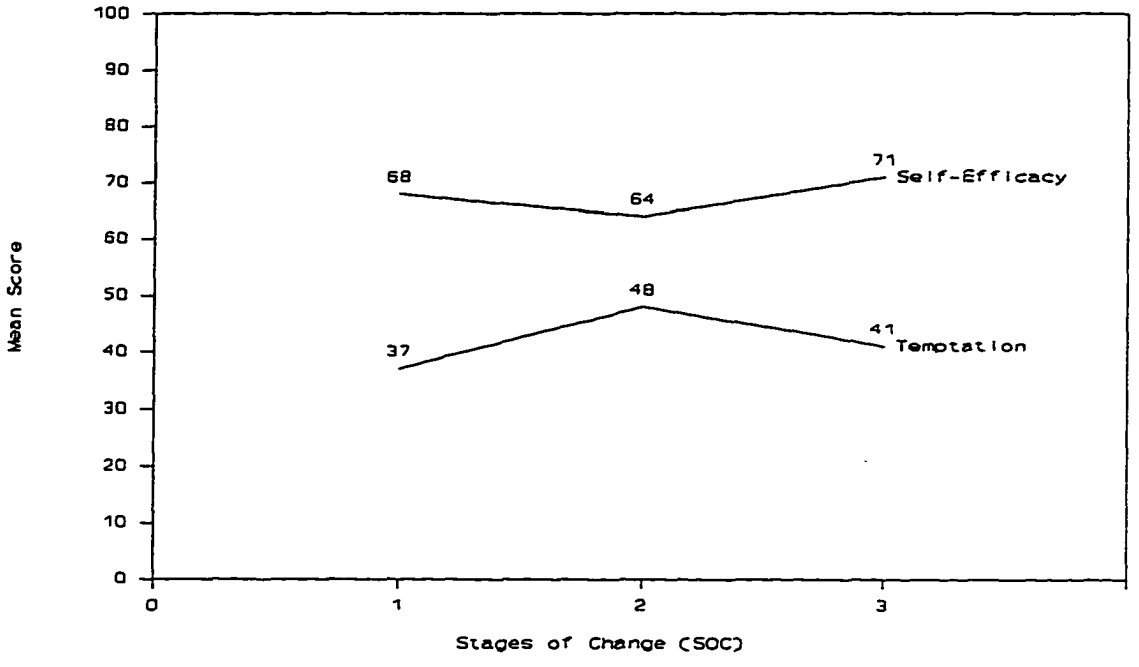
re-evaluation more than the other 2 stages being studied. And individuals in the Action stage will use the change processes of self-liberation, counterconditioning, stimulus control, reinforcement management and helping relationships more than the other 2 stages being studied.

Results on this research do reject the third null hypothesis as there was an interaction between the stages of change and the processes of change. However, all 10 processes of change were significantly higher both in the Action stage of change and the Contemplation stage of change than in the Precontemplation stage of change which was not what was predicted.

The fourth research question stated: Self-efficacy will increase from Precontemplation to Contemplation to Action stages of change while temptation to drink in those same drinking situations will steadily decrease across the stages. However, the MANOVA revealed that there was no significant difference between either self-efficacy not to drink or temptation to drink across the 3 different stages of change.

Results are shown graphically in Figure 3. Thus, the null hypothesis was not rejected for the fourth research question.

The fifth research question stated: The decisional balance will also vary according to the stages of change. The pros of drinking will outweigh the cons of drinking for clients in the Precontemplation stage; the pros and cons of drinking will be equivalent for clients in the Contemplation stage; and the cons of drinking will outweigh the pros of drinking for clients in the Action stage. The MANOVA revealed there was no significant difference between the stages of change and the pros of drinking.



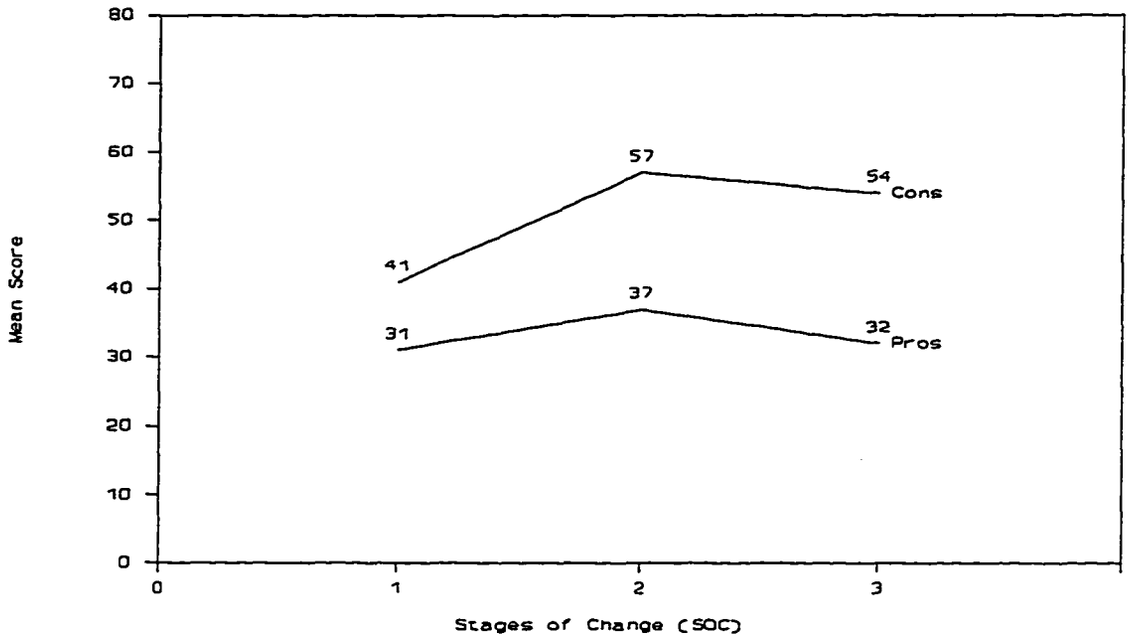
SOC Code: 1 - Precontemplation; 2 - Contemplation; 3 - Action.

Figure 3. Temptation and Self-Efficacy vs Stage of Change

However, there was a significant difference between stages of change and the cons of drinking. The ANOVA found that this was significant at $\underline{F}$ (2, 144) = 15.79, $\underline{p} < .001$. The Student Newman-Keuls Procedure found that both the Contemplators and the Action clients were significantly higher than the Precontemplators.

Figure 4 shows these results graphically. During all 3 stages of change, the cons of drinking were higher than the pros of drinking. Although there was no interaction between the pros and cons of drinking, there was an interaction between the cons of drinking and the stage of change profiles and therefore the null hypothesis was rejected for the fifth research question.

The third, fourth, and fifth research questions were also analyzed by performing a Stepwise multiple regression on both the readiness to change scores and the readiness



SOC Code: 1 - Precontemplation; 2 - Contemplation; 3 - Action.

Figure 4. Pros and Cons of Drinking vs Stage of Change

to change T scores with the processes of change, self-efficacy, and decisional balance scores. On the readiness to change comparison, self-reevaluation was $\underline{R}^2 = .45$ at a $\underline{p} < .001$ level. When self-liberation was added, $\underline{R}^2 = .47$ at a $\underline{p} < .001$ level, and when environmental reevaluation was added, $\underline{R}^2 = .49$ at a $\underline{p} < .001$ level.

Results were similar in comparing the readiness to change T scores with the processes of change, self-efficacy, and decisional balance scores. Self-reevaluation was $\underline{R}^2 = .45$ alone at a $\underline{p} < .001$ level. When self liberation was added, $\underline{R}^2 = .47$ at a $\underline{p} < .001$ level.

However, a Correlation Matrix was done on the processes of change and it was found that the processes of change were all highly correlated at the $\underline{p} < .001$ level.

This matrix suggests that the Processes of Change Questionnaire did not break

down the processes of change adequately. These results support the findings from the data comparing the SOC and the POC in rejecting the null hypothesis as there was an interaction between the stages of change and the processes of change. However, they do not clearly state how due to the high correlation between the processes of change.

CHAPTER 5

Discussion and Conclusions

The purpose of this study was to apply the Transtheoretical model of change to court ordered/DUI clients in order to aid counselors working with this population to develop a more effective differential treatment model with them.

Demographic Discussion and Conclusions

There were significantly more men (122) than women (28) in the court-ordered/DUI population. Of these men, 81% were in the Precontemplation stage of change versus 9% in the Contemplation stage and 10% in the Action stage. Of these women, only 51% were in the Precontemplation stage versus 21% in the Contemplation stage and 25% in the Action stage of change. Thus, substance abuse programs for this population should probably plan to see significantly more men than women. Also, they might plan that their female court ordered/DUI clients would be significantly more likely to be aware that an alcohol problem exists, to be ready to change, and to be beginning to take some action on their drinking than their male court ordered/DUI clients.

This data supports some programs' efforts to refer their female clients to womens groups rather than coed groups. Contemplators seek information on the problem and

begin to reevaluate themselves. They tend to evaluate the losses and rewards of changing. Action clients need to learn how to use counterconditioning, stimulus control, and reinforcement management to successfully change their drinking. And they need effective strategies to prevent relapse. Thus, women's groups might focus more on these issues. Men's groups, or coed groups including the female clients scoring in the Precontemplation stage of change, on the other hand might focus more on acknowledging that an alcohol problem exists, increasing their awareness of the negative aspects of the problem, and accurately evaluating their self-regulation capacities.

This data also contradicts previous research (e.g., DiClemente & Hughes, 1990; DiClemente et al., 1991) that found no significant differences in gender between the stages of change using the URICA. Since no gender differences were found in volunteer populations, perhaps court involvement may have a more significant impact on women than on men leading to a greater realization that an alcohol problem exists. Women court ordered/DUI clients may also be experiencing a greater amount of shame and embarrassment over their arrest than the male clients. This also supports Packard's (1987) conclusion that DUI offenders represent a different population than clients referred from other sources and that treatment interventions need to be based on the specific needs and characteristics of each population. Or, perhaps these results were due to the vast gender difference in sample size, or to an increased desire for these women to "fake good" on the URICA.

The data also supports efforts at examining the differences between male and female court-ordered/DUI clients on such areas as their processes of change, self-efficacy, and decisional balance scores. The data from analyzing Counselor 4's clients

compared to the other 4 group counselors adds some interesting information in this area. Her 6 clients used for analysis were female. This sample is too small to come to any definite conclusions, however they suggest an interesting area for another study. Her clients were significantly higher in the processes of change of: self-liberation, helping relationships, and environmental reevaluation. Perhaps further research could determine if women bring a higher level of processes of change than men into court-ordered/DUI treatment along with their greater readiness to change.

The second demographic significant difference that was found was that Precontemplators had a significantly higher personal and household income than the Contemplators. This was possibly due to the significantly greater number of clients scoring in Precontemplation than Contemplation. Or, perhaps higher income Contemplators clients were more cooperative with the adjudication process and therefore seen as having less of an alcohol problem and referred for education rather than counseling. Thirdly, a greater income may possibly lead to a greater denial of an alcohol problem as these clients would have the resources to escape from some of the consequences of their drinking.

The third significant difference was in the number of sessions the clients attended based on the agency where they were seen. This was only significant when the 3 outliers from PAS were included. When they were removed, there was no significant difference based on the agency attended.

There was also no significant difference between group counselor and the number of sessions attended, or in the clients' discharge status from either the agency or the group counselor. Approximately 64% of the court ordered/DUI clients completed their

substance abuse program successfully, 32% completed unsuccessfully, and 4% moved out of the area during treatment. This discharge status was regardless of the agency they attended, the counselor they saw, or their stage of change on entering substance abuse treatment. Thus, once court-ordered/DUI clients start to comply with substance abuse treatment, they tend to continue to comply regardless of the counseling agency, counselor, or their stage of change on entering substance abuse treatment.

First Research Hypothesis

The first research hypothesis was: there will be a significantly greater percentage of court ordered/DUI clients than volunteer clients in the precontemplation stage of change and a significantly smaller percentage of court-ordered/DUI clients than volunteer clients in the action stage of change. The data supported this hypothesis and the null hypothesis was rejected. Seventy-six percent of the court ordered/DUI population were Precontemplators compared to 28% of the volunteer alcoholism treatment clients in DiClemente and Hughes (1990) study. Thirteen percent of the court ordered/DUI population were in the Action stage compared to 23% of the volunteer alcoholism treatment clients in DiClemente and Hughes (1990) study. This finding was consistent with the research discussed in Chapter 1 describing how families, employers, the legal system, etc. are often well aware that Precontemplators have a problem and may pressure these individuals into treatment. However, when these Precontemplators enter treatment it is to pacify powerful others and thus to take the pressure off themselves rather than to change themselves. Thus, treatment approaches with Precontemplators emphasizing how

pacifying powerful others by taking actions such as quitting drinking and attending Alcoholics Anonymous will probably be more successful and be met with less resistance than approaches emphasizing the importance of changing themselves. (See Berg & Miller, 1992; Miller, 1983)

Second Research Hypothesis

The second research hypothesis was: clients in the Action stage of change at the beginning of treatment will attend significantly more treatment sessions and be significantly more likely to successfully complete treatment than clients in the Precontemplation and Contemplation stages of change. Results only supported this hypothesis when the 3 outliers from PAS were included. When they were removed, no significant difference was found between the stage of change, the readiness to change, or the readiness to change T scores and either the number of sessions the court ordered/DUI clients attended or their discharge status. Thus, the null hypothesis was not rejected.

These results also contradicted earlier research showing that the stage of change predicted client participation and outcome (e.g., DiClemente et al., 1991; Prochaska & DiClemente, 1992). Perhaps there were not enough Contemplators and Action clients to adequately measure the differences between the stages of change. However, there were also no significant differences found using the readiness to change and the readiness to change T scores.

Approximately 64% of the court ordered/DUI clients completed their substance

abuse program successfully, 32% completed unsuccessfully, and 4% moved out of the area during treatment. Since the stage of change did not predict which court ordered/DUI clients dropped out of treatment prematurely, this would be an interesting area for another study. What were the differentiating factors between the 64% of court ordered/DUI clients who completed treatment successfully and the 32% who did not? One factor may be the severity of the addiction. Perhaps clients who dropped out did so because they continued to drink and lost interest in treatment or were arrested and incarcerated on new charges. Another factor may be that clients who remained in treatment were more willing to examine their drinking and change their stage of change while those who dropped out were not. Since this study only surveyed clients at their intake appointment, perhaps another study could examine the difference in stages of change from the first to the last treatment appointment at the community mental health center.

Third Research Hypothesis

The third research question stated: There will be an interaction between the stages of change and the processes of change. Individuals in the Precontemplation stage of change will use nine of the processes of change less than individuals in the remaining stages, but will use social liberation more than individuals in the Contemplation and Action stages of change. Individuals in the Contemplation stage will use the change processes of consciousness raising, dramatic relief, environmental re-evaluation, and self re-evaluation more than the other 2 stages being studied. And individuals in the Action

stage will use the change processes of self-liberation, counterconditioning, stimulus control, reinforcement management and helping relationships more than the other 2 stages being studied.

Results did reject the null hypothesis as there was an interaction between the stages of change and the processes of change. However, all 10 processes of change were significantly higher both in the Action stage of change and the Contemplation stage of change than in the Precontemplation stage of change. This was not what was predicted from the research summarized in Prochaska, DiClemente and Norcross (1992). Results were probably influenced by the sample sizes of 114 Precontemplators, 17 Contemplators, and 19 Action clients. Perhaps there were not enough clients to adequately distinguish between the Contemplation and the Action stage of change with regards to their processes of change.

Another reason for this difference can be seen in the results comparing readiness to change scores and processes of change. Results from the Stepwise multiple regression comparing the readiness to change scores with the processes of change found that self-reevaluation, self-liberation, and environmental reevaluation accounted for 49% of the variance. And, results from the Stepwise multiple regression comparing the readiness to change T scores with the processes of change found that self-reevaluation and self-liberation accounted for 47% of the variance. However, the Correlation matrix (Appendix H) on the processes of change showed that all 10 processes of change were highly correlated at the $p < .001$ level. Thus, the Processes of Change Questionnaire did not appear to adequately differentiate between the 10 processes of change indicating that further research needs to be done in this area. Perhaps the results of this study do

not so much reflect the interaction between specific stages of change and the processes of change as they do that the Processes of Change Questionnaire did not adequately measure these differences.

Fourth Research Hypothesis

The fourth research question stated: Self-efficacy will increase from Precontemplation to Contemplation to Action stages of change while temptation to drink in those same drinking situations will steadily decrease across the stages. As Figure 3 indicates, self-efficacy scores were higher than temptation scores throughout all 3 stages of change and did not vary according to the stage of change. Results therefore did not support this hypothesis and the null hypothesis was not rejected.

One reason for these results and a limitation of this study could be the validity of the Alcohol Abstinence Self-Efficacy Scale in measuring the self-efficacy for this research population. As noted in Chapter 3, 17 clients did not complete the Self-efficacy portion and 3 did not complete the Temptation portion of this instrument. In fact, several returned surveys had the Self-Efficacy portion ripped out of the survey. The author also had to ask a number of clients to complete the Self-Efficacy portion of the survey after it had been turned in blank. The author believes these omissions were probably to the impulsive nature of the court ordered/DUI population who noticed that both pages described the exact same situations but failed to notice that they asked different questions on those same situations. (See Appendix B.) The author also wonders how valid the answers were on those questionnaires which were completed.

Some of the clients who did answer these questions may have done so without reading the instructions adequately.

Another reason for these results may be the large percentage of Precontemplators in this research population. Prochaska et al. (1985) found that self-efficacy evaluations were predictive of movement into the Action and Maintenance stages but not relevant for earlier stage movement in their study of smoking cessation. Thus, treatment programs for court ordered/DUI populations should probably not rely on self-efficacy scores to help plan effective treatment interventions.

One additional area of interest in these results is that they supported DiClemente and Hughes's (1990) finding that the alcoholism treatment population reported higher self-efficacy scores than temptation scores in the Precontemplation stage of change. These results and DiClemente and Hughes (1990) results contradicted the research on smoking cessation which found that self-efficacy scores varied across the stages of change with Precontemplators reporting the lowest levels of Self-efficacy and Maintainers the highest. (DiClemente, 1986; Prochaska et al., 1991). This supports the idea that there are some differences between different addictive behaviors which need to be recognized in planning effective treatment.

Fifth Research Hypothesis

The fifth research question stated: The decisional balance will also vary according to the stages of change. The pros of drinking will outweigh the cons of drinking for clients in the Precontemplation stage; the pros and cons of drinking will be

equivalent for clients in the Contemplation stage; and the cons of drinking will outweigh the pros of drinking for clients in the Action stage.

As Figure 4 shows, the cons of drinking were higher than the pros of drinking during all 3 stages of change. There was no interaction between the pros and cons of drinking, but there was an interaction between the cons of drinking and the stage of change profiles with both the Contemplators and the Action clients reporting significantly higher scores than the Precontemplators. Therefore the null hypothesis was rejected.

Velicer et al. (1985) studied the pros and cons of smoking cessation. They found that the two decisional balance scale were among the best predictors of future behavior for Precontemplators and Contemplators but not for Action or Maintenance individuals. Prochaska et al. (1993) studied the decisional balance across 12 problem behaviors. They found that for all 12 problem behaviors, the cons of changing outweighed the pros for Precontemplators and that for 11 of the problem behaviors the pros of changing outweighed the cons in the Action stage. These results led them to predict that for most problem behaviors people will decide that the pros of changing the problem behavior outweigh the cons before they take action to change this behavior. They also concluded that effective treatment should focus on increasing the pros of change to clients in the Precontemplation stage to facilitate their progress to the Contemplation stage. Then, treatment should focus on decreasing the cons of change to lead the client into the Action stage.

This study contradicts earlier research in that the pros of drinking were lower than the cons of drinking for all 3 stages of change. This may indicate that court ordered/DUI clients are more aware of the cons of their drinking following their

interaction with the legal system for their DUI. The data support Prochaska's (1993) statement that public health policies such as taxes on tobacco or alcohol can increase the cons of drinking. It may also indicate that court ordered/DUI clients want to present themselves in a socially desirable manner by "faking good" and checking more cons of drinking at their first appointment at the mental health center than they ordinarily would have.

This study supports earlier research in that both the Contemplators and Action clients had significantly higher cons of drinking scores than the Precontemplators. This data also supports Prochaska et al.'s (1993) conclusion that increasing the cons of drinking (or what they call the pros of change) is correlated with increasing clients' readiness to change their problem behavior. However, the data do not support their prediction that decreasing the cons of change (or the pros of drinking) will lead the client into the Action stage.

This study suggests that treatment programs working with court ordered/DUI clients should probably plan that their clients will come to treatment already aware of some of the cons of their drinking. Thus, focusing treatment on increasing clients' awareness of the cons of their drinking is probably an appropriate and effective means of increasing clients' readiness to change their drinking which should not be met with a great deal of resistance. This study also suggests that counselors' spending time in treatment attempting to reduce clients' perceived pros of drinking would probably not be as effective a treatment approach.

Summary of Treatment Implications

Counselors working with court ordered/DUI clients can utilize the Transtheoretical model of change to provide effective treatment strategies in helping this population change their drinking. Although the majority of court ordered/DUI clients entering substance abuse treatment in this study were Precontemplators, almost two-thirds of them remained in treatment long enough to complete it successfully. Thus, counselors working with this population have the time and an opportunity to facilitate change.

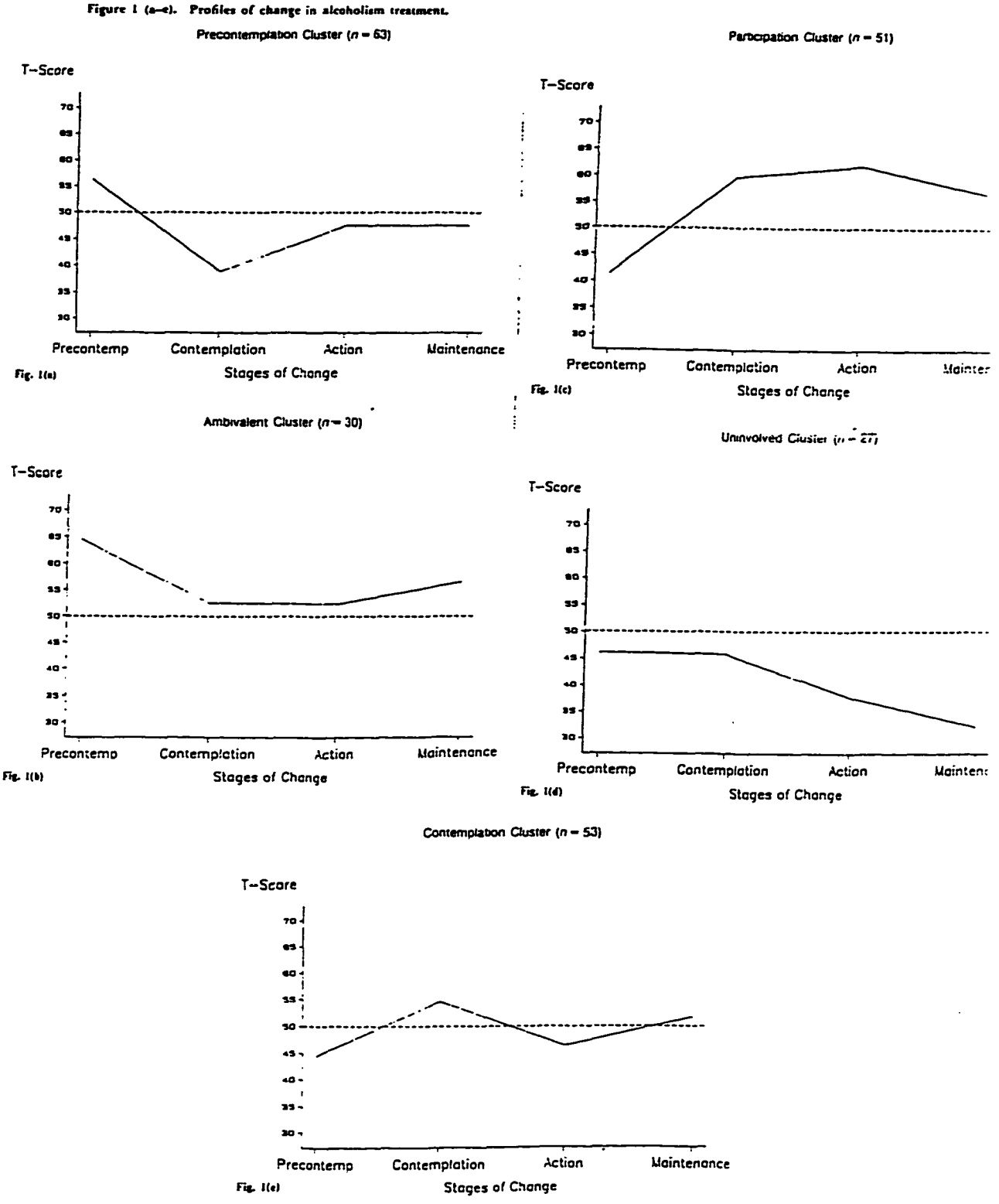
Treatment interventions which focus on moving this population of clients from Precontemplation to Contemplation will probably be the most successful. Groups should probably focus on helping court ordered/DUI clients acknowledge that an alcohol problem exists, increasing the cons of their drinking, and evaluating their self-regulation capacities by thinking through situations rather than impulsively coping with them. Court ordered/DUI clients will probably tend to respond better to group discussions on how changing their behavior by quitting drinking, attending AA, etc. will pacify the powerful others in their life - especially the court system - than to discussions on the importance of changing themselves.

Assuming other communities have similar demographics, counselors can also expect significantly more men than women to be court ordered/DUI clients. However, the women who are referred will probably be more likely to be aware that an alcohol problem exists, to be ready to change, and to be beginning to take some action on their drinking than their male court ordered/DUI clients. Their DUI will probably have had a greater impact on them than on the men and they may be experiencing a greater

amount of shame and embarrassment than the male court ordered/DUI clients. Counselors may want to refer their female clients to womens groups rather than coed groups. In these womens groups, female court ordered/DUI clients can focus more on seeking information on their drinking; reevaluating themselves and their drinking; evaluating the losses and rewards of changing; learning how to use counterconditioning, stimulus control, and reinforcement management to successfully change their drinking; and learning effective strategies to prevent relapse.

In conclusion, this study applied the Transtheoretical model of change to court ordered/DUI clients and found that this model has important treatment implications for counselors working with this population. It is important to continue to research how this model of change can be utilized to develop a more effective differential treatment model for court ordered/DUI clients.

APPENDIX A: Profiles of Change in Alcoholism Treatment



From "Stage of Change Profiles in Outpatient Alcoholism Treatment," by C.C. DiClemente & S.O. Hughes, 1990, Jour. of Subs. Abuse, 2, pps 224-226.

APPENDIX B: Client Survey Instruments

Colonial Mental Health and Mental Retardation Services

SERVING JAMES CITY AND YORK COUNTIES, POQUOSON AND WILLIAMSBURG

Dear Client:

I am the substance abuse counselor in Grafton and a graduate student at the College of William and Mary. As part of my school work, I am conducting a survey designed to improve our services to future clients. I would like to ask for your help in this project. By spending a few minutes to complete the enclosed questionnaire, you will be playing an important role in helping us to increase our understanding of how people who have been arrested for a DUI feel about their drinking. Your answers will be kept strictly confidential and will in no way affect your services at this agency. In fact, they will not even be scored until after you have completed your treatment here. If you begin answering the following questions and then decide you don't want to participate any further, you may stop at any time without any penalty. Should any of these questions cause you any distress, there is a counselor available to discuss this with you. If you have any questions or concerns about this survey, please call me at 898-7926. All questions and identifying data will be destroyed at the end of the survey. If you are interested, you may obtain a copy of the results at the end of the survey by simply checking the box below and indicating the address where you want these results to be sent. Again, your help is an important part of this survey and will be very much appreciated.

Sincerely,

Cindy Levy, LPC

Cindy Levy, LPC
SA Counselor

I agree to voluntarily participate in this survey. I have read and understand the above paragraph.

_____ _____

Name Date

_____

Witness

☐ I would like a copy of the results sent to:

_____

_____

Yorktown Office • 3804 George Washington Memorial Highway • Yorktown, Virginia 23692

Ph. (804) 898-7926 • Fax (804) 898-1505

Client Survey Instruments (Cont.)

CHANGE ASSESSMENT SCALE

SUBJECT NUMBER

This questionnaire is to help us improve services. Each statement describes how a person might feel when startir therapy or approaching problems in their lives. Please indicate the extent to which you tend to agree or disagree with eac statement. In each case, make your choice in terms of how you feel right now, not what you have felt in the past or wou like to feel. For all the statements that refer to your "problem," answer in terms of what you write on the "PROBLEM" lir below. And "here" refers to the place of treatment or the program.

There are FIVE possible responses to each of the items in the questionnaire:

1 - Strongly Disagree (SD)
2 - Disagree (D)
3 - Undecided (U)
4 - Agree (A)
5 - Strongly Agree (SA)

Darken the bubble that best describes how much you agree or disagree with each statement.

NAME _____

PROBLEM _____

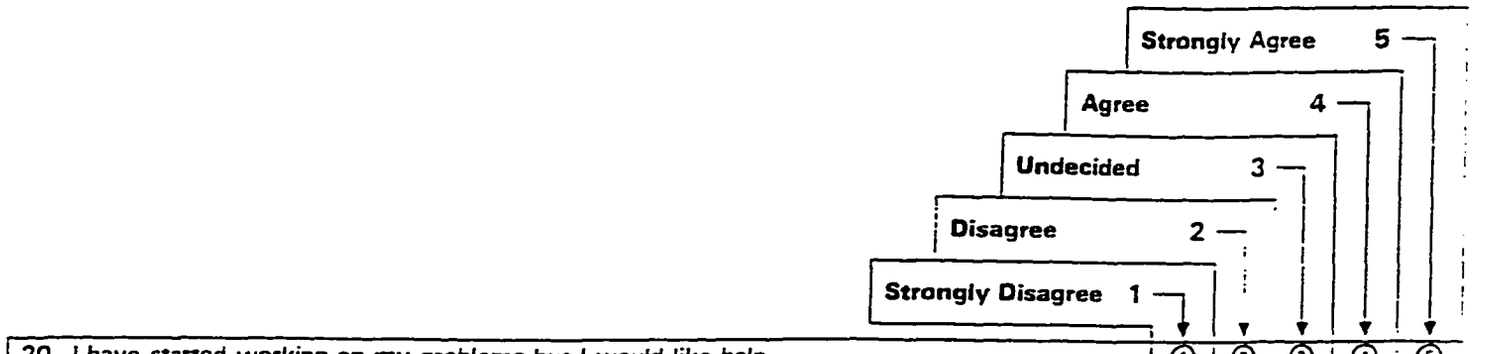
DATE _____

USE NO. 2 PENCIL ONLY

Strongly Agree 5
Agree 4
Undecided 3
Disagree 2
Strongly Disagree 1

1. As far as I'm concerned, I don't have any problems that need changing	①	②	③	④	⑤
2. I think I might be ready for some self-improvement	①	②	③	④	⑤
3. I am doing something about the problems that had been bothering me	①	②	③	④	⑤
4. It might be worthwhile to work on my problem	①	②	③	④	⑤
5. I'm not the problem one. It doesn't make much sense for me to be here	①	②	③	④	⑤
6. It worries me that I might slip back on a problem I have already changed, so I am here to seek help	①	②	③	④	⑤
7. I am finally doing some work on my problem	①	②	③	④	⑤
8. I've been thinking that I might want to change something about myself	①	②	③	④	⑤
9. I have been successful in working on my problem but I'm not sure I can keep up the effort on my own	①	②	③	④	⑤
10. At times my problem is difficult, but I'm working on it	①	②	③	④	⑤
11. Being here is pretty much of a waste of time for me because the problem doesn't have to do with me	①	②	③	④	⑤
12. I'm hoping this place will help me to better understand myself	①	②	③	④	⑤
13. I guess I have faults, but there's nothing that I really need to change	①	②	③	④	⑤
14. I am really working hard to change	①	②	③	④	⑤
15. I have a problem and I really think I should work on it	①	②	③	④	⑤
16. I'm not following through with what I had already changed as well as I had hoped, and I'm here to prevent a relapse of the problem	①	②	③	④	⑤
17. Even though I'm not always successful in changing, I am at least working on my problem	①	②	③	④	⑤
18. I thought once I had resolved the problem I would be free of it, but sometimes I still find myself struggling with it	①	②	③	④	⑤

Client Survey Instruments (Cont.)



20. I have started working on my problems but I would like help	1	2	3	4	5
21. Maybe this place will be able to help me	1	2	3	4	5
22. I may need a boost right now to help me maintain the changes I've already made	1	2	3	4	5
23. I may be part of the problem, but I don't really think I am	1	2	3	4	5
24. I hope that someone here will have some good advice for me	1	2	3	4	5
25. Anyone can talk about changing; I'm actually doing something about it	1	2	3	4	5
26. All this talk about psychology is boring. Why can't people just forget about their problems?	1	2	3	4	5
27. I'm here to prevent myself from having a relapse of my problem	1	2	3	4	5
28. It is frustrating, but I feel I might be having a recurrence of a problem I thought I had resolved	1	2	3	4	5
29. I have worries but so does the next guy. Why spend time thinking about them?	1	2	3	4	5
30. I am actively working on my problem	1	2	3	4	5
31. I would rather cope with my faults than try to change them	1	2	3	4	5
32. After all I had done to try and change my problem, every now and again it comes back to haunt me	1	2	3	4	5

Client Survey Instruments (Cont.)

Processes of Change Questionnaire

This questionnaire is designed to help us improve our services to clients of the TRIMS Alcohol Treatment Center. Each statement describes a situation or thought that a person might use to help them not drink. Please indicate how often you make use of a particular situation or thought to help you not drink at the present time.

There are FIVE possible responses to each of the items in the questionnaire:

1 = Never
2 = Seldom
3 = Occasionally
4 = Frequently
5 = Repeatedly

Please read each statement and circle the number in the right hand column that best describes how often you make use of a particular situation/thought to help you not drink right now.

Client Survey Instruments (Cont.)

Processees of Change Scale

Name: _____

Date: _____ (1-6) Patient ID #: _____ (7-12) CARD #: 1 (13)

_ _/_ _/_ _ (1-6)

_ _ _ _ _ _ (7-12)

1 (13)

	NEVER	SELDOM	OCCASIONALLY	FREQUENTLY	REPEATEDLY	
1. I keep things around my home or work that remind me not to drink.	1	2	3	4	5	____ (14)
2. I engage in some physical activity when I get the urge to drink.	1	2	3	4	5	____ (15)
3. I do something nice for myself for making efforts to change.	1	2	3	4	5	____ (16)
4. I can talk with at least one special person about my drinking experiences.	1	2	3	4	5	____ (17)
5. I get upset when I think about illnesses caused by drinking.	1	2	3	4	5	____ (18)
6. I tell myself that I can choose to change or not change.	1	2	3	4	5	____ (19)
7. I take some type of medication for my drinking problem.	1	2	3	4	5	____ (20)
8. I change personal relationships which contribute to my drinking.	1	2	3	4	5	____ (21)
9. I see signs in some public places trying to help people not drink.	1	2	3	4	5	____ (22)
0. I stop to think about how my drinking is hurting people around me.	1	2	3	4	5	____ (23)
. I consider that feeling good about myself includes changing my drinking behavior.	1	2	3	4	5	____ (24)
?. I think about information from television and radio on how to quit drinking.	1	2	3	4	5	____ (25)

Client Survey Instruments (Cont.)

TRIMS # _____ 2

	NEVER	SELDOM	OCCASIONALLY	FREQUENTLY	REPEATEDLY	
13. Someone in my life helps me to face my drinking problem.	1	2	3	4	5	____ (26)
14. I remove things from my home or work that remind me of drinking.	1	2	3	4	5	____ (27)
15. I calm myself when I get the urge to drink.	1	2	3	4	5	____ (28)
16. I reward myself when I don't give in to my urge to drink.	1	2	3	4	5	____ (29)
17. I have someone to talk with who understands my problems with drinking.	1	2	3	4	5	____ (30)
18. Warnings about the health hazards of drinking have an emotional effect on me.	1	2	3	4	5	____ (31)
19. I use will power to keep from drinking.	1	2	3	4	5	____ (32)
20. I take some type of drugs to help me not drink.	1	2	3	4	5	____ (33)
21. I avoid people who encourage drinking.	1	2	3	4	5	____ (34)
22. I notice that people with alcohol problems are making known their desire not to be pressed to drink.	1	2	3	4	5	____ (35)
23. I am considering the idea that people around me would be better off without my problem drinking.	1	2	3	4	5	____ (36)
24. I get upset with myself when I think about my problem drinking.	1	2	3	4	5	____ (37)
25. I read newspaper stories that may help me quit drinking.	1	2	3	4	5	____ (38)
26. Someone in my life lets me know about how my drinking is affecting me personally.	1	2	3	4	5	____ (39)
27. I avoid situations that encourage me to drink.	1	2	3	4	5	____ (40)

Client Survey Instruments (Cont.)

TRIMS # _____ 3

	NEVER	SELDOM	OCCASIONALLY	FREQUENTLY	REPEATEDLY	
28. I try to think about other things when I begin to think about drinking.	1	2	3	4	5	____ (41)
29. Others make life difficult for me when I drink.	1	2	3	4	5	____ (42)
30. I have someone who listens when I want to talk about my drinking.	1	2	3	4	5	____ (43)
31. Stories about alcohol and its effects upset me.	1	2	3	4	5	____ (44)
32. I make myself aware that I can choose to overcome my drinking if I want to.	1	2	3	4	5	____ (45)
33. I use tranquilizers to help me keep from drinking.	1	2	3	4	5	____ (46)
34. I avoid people who are heavy drinkers.	1	2	3	4	5	____ (47)
35. I find society changing in ways that make it easier for me to overcome my drinking problems.	1	2	3	4	5	____ (48)

Patient ID #: _____ (1-6) CARD # 2 (7)

_____ (1-6)

2 (7)

36. I have strong feelings about how much my drinking has hurt the people I care about.	1	2	3	4	5	____ (8)
37. I become disappointed with myself when I depend on alcohol.	1	2	3	4	5	____ (9)
38. I look for information related to problem drinking.	1	2	3	4	5	____ (10)

Client Survey Instruments (Cont.)

TRIMS # _____

4

	NEVER	SELDOM	OCCASIONALLY	FREQUENTLY	REPEATEDLY	
39. I have someone who tries to share their personal experiences of alcohol with me.	1	2	3	4	5	____ (11)
40. I use reminders to help me not to drink.	1	2	3	4	5	____ (12)
41. I do something else instead of drinking when I need to deal with tension.	1	2	3	4	5	____ (13)
42. I don't let myself have fun when I drink.	1	2	3	4	5	____ (14)
43. I have someone whom I can count on to help me when I'm having problems with drinking.	1	2	3	4	5	____ (15)
44. I read newspaper stories that can affect me emotionally about my drinking.	1	2	3	4	5	____ (16)
45. I tell myself that if I try hard enough I can keep from drinking.	1	2	3	4	5	____ (17)
46. I take antabuse to help me not drink.	1	2	3	4	5	____ (18)
47. I leave places where people are drinking.	1	2	3	4	5	____ (19)
48. I seek out social situations where people respect the rights of others to not drink.	1	2	3	4	5	____ (20)
49. I stop and think that my drinking is causing problems for other people.	1	2	3	4	5	____ (21)
50. I feel more competent when I decide not to drink.	1	2	3	4	5	____ (22)
51. I seek out groups of people who can increase my awareness about the problems of drinking.	1	2	3	4	5	____ (23)
52. I have someone who helps me "see through" my excuses for drinking.	1	2	3	4	5	____ (24)
53. I stay away from places generally associated with my drinking.	1	2	3	4	5	____ (25)

Client Survey Instruments (Cont.)

TRIMS # _____

5

	NEVER	SELDOM	OCCASIONALLY	FREQUENTLY	REPEATEDLY	
54. I find that doing things is a good substitute for drinking.	1	2	3	4	5	____ (26)
55. I spend time with people who reward me for not drinking.	1	2	3	4	5	____ (27)
56. Someone in my life tries to make me feel good when I don't drink.	1	2	3	4	5	____ (28)
57. I attend meetings that help me express how emotionally destructive drinking has been in my life.	1	2	3	4	5	____ (29)
58. I make commitments to myself not to drink.	1	2	3	4	5	____ (30)
59. I change my diet to help me overcome drinking.	1	2	3	4	5	____ (31)
60. I go places where drinking is not generally accepted.	1	2	3	4	5	____ (32)
61. I see advertisements on television about how society is trying to help people not drink.	1	2	3	4	5	____ (33)
62. I stop and think that drinking and driving causes many problems for other people.	1	2	3	4	5	____ (34)
63. I think about the type of person I will be if I am in control of my drinking.	1	2	3	4	5	____ (35)
64. I think about information that people have personally given me on the benefits of quitting drinking.	1	2	3	4	5	____ (36)
65. My physical reactions to alcohol help me to realize that alcohol is a problem for me.	1	2	3	4	5	____ (37)

Client Survey Instruments (Cont.)

0031T-10

4/4/91

ALCOHOL ABSTINENCE SELF-EFFICACY SCALE

AASE

___DE ___V

Client ID ___/___/___/___/___/___/___

CRU ___/___/

DATE ___/___/___/___/___/___

Session ___ (0-baseline; 1-3 MoFU; 3-9 MoFU; 5-15 MoFU)

LOCATION ___ (1-onsite; 2-offsite)

LISTED BELOW ARE A NUMBER OF SITUATIONS THAT LEAD SOME PEOPLE TO DRINK. WE WOULD FIRST LIKE TO KNOW:

1. HOW TEMPTED YOU MAY BE TO DRINK IN EACH SITUATION.

CIRCLE THE NUMBER IN EACH COLUMN THAT BEST DESCRIBES THE FEELINGS OF TEMPTATION IN EACH SITUATION AT THE PRESENT TIME ACCORDING TO THE FOLLOWING SCALE:

1 - Not at all tempted
2 - Not very tempted
3 - Moderately tempted
4 - Very tempted
5 - Extremely tempted

SITUATION	TEMPTED				
	NOT AT ALL	NOT VERY	MODER-ATELY	VERY	EXTREMELY
1. When I am in agony because of stopping or withdrawing from alcohol use	1	2	3	4	5
2. When I have a headache	1	2	3	4	5
3. When I am feeling depressed	1	2	3	4	5
4. When I am on vacation and want to relax	1	2	3	4	5
5. When I am concerned about someone	1	2	3	4	5
6. When I am very worried	1	2	3	4	5
7. When I have the urge to try just one drink to see what happens	1	2	3	4	5

Client Survey Instruments (Cont.)

SITUATION	TEMPTED				
	NOT AT ALL	NOT VERY	MODER-ATELY	VERY	EXTREMELY
8. When I am being offered a drink in a social situation	1	2	3	4	5
9. When I dream about taking a drink	1	2	3	4	5
10. When I want to test my willpower over drinking	1	2	3	4	5
11. When I am feeling a physical need or craving for alcohol	1	2	3	4	5
12. When I am physically tired	1	2	3	4	5
13. When I am experiencing some physical pain or injury	1	2	3	4	5
14. When I feel like blowing up because of frustration	1	2	3	4	5
15. When I see others drinking at a bar or at a party	1	2	3	4	5
16. When I sense everything is going wrong for me	1	2	3	4	5
17. When people I used to drink with encourage me to drink	1	2	3	4	5
18. When I am feeling angry inside	1	2	3	4	5
19. When I experience an urge or impulse to take a drink that catches me unprepared	1	2	3	4	5
20. When I am excited or celebrating with others	1	2	3	4	5

Client Survey Instruments (Cont.)

ɔɔɜIT-II

4/4/91

ALCOHOL ABSTINENCE SELF-EFFICACY SCALE

AASE

___DE ___V

Client ID ___/___/___/___/___/___/___

CRU ___/___/

DATE ___/___/___/___/___/___

Session ___ (0-baseline; 1-3 MoFU; 3-9 MoFU; 5-15 MoFU)

LOCATION ___ (1-onsite; 2-offsite)

LISTED BELOW ARE A NUMBER OF SITUATIONS THAT LEAD SOME PEOPLE TO DRINK. WE WOULD FIRST LIKE TO KNOW:

2. HOW CONFIDENT ARE YOU THAT YOU WOULD NOT DRINK IN EACH SITUATION.

CIRCLE THE NUMBER IN THE COLUMN THAT BEST DESCRIBES THE FEELING OF CONFIDENCE IN EACH SITUATION AT THE PRESENT TIME ACCORDING TO THE FOLLOWING SCALE:

1 - Not at all confident
2 - Not very confident
3 - Moderately confident
4 - Very confident
5 - Extremely confident

At the present time, how confident are you that you would not drink in each of these situations?

SITUATION	CONFIDENCE				
	NOT AT ALL	NOT VERY	MODER-ATELY	VERY	EXTREMELY
1. When I am in agony because of stopping or withdrawing from alcohol use	1	2	3	4	5
2. When I have a headache	1	2	3	4	5
3. When I am feeling depressed	1	2	3	4	5
4. When I am on vacation and want to relax	1	2	3	4	5
5. When I am concerned about someone	1	2	3	4	5
6. When I am very worried	1	2	3	4	5
7. When I have the urge to try just one drink to see what happens	1	2	3	4	5

Client Survey Instruments (Cont.)

SITUATION	CONFIDENCE				
	NOT AT ALL	NOT VERY	MODER-ATELY	VERY	EXTREMELY
8. When I am being offered a drink in a social situation	1	2	3	4	5
9. When I dream about taking a drink	1	2	3	4	5
10. When I want to test my willpower over drinking	1	2	3	4	5
11. When I am feeling a physical need or craving for alcohol	1	2	3	4	5
12. When I am physically tired	1	2	3	4	5
13. When I am experiencing some physical pain or injury	1	2	3	4	5
14. When I feel like blowing up because of frustration	1	2	3	4	5
15. When I see others drinking at a bar or at a party	1	2	3	4	5
16. When I sense everything is going wrong for me	1	2	3	4	5
17. When people I used to drink with encourage me to drink	1	2	3	4	5
18. When I am feeling angry inside	1	2	3	4	5
19. When I experience an urge or impulse to take a drink that catches me unprepared	1	2	3	4	5
20. When I am excited or celebrating with others	1	2	3	4	5

Client Survey Instruments (Cont.)

Decisional Balance

Name: _____

Date: _____ (1-6) __/__/__

Patient ID #: _____ (7-12) _____

Please rate how important each of the following statements is to you at the present time. Please answer every question by marking an "X" in the appropriate box.

1 = Not Important
2 = Slightly Important
3 = Moderately Important
4 = Very Important
5 = Extremely Important

HOW IMPORTANT IS THIS TO ME	NOT	SLIGHTLY	MODERATELY	VERY	EXTREMELY	
1. Drinking relaxes me	1	2	3	4	5	___ (1
2. Drinking is bad for my health	1	2	3	4	5	___ (1
3. I am more pleasant to be around when I'm drinking	1	2	3	4	5	___ (1
4. My drinking causes problems with others	1	2	3	4	5	___ (1
5. I like myself better when I am drinking	1	2	3	4	5	___ (1
6. I'm foolish to ignore the warnings about the problems caused by alcohol	1	2	3	4	5	___ (1
7. Being able to hold your liquor is a tradition in my family	1	2	3	4	5	___ (1
8. Because I continue to drink, some people think I lack the character to quit	1	2	3	4	5	___ (2
9. Drinking helps me deal with problems	1	2	3	4	5	___ (2
10. I often wake up feeling "hungover" and sick	1	2	3	4	5	___ (2
11. If I try to stop drinking, I'll probably be irritable and a pain to be around	1	2	3	4	5	___ (2

Client Survey Instruments (Cont.)

1 = Not Important
2 = Slightly Important
3 = Moderately Important
4 = Very Important
5 = Extremely Important

HOW IMPORTANT IS THIS TO ME	NOT	SLIGHTLY	MODERATELY	VERY	EXTREMELY	
12. People close to me would suffer if I became ill from drinking	1	2	3	4	5	___ (24)
13. By continuing to drink, I feel I am making my own decisions	1	2	3	4	5	___ (25)
14. Having to lie to others about my drinking bothers me	1	2	3	4	5	___ (26)
15. I would lose my friends if I stopped drinking	1	2	3	4	5	___ (27)
16. Some people try to avoid me when I drink	1	2	3	4	5	___ (28)
17. Drinking helps me to have fun and socialize	1	2	3	4	5	___ (29)
18. Drinking interferes with my functioning at home and at work	1	2	3	4	5	___ (30)
19. When I drink I get less angry and frustrated with others	1	2	3	4	5	___ (31)
20. I seem to argue and fight more if I'm drinking	1	2	3	4	5	___ (32)
21. Drinking makes me more of a fun person	1	2	3	4	5	___ (33)
22. I feel like I'm a slave to alcohol	1	2	3	4	5	___ (34)
23. I feel like one of the gang if I drink along with everybody else	1	2	3	4	5	___ (35)
24. Some people close to me are disappointed in me because of my drinking habit	1	2	3	4	5	___ (36)
25. Drinking helps me to loosen up and express myself	1	2	3	4	5	___ (37)
26. I seem to get myself into trouble when drinking	1	2	3	4	5	___ (38)
27. Things seem to go better at home and at work when I'm drinking	1	2	3	4	5	___ (39)

Client Survey Instruments (Cont.)

1 = Not Important
2 = Slightly Important
3 = Moderately Important
4 = Very Important
5 = Extremely Important

HOW IMPORTANT IS THIS TO ME	NOT	SLIGHTLY	MODERATELY	VERY	EXTREMELY	
28. I could accidently hurt someone because of my drinking	1	2	3	4	5	___ (40)
29. I feel I am in control of my drinking	1	2	3	4	5	___ (41)
30. I'm embarrassed that I drink too much	1	2	3	4	5	___ (42)
31. Not drinking at a social gathering would make me feel too different	1	2	3	4	5	___ (43)
32. I am losing the trust and respect of my coworkers and/or spouse because of my drinking	1	2	3	4	5	___ (44)

APPENDIX C: Dissertation Data Sheet and Scoring Keys

Raw scores on all 4 survey instruments were transferred to the appropriate categories on the scoring keys. Results were then added and recorded on the Dissertation Data Sheet. Missing items were replaced by interpolation of available data from that category for each client unless more than half of the items within that category were missing. In that case, no score was entered.

URICA SCALE PROFILE - ALCOHOLIC SAMPLE

T-Scores are based on an alcoholic outpatient sample with a 7 item scale, omitting the items marked.

NAME:_____ DATE:___ ___/___ ___/___ ___

PRECONTEMPLATION	CONTEMPLATION	ACTION	MAINTENANCE
1._____	2._____	3._____	6._____
5._____	4. Omit	7._____	9. Omit
11._____	8._____	10._____	16._____
13._____	12._____	14._____	18._____
23._____	15._____	17._____	22._____
26._____	19._____	20. Omit	27._____
29._____	21._____	25._____	28._____
31. Omit	24._____	30._____	32._____
TOTALS _____	_____	_____	_____

Please circle the number in each column corresponding to the total scale score and connect with lines for Stage of Change profile

T-Scores	Pre-Cont.	Cont.	Action	Maintenance
100	30-35			
95	29-30			
90	27-28			
85	25-26			
80	23-24			
75	21-22			
70	19-20		35	35
65	17-18		33-34	33-34
60	15-16	34-35	31-32	31-32
55	13-14	33	29-30	28-29-30
50	11-12	31-32	27-28	26-27
45	09-10	30	25-26	23-24-25
40	07-08	28-29	23-24	21-22
35		27	21-22	18-19-20
30		25-26	19-20	16-17
25		24	17-18	13-14-15
20		22-23	15-16	11-12
15		21	13-14	08-09-10
10		19-20	11-12	07
05		18	09-10	
00		16-17	07-08	
-05		15		
-10		13-14		
-15		07-12		

ALCOHOL PROCESSES OF CHANGE SCALE
SCORING SHEET

STIMULUS CONTROL	DRAMATIC RELIEF
1	5
14	18
27	31
40	44
53	57

COUNTER CONDITIONING	SELF-LIBERATION
2	6
15	19
28	32
41	45
54	58

CONTINGENCY MANAGEMENT	PHYSICAL INTERVENTIONS
3	7
16	20
29	33
42	46
55	59

HELPING RELATIONSHIP	INTERPERSONAL SYSTEM/CONTROL STIMULUS
4	8
17	21
30	34
43	47
56	60

SOCIAL LIBERATION	FEEDBACK
9	13
22	26
35	39
48	52
61	65

ENVIRONMENTAL REEVALUATION	SELF-REEVALUATION
10	11
23	24
36	37
49	50
62	63

CONSCIOUSNESS RAISING
12
25
38
51
64

ALCOHOL ABSTINENCE SELF-EFFICACY (AASE)

NEGATIVE AFFECT

18. When I am feeling angry inside

16. When I sense everything is going wrong for me

3. When I am feeling depressed

14. When I feel like blowing up because of frustration

6. When I am very worried

SOCIAL/POSITIVE

15. When I see others drinking at a bar or at a party

20. When I am excited or celebrating with others

4. When I am on vacation and want to relax

17. When people I used to drink with encourage me to drink

8. When I am being offered a drink in a social situation

PHYSICAL AND OTHER CONCERNS

2. When I have a headache

12. When I am physically tired

5. When I am concerned about someone

13. When I am experiencing some physical pain or injury

9. When I dream about taking a drink

CRAVING AND URGES

1. When I am in agony because of stopping or withdrawing from alcohol use

7. When I have the urge to try just one drink to see what happens

11. When I am feeling a physical need or craving for alcohol

10. When I want to test my willpower over drinking

19. When I experience an urge or impulse to take a drink that catches me unprepared.

DECISIONAL BALANCE - ALCOHOL

	Pros		Cons	
Utility To Self	1. _____		2. _____	
	9. _____		10. _____	
	17. _____		18. _____	
	25. _____		26. _____	
	TOTAL	_____		TOTAL _____
Utility To Others	3. _____		4. _____	
	11. _____		12. _____	
	19. _____		20. _____	
	27. _____		28. _____	
	TOTAL	_____		TOTAL _____
Self-Approval	5. _____		6. _____	
	13. _____		14. _____	
	21. _____		22. _____	
	29. _____		30. _____	
	TOTAL	_____		TOTAL _____
Other's Approval	7. _____		8. _____	
	15. _____		16. _____	
	23. _____		24. _____	
	31. _____		32. _____	
	TOTAL	_____		TOTAL _____

TOTAL PROS: _____ TOTAL CONS: _____

Dissertation Data Sheet

1. Client Number _____ Date _____

   Sex _____ Age _____

   Race/Ethnic Group _____ Marital Status _____

   Highest level of education completed _____

   Client Income _____ Household Income _____

_____complete above at intake_____

3. URICA (SOC) _____ RTC_____

4. Processes of Change Questionnaire: RTCT_____

   Consciousness raising (CR) ___
   Self-reevaluation (SR) _____
   Self-liberation (SL) _____
   Counterconditioning (CC) _____
   Stimulus control (SC) _____
   Reinforcement management (RM) _____
   Helping relationships (HR) _____
   Dramatic relief (DR) _____
   Environmental reevaluation (ER) _____
   Social liberation (OL) _____

5. Alcohol Abstinence Self-Efficacy Scale:

   Temptation (TEM) _____

   Self-efficacy (SE) _____

6. Decisional Balance Measure for Alcohol:

   Pros of drinking (PRO) _____

   Cons of drinking (CON) _____

7. Discharge Summary:

   # of treatment sessions attended (#SE) _____

   Completed treatment (DIS) _____

   Group Counselor (GC) _____

_____complete above at discharge _____

APPENDIX D:

Demographic Analysis

Chi-Square Stage of Change by Gender

```
RECODE SOC (4=2).
CROSSTABS/TABLES=SOC BY SEX/STATISTICS=CHISQ.
SOC  by  SEX
```

Count	SEX Women	Men	Row Total
SOC			
Precontemplation	15	99	114
			76.0
Contemplation	6	11	17
			11.3
Action	7	12	19
			12.7
Column Total	28	122	150
	18.7	81.3	100.0

Chi-Square	Value	DF	Significance
Pearson	9.50857	2	.00861
Likelihood Ratio	8.54536	2	.01394
Mantel-Haenszel test for linear association	8.51045	1	.00353
Minimum Expected Frequency -	3.173		
Cells with Expected Frequency < 5 -		2 OF	6 (33.3%)

Number of Missing Observations: 0

Chi-Square Precontemplation and Contemplation

Stages of Change by Gender

```
RECODE SOC (4=2).
CROSSTABS /VARIABLES=SOC (1,2) SEX (1,2) /TABLES=SOC BY SEX
/STATISTICS=CHISQ.
SOC  by  SEX
```

Count	SEX Women	Men	Row Total
SOC			
Precontemplation	15	99	114
			87.0
Contemplation	6	11	17
			13.0
Column Total	21	110	131
	16.0	84.0	100.0

Chi-Square	Value	DF	Significance
Pearson	5.38543	1	.02031
Continuity Correction	3.86647	1	.04926
Likelihood Ratio	4.47363	1	.03442
Mantel-Haenszel test for linear association	5.34432	1	.02079
Fisher's Exact Test:			
One-Tail			.00000
Two-Tail			.00000

Minimum Expected Frequency - 2.725
Cells with Expected Frequency < 5 - 1 OF 4 (25.0%)

Number of Missing Observations: 19

Chi-Square Contemplation and Action Stages of Change

by Gender

```
CROSSTABS /VARIABLES=SOC (2,3) SEX (1,2) /TABLES=SOC BY SEX
/STATISTICS=CHISQ.
SOC  by  SEX
```

Count	SEX		
	Women	Men	Row Total
SOC			
Contemplation	6	11	17
			47.2
Action	7	12	19
			52.8
Column Total	13	23	36
	36.1	63.9	100.0

Chi-Square	Value	DF	Significance
Pearson	.00932	1	.92310
Continuity Correction	.00000	1	1.00000
Likelihood Ratio	.00932	1	.92308
Mantel-Haenszel test for linear association	.00906	1	.92417

Minimum Expected Frequency - 6.139

Number of Missing Observations: 114

Chi-Square Precontemplation and Action Stages of Change by Gender

```
RECODE SOC (2=4).
CROSSTABS /VARIABLES=SOC (1,3) SEX (1,2) /TABLES SOC BY SEX
/STATISTICS=CHISQ.
SOC  by  SEX
```

Count	SEX Women	Men	Row Total
SOC Precontemplation	15	99	114 85.7
Action	7	12	19 14.3
Column Total	22 16.5	111 83.5	133 100.0

Chi-Square	Value	DF	Significance
Pearson	6.61732	1	.01010
Continuity Correction	5.01292	1	.02516
Likelihood Ratio	5.52509	1	.01875
Mantel-Haenszel test for linear association	6.56757	1	.01039
Fisher's Exact Test:			
One-Tail			7.2E+286
Two-Tail			7.2E+286

Minimum Expected Frequency - 3.143
Cells with Expected Frequency < 5 - 1 OF 4 (25.0%)

Number of Missing Observations: 17

Chi-Square Stage of Change by Ethnicity

```
RECODE SOC (4=2).
CROSSTABS /TABLES = SOC BY RACE /STATISTICS = CHISQ.
```

SOC by RACE

Count	RACE: Native American	African American	Hispanic American	Caucasian	Row Total
SOC					
Precontemplation	1	21		92	114 76.0
Contemplation		5		12	17 11.3
Action		3	1	15	19 12.7
Column Total	1 .7	29 19.3	1 .7	119 79.3	150 100.0

Chi-Square	Value	DF	Significance
Pearson	8.46733	6	.20582
Likelihood Ratio	5.82921	6	.44259
Mantel-Haenszel test for linear association	.01555	1	.90075

Minimum Expected Frequency - .113
Cells with Expected Frequency < 5 - 8 OF 12 (66.7%)

Number of Missing Observations: 0

Chi-Square Stage of Change by Highest Level of Education Completed

```
RECODE SOC (4=2).
COMPUTE INCED = ED.
RECODE INCED (LOW THRU 8=1) (9 THRU 11=2) (12=3) (13 THRU HI=4).
CROSSTABS /TABLES = SOC BY INCED /STATISTICS=CHISQ.
```

SOC by INCED

Count	INCED 6th-8th grade	9th-11th grade	12th grade	13 or higher	Row Total
SOC Precontemplation	9	19	63	23	114 76.0
Contemplation		2	10	5	17 11.3
Action	1	4	10	4	19 12.7
Column Total	10 6.7	25 16.7	83 55.3	32 21.3	150 100.0

Chi-Square	Value	DF	Significance
Pearson	2.56675	6	.86092
Likelihood Ratio	3.64679	6	.72435
Mantel-Haenszel test for linear association	.30274	1	.58217

Minimum Expected Frequency - 1.133
Cells with Expected Frequency < 5 - 6 OF 12 (50.0%)

Number of Missing Observations: 0

Chi-Square Stage of Change by Marital Status

```
RECODE SOC (4=2).
CROSSTABS /TABLES = SOC BY MAR /STATISTICS = CHISQ.
```

SOC by MAR

Count	MAR					Row
	Single	Married	Separatd	Divorced	Widowed	Total
Prec.	43	28	17	24	2	114
						76.0
Cont.	6	3	3	5		17
						11.3
Action	5	6	4	4		19
						12.7
Column	54	37	24	33	2	150
Total	36.0	24.7	16.0	22.0	1.3	100.0

Chi-Square	Value	DF	Significance
Pearson	2.82568	8	.94482
Likelihood Ratio	3.28266	8	.91539
Mantel-Haenszel test for linear association	.29669	1	.58597

Minimum Expected Frequency - .227
Cells with Expected Frequency < 5 - 9 OF 15 (60.0%)

Number of Missing Observations: 0

Analysis of Variance

Stage of Change by Age

```
RECODE SOC (4=2).
ONEWAY /VARIABLES AGE BY SOC (1,3)
 /STATISTICS 3.
```

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	107.9398	53.9699	.5221	.5944
Within Groups	147	15194.7002	103.3653		
Total	149	15302.6400			

Analysis of Variance

Stage of Change by Personal Income

```
RECODE SOC (4=2).
ONEWAY INC BY SOC (1,3)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	1366298870	683149434.8	3.9836	.0207
Within Groups	147	25208874067	171488939.2		
Total	149	26575172936			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec	114	18702.46	13501.04	1264.49	16197.29-21207.64
Cont	17	9187.53	7106.40	1723.56	5533.75-12841.30
Action	19	16193.32	14536.22	3334.84	9187.08-23199.55
Total	150	17306.28	13355.03	1090.43	15151.57-19460.99

Group	Minimum	Maximum
Precontemplation (Grp 1)	.0000	73632.0000
Contemplation (Grp 2)	.0000	22880.0000
Action (Grp 3)	.0000	46000.0000
Total	.0000	73632.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 2	Grp 3	Grp 1
9187.5294	Grp 2			
16193.3158	Grp 3			
18702.4649	Grp 1	*		

Analysis of Variance

Stage of Change by Household Income

```
recode soc (4=2).
oneway hin by soc (1,3)
 /ranges=snk
 /statistics=1,3.
```

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	2153368337	1076684168	3.8660	.0231
Within Groups	147	40939523298	278500158.5		
Total	149	43092891635			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	114	21310.27	17775.31	1664.81	18011.98-24608.56
Cont.	17	9370.59	6972.81	1691.16	5785.50-12955.68
Action	19	18124.89	15737.32	3610.39	10539.75-25710.04
Total	150	19553.63	17006.29	1388.56	16809.82-22297.44

Group	Minimum	Maximum
Precontemplation (Grp 1)	.0000	110000.0000
Contemplation (Grp 2)	.0000	22880.0000
Action (Grp 3)	.0000	46000.0000
Total	.0000	110000.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 2	Grp 3	Grp 1
9370.5882	Grp 2			
18124.8947	Grp 3			
21310.2719	Grp 1	*		

APPENDIX E

Agency and Counselor Analysis

MANOVA Agency by Stages of Change, Readiness to Change, Processes of Change, Self-Efficacy, and Decisional Balance

EFFECT .. AG
Multivariate Tests of Significance (S = 2, M = 7 , N = 52 1/2)

Test Name	Value	Approx. F	Hypoth. DF	Error DF	Sig. of F
Pillais	.23224	.83463	34.00	216.00	.730
Hotellings	.26391	.82278	34.00	212.00	.747
Wilks	.78084	.82872	34.00	214.00	.738
Roys	.13611				

Note.. F statistic for WILKS' Lambda is exact.

- -

Univariate F-tests with (2,123) D. F.

Variable	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F	Sig. of F
CC	62.907	3131.450	31.454	25.459	1.235	.294
CON	121.050	28150.823	60.525	228.868	.264	.768
CR	31.183	2719.642	15.591	22.111	.705	.496
DR	36.656	2346.558	18.328	19.078	.961	.385
ER	58.566	3376.426	29.283	27.451	1.067	.347
HR	90.538	4378.669	45.269	35.599	1.272	.284
PRO	153.893	12425.599	76.947	101.021	.762	.469
RM	18.724	2140.578	9.362	17.403	.538	.585
RTC	19.484	693.080	9.742	5.635	1.729	.182
RTCT	6613.980	213132.846	3306.990	1732.787	1.909	.153
SC	40.011	2783.481	20.005	22.630	.884	.416
SE	706.757	65022.354	353.379	528.637	.668	.514
SL	37.705	3284.334	18.853	26.702	.706	.496
SOC	.032	61.436	.016	.499	.032	.969
SOL	55.810	1903.682	27.905	15.477	1.803	.169
SR	85.725	3842.981	42.863	31.244	1.372	.257
TEM	290.708	24544.720	145.354	199.551	.728	.485

- -

Analysis of Variance

Agency By Number of Sessions Attended

```
ONEWAY SES BY AG (1,4)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	1969.6170	656.5390	4.2883	.0062
Within Groups	146	22352.6763	153.1005		
Total	149	24322.2933			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 1	73	16.2466	8.8298	1.0335	14.1864-18.3067
Grp 2	17	25.8235	28.5202	6.9172	11.1598-40.4873
Grp 3	59	14.5424	8.0136	1.0433	12.4540-16.6307
Grp 4	1	33.0000			
Total	150	16.7733	12.7764	1.0432	4.7120-18.8347

Group	Minimum	Maximum
Grp 1 - Colonial CSB	1.0000	57.0000
Grp 2 - Peninsula AS	1.0000	93.0000
Grp 3 - Middle Pen/NN CSB	1.0000	51.0000
Grp 4 - Portsmouth CSB	33.0000	33.0000
Total	1.0000	93.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 3	Grp 1	Grp 2	Grp 4
14.5424	Grp 3				
16.2466	Grp 1				
25.8235	Grp 2	*	*		
33.0000	Grp 4				

Analysis of Variance

Agency By Number of Sessions Attended

Without Outliers

```
ONEWAY SES BY AG (1,4)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	438.4473	146.1491	1.9481	.1245
Within Groups	143	10727.9200	75.0204		
Total	146	11166.3673			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 1	73	16.2466	8.8298	1.0335	14.1864-18.3067
Grp 2	14	13.8571	10.3393	2.7633	7.8874-19.8269
Grp 3	59	14.5424	8.0136	1.0433	12.4540-16.6307
Grp 4	1	33.0000			
Total	147	15.4490	8.7454	.7213	14.0234-16.8745

Group	Minimum	Maximum
Grp 1 - Colonial CSB	1.0000	57.0000
Grp 2 - Peninsula AS	1.0000	27.0000
Grp 3 - Middle Pen/NN CSB	1.0000	51.0000
Grp 4 - Portsmouth CSB	33.0000	33.0000
Total	1.0000	57.0000

Chi-Square

Agency By Discharge Status

```
CROSSTABS /TABLES=AG BY DISC /STATISTICS=CHISQ.
```

Count	DISC			
AG	Succes-ful	Unsuc-cessful	Moved Away	Row Total
Colonial Community Services Board	45	24	4	73 48.7
Peninsula Alcoholism Services	11	6		17 11.3
Middle Peninsula/ Northern Neck Counseling Centers	39	18	2	59 39.3
Portsmouth Com. Services Bd.	1			1 .7
Column Total	96 64.0	48 32.0	6 4.0	150 100.0

Chi-Square	Value	DF	Significance
Pearson	1.91843	6	.92705
Likelihood Ratio	2.88873	6	.82268
Mantel-Haenszel test for linear association	.62157	1	.43047

Minimum Expected Frequency - .040
Cells with Expected Frequency < 5 - 6 OF 12 (50.0%)

Number of Missing Observations: 0

MANOVA Group Counselor by Stages of Change,

Readiness to Change, Processes of Change,

Self-Efficacy, and Decisional Balance

EFFECT .. GC
Multivariate Tests of Significance (S=4, M = 6, N = 40 1/2)

Test Name	Value	Approx. F	Hypoth. DF	Error DF	Sig. of F
Pillais	.89983	1.46834	68.00	344.00	.015
Hotellings	1.24828	1.49610	68.00	326.00	.012
Wilks	.34912	1.48367	68.00	328.03	.013
Roys	.36521				

EFFECT .. GC (Cont.)
Univariate F-tests with (4,99) D. F.

Variable	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F	Sig. of F
CC	122.028	2419.626	30.507	24.441	1.248	.296
CON	1334.584	22122.801	333.646	223.463	1.493	.210
CR	184.716	1963.505	46.179	19.833	2.328	.061
DR	176.652	1761.261	44.163	17.791	2.482	.049
ER	342.578	2667.076	85.645	26.940	3.179	.017
HR	481.738	3139.916	120.434	31.716	3.797	.006
PRO	559.371	10074.475	139.843	101.762	1.374	.248
RM	54.741	1830.797	13.685	18.493	.740	.567
RTC	83.348	522.580	20.837	5.279	3.947	.005
RTCT	21260.076	167515.886	5315.019	1692.080	3.141	.018
SC	144.932	2182.414	36.233	22.045	1.644	.169
SE	2190.110	48841.390	547.527	493.347	1.110	.356
SL	288.038	2626.798	72.010	26.533	2.714	.034
SOC	6.824	38.715	1.706	.391	4.362	.003
SOL	23.282	1558.247	5.820	15.740	.370	.830
SR	320.093	3093.253	80.023	31.245	2.561	.043
TEM	911.789	20089.432	227.947	202.924	1.123	.350

Analysis of Variance

Group Counselor by Stage of Change

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	6.8237	1.7059	4.3624	.0027
Within Groups	99	38.7147	.3911		
Total	103	45.5385			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 1	49	1.3469	.5969	.0853	1.1755-1.5184
Grp 2	11	1.4545	.8202	.2473	.9035-2.0056
Grp 3	32	1.0938	.3902	.0690	.9531-1.2344
Grp 4	6	2.1667	.9832	.4014	1.1349-3.1984
Grp 5	6	1.6667	1.0328	.4216	.5828-2.7505
Total	104	1.3462	.6649	.0652	1.2168-1.4755

Group	Minimum	Maximum
Grp 1	1.0000	3.0000
Grp 2	1.0000	3.0000
Grp 3	1.0000	3.0000
Grp 4	1.0000	3.0000
Grp 5	1.0000	3.0000
Total	1.0000	3.0000

Student-Newman-Keuls Procedure
(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 3	Grp 1	Grp 2	Grp 5	Grp 4
1.0938	Grp 3					
1.3469	Grp 1					
1.4545	Grp 2					
1.6667	Grp 5					
2.1667	Grp 4	*	*			

Analysis of Variance

Group Counselor by Readiness to Change

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	83.3485	20.8371	3.9475	.0051
Within Groups	99	522.5803	5.2786		
Total	103	605.9288			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 1	49	8.5522	2.1562	.3080	7.9329- 9.1716
Grp 2	11	7.6127	2.9941	.9028	5.6012- 9.6242
Grp 3	32	6.9234	2.0900	.3695	6.1699- 7.6770
Grp 4	6	10.2150	2.2967	.9376	7.8048-12.6252
Grp 5	6	7.8033	3.0978	1.2647	4.5525-11.0542
Total	104	8.0044	2.4254	.2378	7.5327- 8.4761

Group	Minimum	Maximum
Grp 1	2.2800	13.4300
Grp 2	2.4400	11.1700
Grp 3	1.1400	9.8100
Grp 4	7.1400	13.7200
Grp 5	3.8500	11.5800
Total	1.1400	13.7200

Student-Newman-Keuls Procedure
(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 3	Grp 2	Grp 5	Grp 1	Grp 4
6.9234	Grp 3					
7.6127	Grp 2					
7.8033	Grp 5					
8.5522	Grp 1					*
10.2150	Grp 4					*

Analysis of Variance

Group Counselor by Readiness to Change T scores

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	21260.0756	5315.0189	3.1411	.0178
Within Groups	99	167515.8859	1692.0797		
Total	103	188775.9615			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 1	49	63.4694	39.0406	5.5772	52.2556- 74.6832
Grp 2	11	47.2727	54.5144	16.4367	10.6495- 83.8960
Grp 3	32	34.3750	38.1793	6.7492	20.6099- 48.1401
Grp 4	6	80.0000	30.6594	12.5167	47.8254-112.1746
Grp 5	6	50.0000	54.3139	22.1736	-6.9981-106.9981
Total	104	52.9808	42.8109	4.1980	44.6551- 61.3064

Group	Minimum	Maximum
Grp 1	-45.0000	150.0000
Grp 2	-50.0000	110.0000
Grp 3	-65.0000	90.0000
Grp 4	40.0000	115.0000
Grp 5	-15.0000	120.0000
Total	-65.0000	150.0000

Student-Newman-Keuls Procedure
(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 3	Grp 2	Grp 5	Grp 1	Grp 4
34.3750	Grp 3					
47.2727	Grp 2					
50.0000	Grp 5					
63.4694	Grp 1					*
80.0000	Grp 4					

Analysis of Variance

Group Counselor by Self Reevalutation

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	320.0933	80.0233	2.5612	.0431
Within Groups	99	3093.2529	31.2450		
Total	103	3413.3462			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 1	49	15.6939	5.3937	.7705	14.1446-17.2431
Grp 2	11	14.8182	6.8384	2.0619	10.2241-19.4123
Grp 3	32	12.6875	5.3487	.9455	10.7591-14.6159
Grp 4	6	19.5000	3.7283	1.5221	15.5875-23.4125
Grp 5	6	13.8333	7.3869	3.0157	6.0813-21.5853
Total	104	14.7885	5.7567	.5645	13.6689-15.9080

Group	Minimum	Maximum
Grp 1	5.0000	25.0000
Grp 2	5.0000	23.0000
Grp 3	5.0000	23.0000
Grp 4	14.0000	24.0000
Grp 5	7.0000	25.0000
Total	5.0000	25.0000

Student-Newman-Keuls Procedure
No two groups are significantly different at the .050 level

Analysis of Variance

Group Counselor by Self-Liberation

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	288.0382	72.0096	2.7139	.0342
Within Groups	99	2626.7983	26.5333		
Total	103	2914.8365			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 1	49	16.3061	4.8356	.6908	14.9172-17.6951
Grp 2	11	16.7273	6.9727	2.1023	12.0430-21.4116
Grp 3	32	14.5625	4.7988	.8483	12.8324-16.2926
Grp 4	6	20.8333	3.5449	1.4472	17.1132-24.5535
Grp 5	6	12.5000	6.9498	2.8373	5.2067-19.7933
Total	104	15.8558	5.3197	.5216	14.8212-16.8903

Group	Minimum	Maximum
Grp 1	5.0000	25.0000
Grp 2	5.0000	25.0000
Grp 3	5.0000	25.0000
Grp 4	16.0000	25.0000
Grp 5	5.0000	25.0000
Total	5.0000	25.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 5	Grp 3	Grp 1	Grp 2	Grp 4
12.5000	Grp 5					
14.5625	Grp 3					
16.3061	Grp 1					
16.7273	Grp 2					
20.8333	Grp 4	*	*			

Analysis of Variance

Group Counselor by Helping Relationship

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	481.7378	120.4345	3.7972	.0065
Within Groups	99	3139.9160	31.7163		
Total	103	3621.6538			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 1	49	13.2245	5.5500	.7929	11.6303-14.8186
Grp 2	11	15.0000	7.2250	2.1784	10.1462-19.8538
Grp 3	32	11.9063	4.8683	.8606	10.1510-13.6615
Grp 4	6	21.3333	3.3862	1.3824	17.7797-24.8869
Grp 5	6	12.6667	8.3347	3.4026	3.9201-21.4132
Total	104	13.4423	5.9297	.5815	12.2891-14.5955

Group	Minimum	Maximum
Grp 1	5.0000	25.0000
Grp 2	5.0000	25.0000
Grp 3	5.0000	24.0000
Grp 4	16.0000	25.0000
Grp 5	5.0000	25.0000
Total	5.0000	25.0000

Student-Newman-Keuls Procedure
(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 3	Grp 5	Grp 1	Grp 2	Grp 4
11.9063	Grp 3					
12.6667	Grp 5					
13.2245	Grp 1					
15.0000	Grp 2					
21.3333	Grp 4	*	*	*	*	

Analysis of Variance

Group Counselor by Dramatic Relief

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	176.6522	44.1630	2.4824	.0486
Within Groups	99	1761.2613	17.7905		
Total	103	1937.9135			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 1	49	11.2041	4.4813	.6402	9.9169-12.4913
Grp 2	11	13.0000	4.6260	1.3948	9.8922-16.1078
Grp 3	32	10.0313	3.7372	.6607	8.6838-11.3787
Grp 4	6	15.1667	3.0605	1.2494	11.9549-18.3784
Grp 5	6	10.5000	4.5497	1.8574	5.7254-15.2746
Total	104	11.2212	4.3376	.4253	10.3776-12.0647

Group	Minimum	Maximum
Grp 1	5.0000	21.0000
Grp 2	7.0000	19.0000
Grp 3	5.0000	17.0000
Grp 4	12.0000	20.0000
Grp 5	5.0000	17.0000
Total	5.0000	21.0000

Student-Newman-Keuls Procedure

No two groups are significantly different at the .050 level

Analysis of Variance

Group Counselor by Environmental Reevaluation

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	342.5781	85.6445	3.1791	.0167
Within Groups	99	2667.0758	26.9402		
Total	103	3009.6538			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Grp 1	49	15.4286	5.4772	.7825	13.8553-17.0018
Grp 2	11	15.9091	5.9909	1.8063	11.8843-19.9338
Grp 3	32	12.7500	4.6211	.8169	11.0839-14.4161
Grp 4	6	20.1667	3.8687	1.5794	16.1068-24.2265
Grp 5	6	15.6667	5.1251	2.0923	10.2883-21.0450
Total	104	14.9423	5.4055	.5301	13.8911-15.9936

Group	Minimum	Maximum
Grp 1	7.0000	25.0000
Grp 2	7.0000	25.0000
Grp 3	5.0000	22.0000
Grp 4	14.0000	25.0000
Grp 5	8.0000	23.0000
Total	5.0000	25.0000

Student-Newman-Keuls Procedure
(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 3	Grp 1	Grp 5	Grp 2	Grp 4
12.7500	Grp 3					
15.4286	Grp 1	*				
15.6667	Grp 5					
15.9091	Grp 2					
20.1667	Grp 4	*				

Analysis of Variance

Group Counselor By Number of Sessions Attended

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	351.0629	87.7657	1.2410	.2974
Within Groups	118	8345.1973	70.7220		
Total	122	8696.2602			

Chi-Square

Group Counselor By Discharge Status

```
CROSSTABS /VARIABLES=GC (1,5) DISC (1,3)
 /TABLES=GC BY DISC
 /STATISTICS=CHISQ.
```

Count	DISC: Succes-ful	Unsuc-cesful	Moved Away	Row Total
GC Counselor 1	35	15	4	54 43.9
Counselor 2	5	7		12 9.8
Counselor 3	29	11	1	41 33.3
Counselor 4	5	2		7 5.7
Counselor 5	4	5		9 7.3
Column Total	78 63.4	40 32.5	5 4.1	123 100.0

Chi-Square	Value	DF	Significance
Pearson	9.47094	8	.30414
Likelihood Ratio	9.84420	8	.27613
Mantel-Haenszel test for linear association	.08829	1	.76636

Minimum Expected Frequency - .285
Cells with Expected Frequency < 5 - 9 OF 15 (60.0%)

Number of Missing Observations: 27

APPENDIX F: FIRST RESEARCH HYPOTHESIS ANALYSIS

Nonparametric Chi-Square Stages of Change

by DiClemente & Hughes (1990) Stages of Change

```
NPAR TESTS /CHISQUARE SOC (1,5) /EXPECTED 28 24 23 13 12.
```

SOC

	Cases		
Category	Observed	Expected	Residual
Precontemplation	114	42.00	72.00
Contemplation	8	36.00	-28.00
Action	19	34.50	-15.50
Ambivalent	9	19.50	-10.50
Uninvolved	0	18.00	-18.00
Total	150		

Chi-Square	D.F.	Significance
175.824	4	.000

Nonparametric Chi-Square Test

Precontemplation Stage

By DiClemente & Hughes (1990) Precontemplation Stage

```
RECODE SOC (1=1) (2,3,4,5=2).
NPAR TESTS /CHISQUARE SOC (1,2) /EXPECTED 28 72.
```

Cases

Category	Observed	Expected	Residual
Precontemplation	114	42.00	72.00
All Others	36	108.00	-72.00
Total	150		

Chi-Square	D.F.	Significance
171.429	1	.000

Nonparametric Chi-Square Test

Action Stage of Change By

DiClemente & Hughes (1990) Action Stage

```
RECODE SOC (3=1) (1,2,4,5=2).
NPAR TESTS /CHISQUARE SOC (1,2) /EXPECTED 23  77.
```

Cases

Category	Observed	Expected	Residual
Action Stage	19	34.50	-15.50
All Others	131	115.50	15.50
Total	150		

Chi-Square	D.F.	Significance
9.044	1	.003

APPENDIX G: SECOND RESEARCH HYPOTHESIS ANALYSIS

Analysis of Variance

Stage of Change by Number of Sessions Attended

```
RECODE SOC (4=2).
ONEWAY SES BY SOC (1,3)  /RANGES=SNK   /STATISTICS=1,3.
```

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	3301.9399	1650.9699	11.5456	.0000
Within Groups	147	21020.3535	142.9956		
Total	149	24322.2933			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	114	15.1491	8.7606	.8205	13.5236-16.7747
Cont.	17	13.9412	5.6510	1.3706	11.0357-16.8467
Action	19	29.0526	25.6439	5.8831	16.6927-41.4126
Total	150	16.7733	12.7764	1.0432	14.7120-18.8347

Group	Minimum	Maximum
Precontemplation (Grp 1)	1.0000	57.0000
Contemplation (Grp 2)	3.0000	22.0000
Action (Grp 3)	6.0000	93.0000
Total	1.0000	93.0000

Student-Newman-Keuls Procedure
(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	G r p 2	G r p 1	G r p 3
13.9412	Grp 2			
15.1491	Grp 1			
29.0526	Grp 3	*	*	

Analysis of Variance

Stage of Change

By Number of Sessions Attended Without Outliers

```
RECODE SOC (4=2).
ONEWAY SES BY SOC (1,3)
  /RANGES=SNK
  /STATISTICS=1,3.
```

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	272.5238	136.2619	1.8012	.1688
Within Groups	144	10893.8436	75.6517		
Total	146	11166.3673			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	114	15.1491	8.7606	.8205	13.5236-16.7747
Cont.	17	13.9412	5.6510	1.3706	11.0357-16.8467
Action	16	19.1875	10.6784	2.6696	13.4974-24.8776
Total	147	15.4490	8.7454	.7213	14.0234-16.8745

Group	Minimum	Maximum
Precontemplation	1.0000	57.0000
Contemplation	3.0000	22.0000
Action	6.0000	46.0000
Total	1.0000	57.0000

Chi-Square

Stage of Change By Discharge Status

```
RECODE SOC (4=2).
CROSSTABS /TABLES=SOC BY DISC /STATISTICS=CHISQ.
```

Count	DISC			
SOC	Success-ful	Unsuc-cessful	Moved Away	Row Total
Precontemplation	76	34	4	114 76.0
Contemplation	7	9	1	17 11.3
Action	13	5	1	19 12.7
Column Total	96 64.0	48 32.0	6 4.0	150 100.0

Chi-Square	Value	DF	Significance
Pearson	4.55366	4	.33623
Likelihood Ratio	4.35832	4	.35968
Mantel-Haenszel test for linear association	.38358	1	.53569
Minimum Expected Frequency - .680			
Cells with Expected Frequency < 5 -		3 OF	9 (33.3%)

Number of Missing Observations: 0

Stepwise Multiple Regression

Readiness to Change By Number of Sessions Attended

and Successful Discharge Status

Variable(s) Entered on Step Number
1.. SES

Multiple R	.19457
R Square	.03786
Adjusted R Square	.03136
Standard Error	2.35479

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	32.29164	32.29164
Residual	148	820.66578	5.54504

F = 5.82352 Signif F = .0170

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SES	.036437	.015099	.194572	2.413	.0170
(Constant)	7.544763	.317975		23.728	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
DISC	-.263759	-.239211	.791382	-2.987	.0033

Variable(s) Entered on Step Number
2.. DISC

Multiple R	.30482
R Square	.09291
Adjusted R Square	.08057
Standard Error	2.29419

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	79.25150	39.62575
Residual	147	773.70592	5.26331

F = 7.52868 Signif F = .0008

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SES	.058997	.016536	.315044	3.568	.0005
DISC	-1.310339	.438682	-.263759	-2.987	.0033
(Constant)	8.004969	.345990		23.136	.0000

Stepwise Multiple Regression

Readiness to Change By Number of Sessions Attended

and Unsuccessful Discharge Status

Variable(s) Entered on Step Number
1.. SES

Multiple R	.19457
R Square	.03786
Adjusted R Square	.03136
Standard Error	2.35479

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	32.29164	32.29164
Residual	148	820.66578	5.54504

F = 5.82352 Signif F = .0170

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SES	.036437	.015099	.194572	2.413	.0170
(Constant)	7.544763	.317975		23.728	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
DISC	.199733	.186950	.842931	2.307	.0224

Variable(s) Entered on Step Number
2.. DISC

Multiple R	.26737
R Square	.07149
Adjusted R Square	.05885
Standard Error	2.32113

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	60.97421	30.48710
Residual	147	791.98321	5.38764

F = 5.65871 Signif F = .0043

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SES	.051261	.016211	.273730	3.162	.0019
DISC	1.021029	.442515	.199733	2.307	.0224
(Constant)	6.969392	.400527		17.401	.0000

Stepwise Multiple Regression

Readiness to Change T Scores By Number of Sessions Attended and Successful Discharge Status

Variable(s) Entered on Step Number
1.. SES

Multiple R	.20065
R Square	.04026
Adjusted R Square	.03377
Standard Error	41.42995

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	10656.06536	10656.06536
Residual	148	254033.26797	1716.44100

F = 6.20823 Signif F = .0138

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SES	.661906	.265651	.200646	2.492	.0138
(Constant)	44.164300	5.594428		7.894	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
DISC	-.258103	-.234373	.791382	-2.923	.0040

Variable(s) Entered on Step Number
2.. DISC

Multiple R	.30492
R Square	.09298
Adjusted R Square	.08064
Standard Error	40.41275

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	24610.34463	12305.17231
Residual	147	240078.98871	1633.19040

F = 7.53444 Signif F = .0008

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SES	1.050803	.291288	.318534	3.607	.0004
DISC	-22.587793	7.727491	-.258103	-2.923	.0040
(Constant)	52.097391	6.094698		8.548	.0000

Stepwise Multiple Regression

Readiness to Change T Scores By Number of Sessions Attended and Unsuccessful Discharge Status

Variable(s) Entered on Step Number
1.. SES

Multiple R	.20065
R Square	.04026
Adjusted R Square	.03377
Standard Error	41.42995

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	10656.06536	10656.06536
Residual	148	254033.26797	1716.44100

F = 6.20823 Signif F = .0138

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SES	.661906	.265651	.200646	2.492	.0138
(Constant)	44.164300	5.594428		7.894	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
DISC	.182002	.170567	.842931	2.099	.0375

Variable(s) Entered on Step Number
2.. DISC

Multiple R	.26111
R Square	.06818
Adjusted R Square	.05550
Standard Error	40.96146

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	18046.67336	9023.33668
Residual	147	246642.65997	1677.84122

F = 5.37794 Signif F = .0056

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SES	.899856	.286073	.272777	3.146	.0020
DISC	16.389622	7.809160	.182002	2.099	.0375
(Constant)	34.928397	7.068192		4.942	.0000

APPENDIX H:

THIRD, FOURTH, AND FIFTH RESEARCH HYPOTHESIS ANALYSES

Multivariate Analysis of Variance

Stage of Change By

Processes of Change, Self-Efficacy, and Decisional Balance

EFFECT .. SOC
Multivariate Tests of Significance (S = 2, M = 5.5, N = 54)

Test Name	Value	Approx. F	Hypoth. DF	Error DF	Sig. of F
Pillais	.43535	2.20603	28.00	222.00	.001
Hotellings	.61822	2.40664	28.00	218.00	.000
Wilks	.59760	2.30671	28.00	220.00	.000
Roys	.33781				

Note.. F statistic for WILKS' Lambda is exact.

- -

Univariate F-tests with (2,123) D. F.

Variable	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F	Sig. of F
TEM	812.126	24023.302	406.063	195.311	2.079	.129
SE	249.901	65479.210	124.951	532.351	.235	.791
PRO	414.072	12165.420	207.036	98.906	2.093	.128
CON	4433.771	23838.102	2216.885	193.806	11.439	.000
CR	664.416	2086.410	332.208	16.963	19.585	.000
SR	952.621	2976.085	476.311	24.196	19.686	.000
SL	625.020	2697.020	312.510	21.927	14.252	.000
CC	595.803	2598.554	297.901	21.126	14.101	.000
SC	619.482	2204.010	309.741	17.919	17.286	.000
RM	330.199	1829.102	165.100	14.871	11.102	.000
HR	830.789	3638.418	415.394	29.581	14.043	.000
DR	481.445	1901.769	240.723	15.462	15.569	.000
ER	923.638	2511.354	461.819	20.418	22.619	.000
SOL	186.018	1773.474	93.009	14.418	6.451	.002

- -

Analysis of Variance

Stage of Change By Consciousness Raising

```
ONEWAY CR BY SOC (1,3)
  /RANGES=SNK
  /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	788.9525	394.4762	21.1539	.0000
Within Groups	146	2722.5911	18.6479		
Total	148	3511.5436			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	113	10.0619	4.2872	.4033	9.2628-10.8610
Cont.	17	14.5294	3.3376	.8095	12.8134-16.2455
Action	19	16.1053	5.1950	1.1918	13.6013-18.6092
Total	149	11.3423	4.8710	.3990	10.5537-12.1308

Group	Minimum	Maximum
Precontemplation (Grp 1)	5.0000	21.0000
Contemplation (Grp 2)	9.0000	21.0000
Action (Grp 3)	6.0000	25.0000
Total	5.0000	25.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 2	Grp 3
10.0619	Grp 1			
14.5294	Grp 2	*		
16.1053	Grp 3	*		

Analysis of Variance

Stage of Change By Self-Reevaluation

```
ONEWAY SR BY SOC (1,3)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	1094.1774	547.0887	24.0261	.0000
Within Groups	146	3324.5071	22.7706		
Total	148	4418.6846			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	113	13.3805	4.9845	.4689	12.4515-14.3096
Cont.	17	20.1176	3.1797	.7712	18.4828-21.7525
Action	19	19.3158	4.5953	1.0542	17.1009-21.5307
Total	149	14.9060	5.4641	.4476	14.0215-15.7906

Group	Minimum	Maximum
Precontemplation (Grp 1)	5.0000	23.0000
Contemplation (Grp 2)	14.0000	25.0000
Action (Grp 3)	9.0000	25.0000
Total	5.0000	25.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 3	Grp 2
13.3805	Grp 1			
19.3158	Grp 3	*		
20.1176	Grp 2	*		

Analysis of Variance

Stage of Change By Self-Liberation

```
ONEWAY SL BY SOC (1,3)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	651.4415	325.7208	14.5738	.0000
Within Groups	147	3285.4185	22.3498		
Total	149	3936.8600			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	114	14.5702	4.9152	.4603	13.6581-15.4822
Cont.	17	19.2353	2.9054	.7047	17.7415-20.7291
Action	19	19.6316	4.8329	1.1087	17.3022-21.9610
Total	150	15.7400	5.1402	.4197	14.9107-16.5693

Group	Minimum	Maximum
Precontemplation (Grp 1)	5.0000	25.0000
Contemplation (Grp 2)	15.0000	25.0000
Action (Grp 3)	11.0000	25.0000
Total	5.0000	25.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 2	Grp 3
14.5702	Grp 1			
19.2353	Grp 2	*		
19.6316	Grp 3	*		

Analysis of Variance

Stage of Change By Counterconditioning

```
ONEWAY CC BY SOC (1,3)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	653.1342	326.5671	16.1397	.0000
Within Groups	147	2974.3658	20.2338		
Total	149	3627.5000			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	114	12.7456	4.6197	.4327	11.8884-13.6028
Cont.	17	16.7647	3.8976	.9453	14.7608-18.7687
Action	19	18.2632	4.2143	.9668	16.2319-20.2944
Total	150	13.9000	4.9341	.4029	13.1039-14.6961

Group	Minimum	Maximum
Precontemplation (Grp 1)	5.0000	22.0000
Contemplation (Grp 2)	12.0000	24.0000
Action (Grp 3)	8.0000	24.0000
Total	5.0000	24.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 2	Grp 3
12.7456	Prec.			
16.7647	Cont.	*		
18.2632	Action	*		

Analysis of Variance

Stage of Change By Stimulus Control

```
ONEWAY SC BY SOC (1,3)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	740.8316	370.4158	20.2277	.0000
Within Groups	146	2673.5979	18.3123		
Total	148	3414.4295			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	113	10.3894	4.2140	.3964	9.6039-11.1748
Cont.	17	14.9412	4.2496	1.0307	12.7563-17.1261
Action	19	16.1053	4.6892	1.0758	13.8452-18.3654
Total	149	11.6376	4.8032	.3935	10.8600-12.4152

Group	Minimum	Maximum
Precontemplation (Grp 1)	5.0000	21.0000
Contemplation (Grp 2)	10.0000	24.0000
Action (Grp 3)	7.0000	25.0000
Total	5.0000	25.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 2	Grp 3
10.3894	Grp 1			
14.9412	Grp 2	*		
16.1053	Grp 3	*		

Analysis of Variance

Stage of Change By Reinforcement Management

```
ONEWAY RM BY SOC (1,3)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	340.1674	170.0837	10.9079	.0000
Within Groups	147	2292.1259	15.5927		
Total	149	2632.2933			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	114	9.9298	4.0543	.3797	9.1775-10.6821
Cont.	17	13.7059	3.1378	.7610	12.0926-15.3192
Action	19	13.2105	3.9240	.9002	11.3192-15.1018
Total	150	10.7733	4.2031	.3432	10.0952-11.4515

Group	Minimum	Maximum
Precontemplation (Grp 1)	5.0000	21.0000
Contemplation (Grp 2)	9.0000	21.0000
Action (Grp 3)	8.0000	20.0000
Total	5.0000	21.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 3	Grp 2
9.9298	Grp 1			
13.2105	Grp 3	*		
13.7059	Grp 2	*		

Analysis of Variance

Stage of Change By Helping Relationship

```
ONEWAY HR BY SOC (1,3)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	918.5210	459.2605	16.0778	.0000
Within Groups	146	4170.4723	28.5649		
Total	148	5088.9933			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	113	12.6460	5.2964	.4982	11.6588-13.6332
Cont.	17	17.0000	5.0990	1.2367	14.3783-19.6217
Action	19	19.4211	5.8340	1.3384	16.6092-22.2329
Total	149	14.0067	5.8639	.4804	13.0574-14.9560

Group	Minimum	Maximum
Precontemplation (Grp 1)	5.0000	25.0000
Contemplation (Grp 2)	7.0000	25.0000
Action (Grp 3)	8.0000	25.0000
Total	5.0000	25.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 2	Grp 3
12.6460	Grp 1			
17.0000	Grp 2	*		
19.4211	Grp 3	*		

Analysis of Variance

Stage of Change By Dramatic Relief

```
ONEWAY DR BY SOC (1,3)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	603.9634	301.9817	19.9643	.0000
Within Groups	147	2223.5299	15.1261		
Total	149	2827.4933			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	114	10.3772	4.0427	.3786	9.6271-11.1273
Cont.	17	14.4118	3.5892	.8705	12.5664-16.2572
Action	19	15.5789	3.0789	.7063	14.0950-17.0629
Total	150	11.4933	4.3562	.3557	10.7905-12.1962

Group	Minimum	Maximum
Precontemplation (Grp 1)	5.0000	20.0000
Contemplation (Grp 2)	7.0000	21.0000
Action (Grp 3)	9.0000	22.0000
Total	5.0000	22.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 2	Grp 3
10.3772	Grp 1			
14.4118	Grp 2	*		
15.5789	Grp 3	*		

Analysis of Variance

Stage of Change By Environmental Reevaluation

```
ONEWAY ER BY SOC (1,3)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	999.0574	499.5287	23.3645	.0000
Within Groups	147	3142.8359	21.3798		
Total	149	4141.8933			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	114	13.5789	4.7855	.4482	12.6910-14.4669
Cont.	17	19.9412	3.2107	.7787	18.2904-21.5920
Action	19	19.3158	4.6554	1.0680	17.0720-21.5596
Total	150	15.0267	5.2724	.4305	14.1760-15.8773

Group	Minimum	Maximum
Precontemplation (Grp 1)	5.0000	25.0000
Contemplation (Grp 2)	14.0000	25.0000
Action (Grp 3)	10.0000	25.0000
Total	5.0000	25.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 3	Grp 2
13.5789	Grp 1			
19.3158	Grp 3	*		
19.9412	Grp 2	*		

Analysis of Variance

Stage of Change By Social Liberation

```
ONEWAY SOL BY SOC (1,3)
 /RANGES=SNK
 /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	233.8003	116.9002	7.6537	.0007
Within Groups	146	2229.9581	15.2737		
Total	148	2463.7584			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	113	12.3363	4.0147	.3777	11.5880-13.0846
Cont.	17	15.0000	2.8504	.6913	13.5344-16.4656
Action	19	15.4737	4.0465	.9283	13.5233-17.4240
Total	149	13.0403	4.0801	.3343	12.3797-13.7008

Group	Minimum	Maximum
Precontemplation (Grp 1)	5.0000	23.0000
Contemplation (Grp 2)	9.0000	19.0000
Action (Grp 3)	8.0000	24.0000
Total	5.0000	24.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 2	Grp 3
12.3363	Grp 1			
15.0000	Grp 2	*		
15.4737	Grp 3	*		

Analysis of Variance

Stage of Change By Cons of Drinking

```
RECODE SOC (4=2).
ONEWAY CON BY SOC (1,3)
  /RANGES=SNK
  /STATISTICS=1,3.
```

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	6296.0763	3148.0381	15.7857	.0000
Within Groups	144	28716.9577	199.4233		
Total	146	35013.0340			

Group	Count	Mean	Standard Deviation	Standard Error	95 Pct Conf Int for Mean
Prec.	112	40.4821	14.8366	1.4019	37.7041- 3.2602
Cont.	17	57.3529	11.4069	2.7666	51.4880-63.2178
Action	18	54.2222	11.3788	2.6820	48.5637-59.8808
Total	147	44.1156	15.4860	1.2773	41.5913-46.6400

Group	Minimum	Maximum
Precontemplation (Grp 1)	16.0000	80.0000
Contemplation (Grp 2)	35.0000	74.0000
Action (Grp 3)	29.0000	72.0000
Total	16.0000	80.0000

Student-Newman-Keuls Procedure

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 1	Grp 3	Grp 2
40.4821	Grp 1			
54.2222	Grp 3	*		
57.3529	Grp 2	*		

Stepwise Multiple Regression

Readiness to Change By

Processes of Change, Self-Efficacy, and Decisional Balance

```
REGRESSION /VARIABLES RTC CR SR SL CC SC RM HR DR ER SOL TEM
 SE PRO CON /DEPENDENT RTC /METHOD STEPWISE.
```

Variable(s) Entered on Step Number
1.. SR

Multiple R	.67306
R Square	.45301
Adjusted R Square	.44860
Standard Error	1.77292

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	322.80056	322.80056
Residual	124	389.76347	3.14325

F = 102.69631 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SR	.286644	.028286	.673062	10.134	.0000
(Constant)	3.893067	.449154		8.668	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
CR	.198050	.170032	.403169	1.914	.0580
SL	.269992	.209648	.329807	2.378	.0189
CC	.073750	.059999	.362029	.667	.5063
SC	.062847	.057656	.460362	.641	.5230
RM	.085581	.075297	.423431	.837	.4040
HR	.152783	.143734	.484116	1.611	.1098
DR	.102392	.099540	.516946	1.109	.2694
ER	.294061	.193120	.235915	2.183	.0309
SOL	.113228	.120654	.621085	1.348	.1801
TEM	.018202	.022650	.846944	.251	.8020
SE	.032160	.043080	.981536	.478	.6333
PRO	-.072313	-.090541	.857484	-1.008	.3153
CON	.122534	.130959	.624785	1.465	.1455

Stepwise Multiple Regression Readiness to Change (Cont.)

Variable(s) Entered on Step Number
2.. SL

Multiple R	.69069
R Square	.47705
Adjusted R Square	.46855
Standard Error	1.74055

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	339.93164	169.96582
Residual	123	372.63240	3.02953

F = 56.10300 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SR	.192512	.048354	.452033	3.981	.0001
SL	.125043	.052584	.269992	2.378	.0189
(Constant)	3.302573	.506066		6.526	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
CR	.156220	.134511	.253415	1.499	.1364
CC	-.022082	-.017136	.263685	-.189	.8502
SC	.009216	.008401	.276245	.093	.9262
RM	.055883	.049868	.249003	.551	.5823
HR	.078680	.069873	.280970	.774	.4406
DR	.062304	.060730	.283992	.672	.5028
ER	.282038	.189289	.164515	2.129	.0352
SOL	.095260	.103337	.289739	1.148	.2534
TEM	.047623	.059757	.287028	.661	.5097
SE	.014407	.019607	.320141	.217	.8289
PRO	-.053302	-.067777	.296881	-.750	.4545
CON	.135501	.147811	.264291	1.651	.1014

Variable(s) Entered on Step Number
3.. ER

Multiple R	.70412
R Square	.49579
Adjusted R Square	.48339
Standard Error	1.71608

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	353.28318	117.76106
Residual	122	359.28085	2.94493

F = 39.98780 Signif F = .0000

Stepwise Multiple Regression Readiness to Change (Cont.)

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
SR	.090762	.067501	.213116	1.345	.1812
SL	.120734	.051884	.260687	2.327	.0216
ER	.128456	.060329	.282038	2.129	.0352
(Constant)	2.955803	.524856		5.632	.0000

---------- Variables not in the Equation ----------

Variable	Beta In	Partial	Min Toler	T	Sig T
CR	.090413	.074279	.160908	.819	.4142
CC	-.029110	-.022996	.148050	-.253	.8007
SC	-.042649	-.038453	.161052	-.423	.6728
RM	.007967	.007050	.155016	.078	.9383
HR	.033987	.030005	.163920	.330	.7418
DR	-.003258	-.003046	.164123	-.034	.9733
SOL	.065109	.070680	.161633	.779	.4373
TEM	.029666	.037627	.158915	.414	.6795
SE	.016312	.022607	.162439	.249	.8040
PRO	-.060728	-.078547	.158137	-.867	.3878
CON	.102598	.111248	.158038	1.231	.2206

Variable(s) Removed on Step Number
4.. SR

Multiple R	.69880
R Square	.48832
Adjusted R Square	.48000
Standard Error	1.72171

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	347.95891	173.97946
Residual	123	364.60512	2.96427

F = 58.69219 Signif F = .0000

Stepwise Multiple Regression Readiness to Change (Cont.)

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SL	.159113	.043469	.343555	3.660	.0004
ER	.185884	.042749	.408124	4.348	.0000
(Constant)	2.832400	.518464		5.463	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
CR	.110129	.090815	.325634	1.007	.3158
SR	.213116	.120842	.164515	1.345	.1812
CC	.020050	.016574	.333075	.183	.8550
SC	-.022369	-.020235	.381130	-.224	.8235
RM	.039595	.035831	.358733	.396	.6928
HR	.042141	.036998	.365798	.409	.6833
DR	.003094	.002875	.361657	.032	.9747
SOL	.078681	.085539	.407698	.948	.3449
TEM	.046060	.059005	.419126	.653	.5151
SE	.006301	.008723	.464155	.096	.9234
PRO	-.040205	-.052652	.441165	-.582	.5614
CON	.120392	.132215	.375271	1.473	.1432

Stepwise Multiple Regression

Readiness to Change T Scores By

Processes of Change, Self-Efficacy, and Decisional Balance

```
REGRESSION / VARIABLES RTCT CR SR SL CC SC RM HR DR ER SOL
TEM   SE PRO CON /DEPENDENT RTCT /METHOD STEPWISE.
```

Variable(s) Entered on Step Number
1.. SR

Multiple R	.67312
R Square	.45308
Adjusted R Square	.44867
Standard Error	31.13225

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	99563.90723	99563.90723
Residual	124	120182.91816	969.21708

F = 102.72612 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SR	5.034150	.496690	.673116	10.135	.0000
(Constant)	19.674314	7.887074		-2.495	.0139

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
CR	.149974	.128765	.403169	1.440	.1524
SL	.227043	.176310	.329807	1.986	.0492
CC	.034495	.028065	.362029	.311	.7560
SC	-.021094	-.019353	.460362	-.215	.8304
RM	.010062	.008853	.423431	.098	.9219
HR	.102202	.096156	.484116	1.071	.2861
DR	.126362	.122851	.516946	1.373	.1723
ER	.221321	.145358	.235915	1.629	.1058
SOL	.075911	.080895	.621085	.900	.3698
TEM	-.026163	-.032558	.846944	-.361	.7185
SE	.007004	.009383	.981536	.104	.9173
PRO	-.074838	-.093708	.857484	-1.044	.2986
CON	.087849	.093895	.624785	1.046	.2976

Stepwise Multiple Regression
Readiness to Change T Scores (Cont.)

Variable(s) Entered on Step Number
2.. SL

Multiple R	.68563
R Square	.47009
Adjusted R Square	.46147
Standard Error	30.76887

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	103299.83396	51649.91698
Residual	123	116446.99144	946.72351

F = 54.55650 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
SR	3.644056	.854785	.487246	4.263	.0000
SL	1.846574	.929564	.227043	1.986	.0492
(Constant	-28.394429	8.946044		-3.174	.0019

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
CR	.114137	.097628	.253415	1.084	.2807
CC	-.050209	-.038706	.263685	-.428	.6695
SC	-.070592	-.063923	.276245	-.707	.4806
RM	-.015952	-.014141	.249003	-.156	.8761
HR	.035320	.031160	.280970	.344	.7312
DR	.094278	.091291	.283992	1.013	.3133
ER	.211171	.140792	.164515	1.571	.1188
SOL	.060623	.065329	.289739	.723	.4710
TEM	-.002609	-.003252	.287028	-.036	.9714
SE	-.008192	-.011076	.320141	-.122	.9028
PRO	-.059048	-.074589	.296881	-.826	.4103
CON	.098692	.106948	.264291	1.188	.2371

Correlation Matrix of Processes of Change

Corr.	CR	SR	SL	CC	SC	RM	HR	DR	ER	SOL
CR	1.0000	.7793**	.6911**	.6958**	.7779**	.7762**	.7415**	.7716**	.7815**	.7327**
SR	.7793**	1.0000	.8200**	.7900**	.7466**	.7616**	.7299**	.7128**	.8751**	.6356**
SL	.6911**	.8200**	1.0000	.7613**	.6861**	.6743**	.7431**	.6582**	.7443**	.5564**
CC	.6958**	.7900**	.7613**	1.0000	.7634**	.7031**	.6803**	.5987**	.7018**	.5862**
SC	.7779**	.7466**	.6861**	.7634**	1.0000	.7385**	.7175**	.6499**	.7346**	.6578**
RM	.7762**	.7616**	.6743**	.7031**	.7385**	1.0000	.6597**	.6287**	.7504**	.6224**
HR	.7415**	.7399**	.7431**	.6803**	.7175**	.6597**	1.0000	.6554**	.7168**	.5607**
DR	.7716**	.7128**	.6582**	.5987**	.6499**	.6287**	.6554**	1.0000	.7332**	.5810**
ER	.7857**	.8751**	.7443**	.7018**	.7346**	.7504**	.7168**	.7332**	1.0000	.6294**
SOL	.7327**	.6356**	.5564**	.5826**	.6578**	.6224**	.5607**	.5810**	.6294**	1.0000

N of cases: 147 1-talied Signif: * - .01 ** - .001

BIBLIOGRAPHY

Anglin, M. D., Brecht, M. L. & Maddahian, E. (1989). Pre-treatment characteristics and treatment performance of legally coerced versus voluntary methadone maintenance admissions. Criminology, 27(3), 537-557.

Anglin, M. D. & Hser, Y. (1991). Criminal justice and the drug abusing offender: Policy issues of coerced treatment. Behavioral Sciences and the Law, 9(3), 243-267.

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Bandura, A. (1977). Toward a unifying theory of behavioral change. Psychological Review, 84, 191-215.

Berg, I.K. & Miller, S.D. (1992). Working with the problem drinker: A solution-focused approach. New York: W.W. Norton & Co.

Brennan, T.P. (1992). The ideal meets the real with the DUI offender. Federal Probation, 56(1), 40-47.

Borg, W. R. & Gall, M. D. (1989). Educational research: An introduction (5th ed.). New York: Longman.

Bureau of Justice Statistics Special Report. (1992). 1989 Survey of inmates of local jails: Drunk driving. (DHHS Publications No. NCJ-134728). Washington DC: U.S. Government Printing Office.

Cavaiola, A.A. (1984). Resistance issues in the treatment of the DWI offender. Alcoholism Treatment Quarterly, 1(2), 87-100.

Carbonari, J.P. & DiClemente, C.C. (1994, November). A readiness to change measure. Paper presented at the AABT national meeting, San Diego, Cal.

Colonial Community Services Board . (1980). Mission statement: Author.

Curtis, R.C. & Stricker, G. (1991). How people change: Inside and outside therapy. New York: Plenum Press.

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

DiClemente, C.C. (1986), Self-efficacy and the addictive behaviors. Journal of Social and Clinical Psychology, 4, 302-315.

DiClemente, C.C. (1996, November). Alcoholism/substance abuse treatment and the stages, processes and levels of change. Paper presented at the meeting of the Virginia Department of Mental Health, Mental Retardation and Substance Abuse Services and the Substance Abuse Council of the Virginia Association of Community Services Boards, Richmond, VA.

DiClemente, C.C., Carbonari, J.P., Montgomery, R, & Hughes, S. (1994). The alcohol abstinence self-efficacy scale. Journal of Studies on Alcohol, March, 141-148.

DiClemente, C.C. & Hughes, S.L. (1990). Stages of change profiles in outpatient alcoholism treatment. Journal of Substance Abuse, 2, 217-235.

DiClemente, C.C. & Prochaska, J.O. (1982). Self change and therapy change of smoking behavior: A comparison of process of change in cessation and maintenance. Addictive Behavior, 7, 133-142.

DiClemente, C.C. & Prochaska, J.O. (1985). Processes and stages of change: Coping and competence in smoking behavior change. In S. Shiffman & T. Wills (Eds.) Coping and substance use (pp 319-344). New York: Academic Press.

DiClemente, C.C., Prochaska, J.O., Fairhurst, S.K., Velicer, W.F., Velasquez, M.M. & Rossi, J.S. (1991). The process of smoking cessation: An analysis of precontemplation, contemplation, and preparation stages of change. Journal of Consulting and Clinical Psychology, 59(2), 295-304.

DiClemente, C.C., Prochaska, J.O., & Gilbertini, M. (1985). Self-efficacy and the stages of self-change of smoking. Cognitive Therapy and Research, 9, 181-200.

Donovan, D.M. (1989). Driving while intoxicated: Different roads to and from the problem. Special Issue: Alcohol and the criminal justice system. Criminal Justice and Behavior, 16(3), 270-298.

Donovan, D.M. & Marlatt, G.A. (1982). Personality subtypes among DUI offenders: Relationship to drinking behavior and driving risk. Journal of Consulting and Clinical Psychology, 50, 241-249.

ECBCO Team, Office of Research and Evaluation, Department of Mental Health, Mental Retardation and Substance Abuse Services, state of Virginia. (1993). Evaluation of Community-Based Client Outcomes Prototype Data Analysis Report (August, 1993). Richmond, Va.

Fitzgerald, T.E. & Prochaska, J.O. (1990). Non progressing profiles in smoking cessation: What keeps people refractory to self-change? Journal of Substance Abuse, 2, 93-111.

Gottlieb, N.H., Galavotti, C, McCuan, R.A., & McAlister, A.L. (1990). Specification of a social-cognitive model predicting smoking cessation in a Mexican-American population: A prospective study. Cognitive Therapy and Research, 14(6), 529-542.

Green, R.E., French, J.F., Haberman, P.W., & Holland, P.W. (1991). The effects of combining sanctions and rehabilitation for driving under the influence: An evaluation of the N.J. Alcohol Countermeasures Program. Accident Analysis and Prevention, 23(6), 543-565.

Heather, N. & Rollnick, S. (1993). Readiness to change questionnaire: User's manual. (Technical Report Number 19). Australia: The University of New South Wales, National Drug and Alcohol Centre.

Institute of Medicine (1989). Prevention and treatment of alcohol problems: Research opportunities. Washington, DC: National Academy Press.

Janis, I.L. & Mann, L. (1977). Decision making: A psychological analysis of conflict, choice and commitment. New York: Free Press.

King, T. & DiClemente, C. (1993, August). A decisional balance measure for assessing and predicting drinking behavior. Paper presented at APA, Toronto.

Lam, C. S., McMahon, B. T., Priddy, D. A., & Gehred-Schultz, A. (1988). Deficit awareness and treatment performance among traumatic head injury adults. Brain Injury, 2, 235-242.

Larke, J. (1985). Compulsory treatment: Some practical methods of treating the mandated client. Psychotherapy: theory, Research and Practice, 22(2), 262-268.

Lehmer, M. (1986). Court ordered therapy: Making it work. American Journal of Forensic Psychology, 4(2), 16-24.

McConnaughy, E.A., DiClemente, C.C., Prochaska, J.O., & Velicer, W.F. (1989). Stages of change in psychotherapy: A follow-up report. Psychotherapy, 26(4), 494-503.

McConnaughy, E.A., Prochaska,J.O. & Velicer, W.F. (1983). Stages of change in psychotherapy: Measurement and sample profiles. Psychotherapy: Theory, Research, and Practice, 20, 368-375.

McMillen, D.L., Pang, M.G., Wells-Parker, E., & Anderson, B.J. (1991). Behavior and personality traits among DUI arrestees, nonarrested impaired drivers and nonimpaired drivers. International Journal of the Addictions, 26(2), 227-235.

Marlatt, G.A. (1985). Coping and substance abuse: Implications for research, prevention, and treatment. In S. Shiffman & T. Wills (Eds). Coping and substance abuse (pp 367-386). New York: Academic Press.

Marlatt, G.A., Baer, J.S., Donovan, D.M., & Kivlahan, D.R. (1988). Addictive behavior: Etiology and treatment. Annual Review of Psychology, 39, 223-252.

Marlatt, G.A. & Gordon, J.R. (Eds.) (1985). Relapse prevention: Maintenance strategies in addictive behavior change. New York: Guilford.

Miller, W.R. (1983). Motivational interviewing with problem drinkers. Behavioural Psychotherapy, 11, 147-172.

Miller, W.R. & Heather, N. (Eds.) (1986). Treating addictive behaviors: Processes of change. New York: Plenum Press.

Miller, W.R. & Hester, R.R. (1986a). The effectiveness of alcoholism treatment. In W.R. Miller & N. Heather (Eds.). Treating addictive behaviors: Processes of change (pp. 121-174). New York: Plenum Press.

Miller, W.R. & Hester, R.R. (1986b). Matching problem drinkers with optimal treatments. In W.R. Miller & N. Heather (Eds.). Treating addictive behaviors: Processes of change (pp. 175-203). New York: Plenum Press.

Miller, W.R. & Rollnick, S. (1991). Motivational interviewing: Preparing people to change addictive behaviors. New York, Guilford.

Mulligan, D.H. & McCarty, D. (1986). Enhanced services for court-referred D.U.I.L. offenders. Special issue: Drunk-driving in America: Strategies and approaches to treatment. Alcoholism Treatment Quarterly, 3(2), 37-46.

Nichols, J. (1990). VA jail helps offenders get out from under the influence. Corrections Today, Dec., 108-110.

Norcross, J.C. & Prochaska, J.O. (1986). Psychotherapist heal thyself: The psychological distress and self-change of psychologists, counselors, and laypersons. Psychotherapy, 23, 102-114.

Norcross, J.C., Prochaska, J.O. & DiClemente, C.C. (1986). Self-change of psychological distress: Laypersons' versus psychologists' coping strategies. Journal of Clinical Psychology, 42(5), 834-840.

Norcross, J.C., Prochaska, J.O. & Hambrecht, M. (1991). Treating ourselves versus treating our clients: A replication with alcohol abuse. Journal of Substance Abuse, 3(1), 123-129.

Orford, J. (1986). Critical conditions for change in the addictive behaviors. In W. R. Miller & N. Heather (Eds.), Treating addictive behaviors: Processes of change(pp. 91-108). New York: Plenum Press.

Packard, M.A. (1987). DUI/DWAI offenders compared to clients seen in an outpatient alcoholism treatment facility. Journal of Alcohol and Drug Education, 32(2), 1-6.

Pallonen, V.E., Fava, J.L., Salonen, J.T., & Prochaska, J.O. (1992). Readiness for smoking change among middle-aged Finnish men. Addictive Behaviors, 17(5), 415-423.

Pallonen, V.E., Murray, D.M., Schmid, L., Pirie, P. (1990). Patterns of self-initiated smoking cessation among young adults. Health Psychology, 9(4), 418-426.

Peninsula Alcohol Safety Action Program. (1993). Annual Report. Newport News, Va.: Author.

Prochaska, J.O. (1979). Systems of psychotherapy: A transtheoretical analysis. Homewood, Illinois: Dorsey Press.

Prochaska, J.O. (1984). Systems of psychotherapy: A transtheoretical analysis (2nd ed.). Homewood, Illinois: Dorsey Press.

Prochaska, J.O. (1993). Strong and weak principles for progressing from precontemplation to action based on twelve problem behaviors. Unpublished manuscript, University of Rhode Island, Kingston.

Prochaska, J. O., Crimi, P., Lapsanski, D., Martel, L. & Reid, P. (1982). Self-change processes, self-efficacy, and self concept in relapse and maintenance of cessation of smoking. Psychological Reports, 51(3, pt 1), 983-990.

Prochaska, J. O. & DiClemente, C. C. (1982). Transtheoretical therapy: Toward a more integrative model of change. Psychotherapy: Theory, research, and practice, 19(3), 276-288.

Prochaska, J.O. & DiClemente, C.C. (1983). Stages and processes of self-change in smoking: Toward an integrative model of change. Journal of Consulting and Clinical Psychology, 51(3), 390-395.

Prochaska, J. O. & DiClemente, C. C. (1984). The transtheoretical approach: Crossing traditional boundaries of change. Homewood, Illinois: Dorsey Press.

Prochaska, J. O. & DiClemente, C. C. (1985). Common processes of change in smoking, weight control, and psychological distress. In S. Shiffman & T. Wills (Eds.). Coping and substance abuse (pp 345-363). New York: Academic Press.

Prochaska, J.O. & DiClemente, C. C. (1986). Toward a comprehensive model of change; In W.R. Miller & N. Heather (Eds.) Treating addictive behaviors: Processes of change. (pp 3-27). New York: Plenum Press.

Prochaska, J.O. & DiClemente, C.C. (1992). Stages of change in the modification of problem behaviors. In M. Hersen, R. M. Eisler, & P. M. Miller (Eds.) Progress in behavior modification (pp 184-218). Sycamore, Illinois: Sycamore Press.

Prochaska, J. O., DiClemente, C. C. & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. American Psychologist, 47(9), 1102-1114.

Prochaska, J.O., DiClemente, C.C., Velicer, W.F., Ginpil, S., & Norcross, J.C. (1985). Predicting change in smoking status for self-changers. Addictive Behaviors, 10(4), 395-406.

Prochaska, J.O. & Norcross, J.C. (1983). Psychotherapists' perspectives on treating themselves and their clients for psychic distress. Professional Psychology: Research and Practice, 14, 642-655.

Prochaska, J. O., Norcross, J. C., Fowler, J. L., Follick, M. J., & Abrams, D. B. (1992). Attendance and outcome in a work-site weight control program: Processes and stages of change as process and predictor variables. Addictive Behaviors, 17(1), 35-45.

Prochaska, J.O., Velicer, W.F., DiClemente, C.C. & Fava, J.S. (1988). Measuring processes of change: Applications to the cessation of smoking. Journal of Consulting and Clinical Psychology, 56, 520-528.

Prochaska, J.O., Velicer, W.F., Guadagnoli, E., Rossi, J.S. & DiClemente, C.C. (1991). Patterns of change: Dynamic typology applied to smoking cessation. Multivariate Behavioral Research, 26(1), 83-107.

Prochaska, J.O., Velicer, W.F. & Rossi, J.S. (1993). Stages of change and decisional balance for twelve problem behaviors. Unpublished manuscript, University of Rhode Island, Kingston.

Riordan, R. J. & Martin, M. H. (1993). Mental health counseling and the mandated client. Journal of Mental Health Counseling, 15(4), 373-383.

Rollnick, S., Heather, N., Gold, R., & Hall, W. (1992). Development of a short 'readiness to change' questionnaire for use in brief, opportunistic interventions among excessive drinkers. British Journal of Addiction, 87, 743-754.

Rosenberg, H., & Spiller, B. (1986). DUI offenders and mental health service providers: A shotgun marriage? Alcoholism Treatment Quarterly, 3(2), 163-168.

Rossi, J.S. (1992, August). Common processes of change across nine problem behaviors. Paper presented at the 100th annual convention of the American Psychological Association, Washington DC.

Rugel, R.P. (1991). Addictions treatment in groups: A review of therapeutic factors. Small Group Research, 22(4), 475-491.

Rugel, R.P. & Barry, P. (1990). Overcoming denial through the group: A test of acceptance theory. Small Group Research, 21, 45-58.

Snow, M.G., Prochaska, J.O. & Rossi, J.S. (1992). Processes of change in Alcoholics Anonymous: Maintenance factors in long-term sobriety. Journal of Studies on Alcohol, in press.

Stern, R.A., Prochaska, J.O., Velicer, W.F., & Elder, J.P. (1987). Stages of adolescent cigarette smoking acquisition: Measurement and sample profiles. Addictive Behaviors, 12(4), 319-329.

Tuchfeld, B. (1981). Spontaneous remission in alcoholics: Empirical observations and theoretical implications. Journal of Studies on Alcohol, 42, 626-641.

Velicer, W. F., DiClemente, C. C., Prochaska, J. O., & Brandenburg, N. (1985). Decisional balance measure for assessing and predicting smoking status. Journal of Personality and Social Psychology, 48(5), 1279-1289.

Velicer, W.F., DiClemente, C.C., Rossi, J.S. & Prochaska, J.O. (1990). Relapse situations and self-efficacy: An integrative model. Addictive Behaviors, 15(3), 271-283.

Wells-Parker, E., Anderson, B.J., Landrum, J.W. & Snow, R. (1988). Long-term effectiveness of probation, short-term intervention and LAI administration for reducing DUI recidivism. British Journal of Addiction, 83, 415-421.

Wells-Parker, E., Anderson, B.J., McMillan, D.L. & Landrum, J.W. (1989). Interactions among DUI offender characteristics and traditional intervention modalities: A long-term recidivism follow-up. British Journal of Addiction, 84(4), 381-390.

Wilcox, N.S., Prochaska, J.O., Velicer, W.F., & DiClemente, C.C. (1985). Subject characteristics as predictors of self-changes in smoking. Addictive Behaviors, 10(4), 407-412.

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