READINESS FOR CHANGE IN DWI TREATMENT

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ABSTRACT

The current study was designed to assess how readiness to change and perceived coercion might be related to DWI offenders’ drinking patterns. The sample consisted of 47 DWI offenders who were mandated to attend either a 16 hour, 5 session alcohol and drug education (ADETS) program over a period of 2 weeks or a 20-hour, 7 session program (ST) over a period of at least 30 days. Surveys measured alcohol consumption, perceived coercion, and readiness to change and were administered to clients at pre treatment, post treatment, and at 3 months follow-up. Results indicated that ADETS and ST clients reduced alcohol consumption from pre to post treatment. Before treatment and after treatment, ADETS clients drank significantly more than the Short Term clients and all clients felt a high degree of coercion in coming into treatment. Readiness to change scores were relatively low at all 3 testing periods, and the ST group scored lower on ambivalence at post treatment, indicating even less motivation for change over time. Results of this small pilot study characterize DWI clients as relatively unready to change their alcohol consumption and perceiving treatment as coercive. However, the self-reported reductions in drinking may have been triggered by their arrest.
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Driving while impaired (DWI) is a major concern in our country and is associated with many fatalities and arrests on our nation’s highways. During 2005, 16,885 people in the U.S. died in alcohol-related motor vehicle crashes, representing 39% of all traffic-related deaths. In 2005, nearly 1.4 million drivers were arrested for driving under the influence of alcohol or narcotics. Annually, over the past five years on average, over 80,000 arrests for DWI were made in North Carolina on average. Also in North Carolina, 482 alcohol-related traffic fatalities occurred in which the driver had a BAC of 0.08 or higher. In New Hanover County, in 2008, 1,988 people were charged with a DWI offense. According to the National Highway Traffic Safety Administration, drivers between the ages of 21 and 34 are involved in 50% of the alcohol related highway fatalities annually, and alcohol-related crashes rose 12 %, from 277 crashes in 2006 to 311 in 2007 (National Highway Traffic Safety Administration [NHTSA], 2008).

North Carolina DWI (driving while impaired) laws are some of the strictest in the nation. DWI penalties include loss of license, court costs, jail time, lawyer fees, and community service. In North Carolina, the terms DWI and DUI (driving under the influence) are used to describe the same offense. North Carolina’s DWI law states that an individual will receive a DWI if a driver operates a vehicle upon any highway, street, or public vehicular area while under the influence of an impairing substance or after having consumed sufficient alcohol that he/she has a blood alcohol concentration of 0.08 or more. After being charged with a DWI, the defendant must appear in court for the case to be tried. If the defendant is found guilty, the DWI offender is mandated to complete a substance abuse assessment at a DWI facility to determine the level of treatment he/she needs to complete. DWI facilities are contracted with the state in an effort to prevent reoffending. The North Carolina DMV (Division of Motor Vehicles) requires that people
convicted of a DWI must complete some level of education or treatment to regain their driving privileges. The substance abuse assessment consists of a face-to-face interview with a substance abuse counselor and a substance abuse screening measure. For a DWI offender to get his or her license reinstated, he or she must complete a substance abuse assessment and complete the recommended treatment. Treatment interventions offered in NC DWI facilities consist mainly of alcohol and drug education. Mandated interventions for DWI offenders in the United States vary in intensity and frequency, and range from relatively brief five-session interventions, to multi-component programs implemented over the course months, to inpatient care with aftercare (Dill & Wells-Parker, 2006). These mandated outpatient programs serve as a form of secondary prevention that attempt to change the offender’s drinking and driving behavior through alcohol and drug education.

Therapeutic interventions and education programs usually are included in DWI treatment programs. The use of treatment for DWI offenders began in the 1960s with therapy and driver improvement programs (Taxman & Piquero, 1998). In the early years of DWI programs, traditional educational programs that focused on teaching offenders about how alcohol impairs driving were based on the premise that most DWI offenders were social drinkers who misused alcohol one time. However, more recent research has shown that convicted offenders often have a range of drinking problems. As a result of these findings, psycho-education programs have moved to more specialized interventions. Interventions are being developed to reduce alcohol-impaired driving and address alcohol problems and other comorbid conditions that frequently occur among DWI offenders including depression, anxiety, and stress (Dill & Wells-Parker, 2006).
A study of 64 undergraduates were involved in the development and implementation of a psycho-educational program and how it affected self reports of drinking and driving (Ingraham, 2000). The undergraduates were assigned to one of three conditions: (1) the experimental condition consisting of a psycho-educational program that combined coping-skills training with exposure to basic alcohol information; (2) an attention-placebo control condition, in which participants were provided alcohol information with no discussion of coping-skills; or (3) a no-treatment, assessment only group whose members did not take part in any educational program. Results indicated that the coping skills participants improved more from pretest to follow-up than did the information only and assessment only participants. The coping skills group increased their alcohol knowledge from pre-test to follow-up and reported a reduction in drinking episodes after reportedly driving under the influence in the past.

However, psycho-education and psychotherapy differ in the type of information given. Psycho-education tends to emphasize awareness of alcohol and drug effects on the body and penalties for drinking and driving. These groups can be useful to counteract clients' denial about their substance abuse and increase their sense of commitment to continued treatment. Psycho-education may also help clients in the pre-contemplation or contemplation stage of change by helping clients to acknowledge the impact of drug use on their lives and discover opportunities for change. In contrast, psychotherapy groups are more interactive and have an emphasis on skill training, self reflection, and role playing along with alcohol and drug education. Psychotherapy is aimed at progressing clients who are either in the contemplation or action stage of change to a further stage of change. Programs also vary in length, format, and structure. Most educational programs are 2-6 weeks in length compared to psychotherapy programs that may continue for a year or longer. Psychotherapy programs also may involve other types of interventions such as
self help groups or pharmalogical treatment. Though psycho-education groups inform clients about psychological issues, they do not aim at intrapsychic change. Psycho-educational groups are considered a necessary, but not sufficient, component of most treatment programs (Nichols, 1990).

*Treatment length and effectiveness*

The goals of DWI treatment programs are to reduce substance usage related negatives consequences and to assist clients in gaining insight on their behaviors in order to develop better decision making skills, but DWI treatment programs tend to be more psycho-educational rather than psychotherapeutic. There is more emphasis on knowledge components and less on introspection and skill building in psycho-educational programs. Data consistently show that substance abuse treatment, when completed, can be effective. For example, in a study by Fiorentine (2001), a sample of 356 clients in outpatient substance abuse treatment facilities were recruited for participation in a research study on counseling frequency and effectiveness of treatment. The expected duration of time to complete the required treatment for the study was six months. Thirty-six percent of the 356 clients remained in treatment for at least six months. The clients were given the option to attend 12-step meetings and counseling sessions as seldom or as often as they wanted. Approximately 41% of the clients attended the 12-step meetings at least weekly during the six months. The researchers found that completion of the six month treatment study and frequency of group counseling session attendance predicted higher rates of alcohol and drug abstinence even for those who completed treatment and maintained weekly or more frequent attendance at 12-step meetings during and after treatment. One limitation of this work is that people who completed treatment may differ in substantive ways from those who do not complete treatment in terms of readiness to change, less severe problems, or other factors.
In the Baltimore Outcome Study, 459 female clients were either in methadone treatment or in drug-free clinics. The clients were assessed at four time intervals in order to detect short term and long term changes in consumption. Results showed that alcohol use and drug use significantly decreased over time from intake to 12 months after intake (Johnson et al., 2003).

However, given a choice, most substance abusers will not enter a treatment program voluntarily. Those who enter programs voluntarily rarely complete the program and tend to relapse within a year. About half of participants drop out in the first three months, and 85% have discontinued treatment within the first year (Satel & Farabee, 2004).

Though individuals progress through substance abuse treatment at different rates, research has shown that a longer length of treatment is associated with better treatment outcomes. Generally, better residential and outpatient treatment outcomes are associated with at least 90 days of treatment (NIDA, 2009). Wallace and Weeks (2004) found that of 133 intensive substance abuse clients participating in a 20 session, four hour per session program, 94 clients graduated. The clients who graduated had higher rates of abstinence, lower rates of incarceration, and lower rates of relapse six months after treatment compared to the client that did not graduate. Another study found that number of hours in treatment is associated with better treatment outcomes. Brochu and colleagues (1997) found that of 248 clients in a rehabilitation center, clients who had spent more hours (at least 47 hours) in treatment had lower scores indicating fewer addiction problems according to the Addiction Severity Index five months after treatment compared to those clients who had spent less time in treatment. Exposure to treatment was based on the number of clients' contact hours with a therapist. Again, a confounding factor in this study may be that people who were motivated to change stayed in treatment longer and certain client features may have more influence on outcomes than do treatment variables.
Booth and Grosswiler (1978) found that among 96 DWI offenders, longer treatment duration was significantly correlated with decreased drinking and driving and also fewer re-arrests among the DWI offenders six months after treatment. Also, they found that the greater the time since treatment, the greater the recidivism rates for the DWI offenders. In a sub-sample of 44 substance abuse clients participating in a study on treatment length and outcome, researchers found a significant difference between treatment lasting for six months compared to treatment lasting for one month. There were 22 clients who participated in the one month program and 22 participants who participated in the six month program. Results indicated that the six month treatment program produced a greater number of successful outcomes compared to the one month program. Also, the six month group reported less number of drinking days in the past 30 days as compared to the one month group (Bleiberg et al., 1994).

Among DWI offenders, research has reported less frequently of evidence of reduced recidivism among this population. Due to the wide range of DWI programs, researchers have found it difficult to research the effectiveness of these programs for DWI offenders. In 2007, 34% of DWI offenders had a prior offense, indicating that a large number of DWI offenders are recidivists (NHTSA, 2008). DWI treatment may refer to different types of interventions, approaches, and programs and differ depending on county or state laws. Also, along with DWI treatment, offenders may also experience other penalties such as jail, license revocation, and community service.

Future DWI convictions and crash involvement rates are the criteria most commonly used to evaluate DWI treatment programs. Researchers have found that repeat offenders who receive full license suspensions have fewer total subsequent violations, non-alcohol violations, total crashes, non-alcohol crashes, and injury-and-fatal crashes than those who are referred to
education or treatment. A North Carolina study found that the addition of an alcohol and drug education program to a brief license suspension resulted in reduced DWI recidivism among first offenders exposed to the program compared with those who received only a license suspension (Popkin, Stewart & Lacey, 1983).

Although DWI education and treatment programs alone do not affect crash reduction, there is some evidence that these programs reduce DWI recidivism among repeat offenders. In a study on the effectiveness of the Alcohol and Drug Education Traffic School (ADETS) program in North Carolina, researchers found that very few clients were arrested for another DWI offense in the one year follow-up and two year follow-up (4.8% and 9.4%), indicating an overall success for the ADETS program. This is lower compared to the average rate of recidivism found in other studies which was 19% over a two year period (NCDHHS, 2007).

In 1976, the Comprehensive Driving Under the Influence of Alcohol Offender Treatment Demonstration (CDUI) Project was initiated in Sacramento, California. There were 4,639 first time DWI offenders participating in the project and they were assigned to one of three programs: (1) an education program consisting of four sessions over a four week period, each session for 2 ½ hours; (2) a home study program with a self-study package which was presented to clients in one hour orientation sessions; and (3) a control group that received no treatment. Both the education program and home study programs were shown to produce significant reductions in DWI recidivism relative to the no-treatment control group. Multiple offenders were assigned to either a 12-month education/counseling program or a no treatment control group. The offenders who were assigned to the 12-month program had fewer subsequent DWI arrests than those in the no treatment group. No program, however, had significant impact on crash involvement (Reis, 1982).
In another study, 8,938 convicted DWI offenders in Maryland were assigned to one of four groups: (1) an inpatient facility for four weeks; (2) a weekly, face to face program for up to two years; (3) no program; and (4) both programs. Results indicated that clients who were in the inpatient facility or face to face program has lower rates of recidivism than offenders assigned to neither program (Voas & Tippetts, 1990).

Treatment Motivation

A DWI conviction may represent an opportunity to increase motivation to change behavior by helping an offender recognize his or her problem with alcohol and its consequences. For example, first-time offenders who entered a DWI program acknowledged to a counselor during a group session that they needed to change both their drinking and their drinking-and-driving behavior, and they indicated that they were trying to do so after their offense (Wells-Parker & Williams, 2002).

People with substance abuse problems enter treatment for many reasons. Perceived pressures to enter treatment include internal and external motivations for change. External motivation is defined as perceived outside pressure or coercion to change. An example of external pressures is a client who is court ordered to receive treatment or a client who may lose his job if he does not go to treatment. Internal motivation refers to the pressures to change that arise from within the individual. An example of internal pressures is loss of self respect or self esteem. Internal motivators have been found to be associated with longer term change compared to external motivators (DiClemente, Bellino, & Neavins, 1999). Treatment entry pressures can be indicators of how ready a client is to change. Lack of motivation is a commonly used explanation for treatment failure and is evident in client characteristics such as denial, resistance, and personality traits such as low self esteem (Miller, 1985). Regardless of the degree and
characteristics of the initial motivation, stable recovery appears to depend on the continuing influence of motivational factors.

Stages of Change

Prochaska, DiClemente, and Norcross (1992) describe varying degrees of motivation in terms of “stages of change.” Five stages of change represent ordered categories along a continuum of motivational readiness to alter a problem behavior. The five stages of change identified are precontemplation, contemplation, preparation, action, and maintenance.

Precontemplation describes the stage at which there is no intention to change behavior. Many individuals in this stage are unaware of their problems. People in this stage usually underestimate the benefits of changing and overestimate the costs of changing. Common characteristics of an individual in this stage are defensiveness, resistant to suggestions, and lacks awareness of a problem. Contemplation is the stage in which people are aware that a problem exists but have not made a commitment to take action. They are aware of the pros and cons to change. Preparation is a stage where individuals are intending to take action and are finding resources to change. For example, the addict is making plans to attend AA or seek a counselor. Action is the stage in which individuals modify their behavior, experiences, or environment in order to overcome their problems. For example, the addict may have entered treatment. Maintenance is the stage in which people work to prevent relapse and are maintaining their behavior modification techniques (Prochaska & DiClemente, 1983).

The first two stages in this model (precontemplation and contemplation) are particularly relevant to the understanding of why individuals enter treatment. By examining these reasons to enter treatment, professionals may be better prepared to determine specified treatment plans for individuals depending on their readiness to change. For those who enter treatment, few are in the
action or maintenance stage (Belding, Iguchi, & Lamb, 1997). In a study of 81 participants receiving treatment for heroin addiction, researchers used the URICA to assess for what stage of change they participants were in at treatment entry. Most of the participants were in the preparation stage of change, while only five people were in the action stage of change.

In a sample of 132 recidivist DWI offenders, the majority (51%) of the mandated offenders reported to be less ready to change their drinking behaviors (precontemplation). Also, the offenders in the precontemplation stage reported the highest level of alcohol consumption (Freeman et al., 2005).

Prochaska (1994) has emphasized six principles to help facilitate change in individuals:

Principle 1: The advantages of changing must increase for people to progress from precontemplation.

Principle 2: The disadvantage of changing must decrease for people to progress from contemplation to action.

Principle 3: The advantages and disadvantages must cross over for people to be prepared to take action.

Principle 4: The strong principle of progress holds that to progress from precontemplation to effective action, the advantages of changing must increase one standard deviation.

Principle 5: The weak principle of progress holds that from contemplation to action, the disadvantages of changing must decrease one-half standard deviation.

Principle 6: We need to match particular processes of change to specific stages of change (p.42).

According to Prochaska, DiClemente, and Norcross (1992) the stages of change can be ascertained by a self-report method. The self-report method is composed of continuous scales for pre-contemplation, contemplation, action, and maintenance. The continuum reflects degrees of readiness to change. Items used to identify pre-contemplation on the continuous measure include: “As far as I’m concerned, I don’t have any problems that need changing” and “I guess I
have faults, but there’s nothing that I really need to change.” Items used to measure contemplation on the continuous measure include: “I have a problem and really think I should work on it” and “I’ve been thinking that I might want to change something about myself.” Items used to measure action on the continuous measure include: “I am really working hard to change” and “Anyone can talk about changing; I’m actually doing something about it.” Items used to measure maintenance on the continuous measure include: “I’m here to prevent myself from having a relapse of my problem” and “I may need a boost right now to maintain the changes I’ve already made.”

A linear progression through the stages of change is possible but is rare with addictive behaviors. During relapse, individuals regress to an earlier stage of change. Relapse and repeating through the stages of change occur quite frequently as individuals attempt to change their behaviors. When one relapses, they return to the precontemplation stage and can remain there for various periods of time (Prochaska & DiClemente, 1983).

Another aspect of the stages of change is the idea that therapeutic approaches are matched to a specific stage. This is important in developing a therapeutic alliance. If the therapist provides therapy that is action-oriented, and the client is in the precontemplation stage, then the client will experience the therapist as coercive. The client may feel that the therapist is pushing him to change when the client is not even convinced that change is needed. Resistance is characterized by when a client ignores, interrupts, or resists aspects of their treatment. Resistance can occur when the counselor assumes a greater readiness to change than the client is ready for. It is important for the counselor to recognize resistance and to develop therapy around the client’s resistance so they can come up with solutions to their own problems. Likewise, a client who is in an action oriented stage may become bored or dissatisfied with therapy if the therapist
is moving too slowly or fails to help the client take steps to change actual behavior.

**Psychological Reactance**

Psychological reactance, first proposed by Brehm and Brehm (1981), is a motivational state characterized by the tendency to restore one's ability to engage in freedoms perceived as lost or threatened. The individual may feel heavily pressured to accept a certain view or situation (i.e. treatment). It occurs in response to threats to perceived behavioral freedoms. When these behavioral freedoms are threatened, the individual tends to side with the opposite view of the pressure. Brehm's summary of psychological reactance states that a threat to or loss of a freedom motivates the individual to restore that freedom. The theory specifies what constitutes freedom, how freedoms can be threatened or eliminated, and how the resulting motivational state will manifest itself. The theory also associates the state of reactance with emotional stress, anxiety, resistance for the individual, and assumes people are motivated to escape from these feelings.

The theory of reactance holds some principles that indicate the magnitude of reactance. The first principle is that a freedom is expectancy and can be held with more or less certainty. The second principle concerns the importance of the freedom that is eliminated. The greater the importance of the freedom that is eliminated, the greater the amount of reactance aroused in the individual. The third principle states that the amount of reactance aroused by a given threat is a direct function of the number of freedoms threatened. The fourth principle is that freedoms can be threatened even by implication. In the context of drug treatment, clients may show reactance by insisting that their drug use is under control, refusing to participate genuinely in counseling sessions, undermining the group counseling process, or continuing to use drugs. This theory is especially important to treatment and perceived coercion in that if an individual feels coercion from an outside source, then their treatment outcome will not be effective in their behavior.
change.

**Drinking Related Consequences**

Awareness of the consequences of drinking is an integral part of motivation to change drinking behavior. Many adverse consequences have been associated with motivation to change. Using reflection of how drinking may be compromising personal values or how drinking may be adversely affecting intrapersonal factors such as personality or self-esteem, has been found to be one of several empirically supported approaches for motivating people who are ambivalent about changing drinking behavior (Blume, Schmaling, & Marlatt, 2006). DWI offenders experience alcohol related consequences that extend to their personal lives. On average, a DWI conviction results in a major financial loss, costing up to $9,000 for a first offense. Also, time is taken away from the offender because they are required to complete at least twenty-four hours of community service and they have their license revoked for at least 1 year. They also face up to 2 years in jail. Employment does not seem to be affected greatly among DWI offenders. In a telephone study of 416 DWI offenders, those offenders who had their license suspended did not differ significantly in unemployment to those who did not have their license suspended (Wells-Parker & Cosby, 1988).

Researchers have found that substance abuse occurs largely among some subgroups. In 2008 in NC, over 82% of DWI offenders who were assessed were recommended to attend treatment services for a substance use disorder. Approximately 27% of DWI offenders assessed had a diagnosis of substance dependence. Approximately 7% of offenders had other drug abuse or dependence (NCDHHS, 2008). In a study on motivation to change and drink related consequences, researchers found that intrapersonal consequences were significantly associated with motivation to change drinking behavior according to the Brief Readiness to Change
Questionnaire and Drinker Inventory of Consequences-Recent (DrInC-R). They also found that impulse control interpersonal consequences significantly predicted alcohol consumption at a 3 month follow-up period indicating that problems with interpersonal skills could be a risk factor for a poor prognosis to change alcohol use behavior. Also, interpersonal problems have been associated with worsening alcohol problems (Blume, Schmaling, & Marlatt, 2006).

Perceived Coercion

Coercion in the context of substance abuse research is often defined in terms of involvement with the legal system. Those who are referred to treatment by the criminal justice system are often considered to be “coerced” into treatment (Brecht, Anglin, & Wang, 1993). Substance users who perceive themselves as being coerced into treatment may become more successful in treatment because of the negative consequences they have endured. However, the concept of reactance holds that if a client is coerced into treatment, he or she is more likely to not enter treatment or to engage in treatment.

One way to define coercion is in terms of an individual’s motivation to change his/her behavior. According to Cox and Klinger’s (1988) motivational model of alcohol use, coercion may be defined as a lack of internal motivation. If a substance abuser is coerced into treatment by some external factor, it is possible that he/she has not weighed out the pros and cons of their behavior. However, if the substance abuser has entered treatment on his/her own will, then he/she has weighed out the pros and cons to their substance use related behavior.

Client motivation for change and compliance with treatment strongly predict treatment outcome. Examples of treatment compliance are group/individual sessions attended or length of stay in a treatment program. In a sample of 2,194 clients in long term residential facilities, those with a higher level of treatment readiness at intake were more likely to stay in treatment longer,
regardless of legal pressure. Also, those who were legally mandated to seek treatment remained in treatment longer than those who were not legally mandated (Knight, Hiller, Broome, & Simpson, 2000). In a sample of 49 court referred DWI offenders and 106 self referred subjects entering treatment, researchers found that there was a better attendance rate among the legally mandated than the self referred clients. Also, the legally mandated clients initially felt that they did not need treatment and denied having a problem with alcohol. However, as the treatment progressed, the legally mandated clients participated more in the group sessions and stayed longer in treatment compared to those who were self referred (Rosenberg & Liftik, 1976).

Four national studies assessed treatment performance and length of stay in a sample of approximately 44,000 patients in a data system of the Drug Abuse Reporting Program (DARP). A follow-up subsample (N= 4,627) included patients from methadone maintenance programs, therapeutic communities, outpatient treatments, and outpatient detoxification clinics. These patients entered drug treatment programs funded by the U.S. government and were entered into DARP’s data system. Approximately 45% of patients were legally mandated to enter an outpatient treatment DARP program. The patients involved in this program had interviews 5-7 years after admission to DARP. Researchers found that the length of time a patient spent in treatment was a reliable predictor of his or her post treatment drug use behavior. Following the 90-day treatment, treatment outcomes improved in direct relation to the length of time spent in treatment. Also, researchers found that legally mandated clients stayed in treatment longer than not legally mandated clients (Simpson & Sells, 1983).

In a study by Wild, Newton-Taylor, and Alletto (1998), a sample of 300 subjects who entered treatment voluntarily or in response to a legal mandate completed the MacArthur Perceived Coercion Scale. Researchers found that 35% of legally mandated clients and 61% of
the other mandated clients did not report any perceived coercion, but 37% of self-referred clients felt more coerced into treatment. Other mandated clients refer to clients who attended treatment based on a referral from an employer or other health services agencies. This study shows that it is important for therapists to take into account a client’s attitude and perceptions of the client in order to understand when coercion occurs in the treatment setting.

In a study of 260 clients entering intensive outpatient treatment for cocaine addiction, 31% of the sample reported more coercive than non-coercive reasons for entering treatment such as financial, familial, or psychological reasons (Marlowe et al., 1996). Coercion factors were measured by a social mediation questionnaire and scored whether treatment admission occurred in a social context.

Motivation to control drinking and reduce drinking and driving were examined in a sample of 670 DWI offenders in a court-mandated program. Action was the most frequent stage classification in both drinking and drinking/driving domains at both posttest and pretest periods. Precontemplation was the least frequent classification as measured by the Stages of Change for Drinking Scales (SCD) (Wells-Parker, Kenne, Spratke, & Williams, 2000). Results show that many DWI offenders acknowledge problems with drinking and drinking/driving behaviors and maybe attempting to make a change to their alcohol related behaviors.

Legal coercion may be the strongest factor that influences a client to enter treatment and to change their alcohol related behaviors. Also, there is a relation to coercion and readiness to change. Several studies have attempted to predict treatment outcome as a function of legal coercion. In a sample of 295 subjects in a substance abuse program, legal coercion was found to be associated with a greater readiness to change as measured by the Readiness to Change Questionnaire (RCQ) (Gregoire & Burke, 2004). Of the 295 subjects, 75.5% reported that the
criminal justice system precipitated treatment admission. Those who were legally coerced into treatment reported taking more action steps prior to admission to treatment and were more likely to reside in the action stage. This suggests that legal coercion enhances readiness to change, therefore legal coercion may ultimately improve outcomes for clients mandated to seek treatment for addiction.

*North Carolina DWI Programs*

There are four levels of treatment available to DWI offenders in North Carolina: Alcohol and Drug Education Traffic School (ADETS), Short Term treatment, Long Term treatment, and Intensive treatment. ADETS requires 16 hours of treatment, Short Term requires 20 hours of treatment lasting over a period of 30 days, Long Term requires 40 hours of treatment lasting over a period of 60 days, and Intensive requires 90 hours of treatment for a minimum of 90 days. ADETS, Short Term, and Long Term treatment groups each enroll 10-20 clients per session.

The criteria for which a person is referred for ADETS are:

1) No previous DWI conviction,

2) The BAC was 0.14 or less, and

3) The results of the substance abuse assessment indicate that the offender does not meet criteria for a substance abuse diagnosis.

The criteria for which a person is referred for Short Term treatment are:

1) The results of the substance abuse assessment shows that the offender meets criteria for a substance abuse diagnosis, or

2) The BAC was over 0.14, or

3) The offender refused to blow in the breathalyzer, or

4) The offender has had other legal problems such as alcohol violations or drug
The criteria for which a person is referred for Long Term treatment are:

1) The offender previously has completed short term treatment, or
2) The results of the substance abuse assessment shows that the offender meets criteria for substance, or
3) The offender has had 3 alcohol/drug related arrests.

State law makes these distinctions but it is important to note that criteria are somewhat arbitrary and may not reflect true differences among offenders. In particular, ADETS and Short Term clients may only differ by 1/100th of a BAC level or refusal to blow in the breathalyzer. Yet, the two reflect separate treatment programs.

The ADETS group consists of 16 hours of treatment for first time DWI offenders. ADETS is a standardized statewide educational curriculum that addresses the consequences of drinking and driving. Depending on the treatment provider, the ADETS program varies in treatment length and lasts for 5 sessions. The curriculum addresses the laws related to alcohol use, drugs and their effects, concepts of substance abuse, stress management, and treatment options. The curriculum also requires that the offender complete a personal consequences inventory in order to make the treatment process more personal and tailored to the offender’s situation. The goal is to identify a personal alcohol usage plan that is reflective of an informed self assessment, resulting in the future avoidance or reduction of substance usage related consequences. A certified ADETS instructor leads this group.

Short Term and Long Term treatment clients share the same group sessions; however the Short Term clients attend fewer group sessions. The topics covered in this group are left to the individual provider to research and teach. The topics covered in this group may include:
1. Defining addiction
2. America’s drug history
3. Changing problem behavior
4. How to help a friend
5. Alcohol expectations
6. Drug Education
7. Stress/Anger management
8. DWI laws and consequences
9. Relapse Prevention

How group topics are presented is left to the individual DWI providers. The group facilitators are required to research each subject before conducting the relevant session. The goal of DWI programs is to educate about alcohol and drugs in an effort to reduce substance-use related consequences. The group sessions are held in an open format where clients can attend any group session, but are required to complete a different group topic each time they attend. Group sessions are three hours long with 10-20 people attending each session. Short Term clients must complete 20 hours (7 sessions) of groups over a period of 30 days and Long Term clients must complete 40 hours (14 sessions) over a period of 60 days. It is important to note that the ADETS and Short Term programs are similar in length (16 and 20 hours respectively).

In 2007-2008, of 44,034 assessments conducted in North Carolina, 7,672 offenders were referred for ADETS, 22,061 offenders were referred for Short Term treatment, and 11,643 offenders were referred for Long Term treatment. Also, offenders had an average BAC of 0.16 and 33% had been convicted of a prior offense (NCDHHS, 2008).
Little is known about those who enter state mandated treatment for DWI in North Carolina and how they perceive it. It is important to understand readiness to change among DWI offenders attending the three different types of treatment (ADETS, ST, and LT) and how perceived coercion may relate to readiness to change, and to any change in drinking patterns. Distinctions between ADETS and Short Term clients are set by legal precedence and are not based on empirical evidence, yet the treatment programs are different. Results of between group comparisons may or may not support the different treatment the offenders received.

Goals of the Present Study

The first goal of the present study was to identify specific events that precede entry into DWI treatment and see whether internal or external factors are perceived by clients as being most influential in treatment entry. It may be that external factors are more associated with perceived coercion and less readiness to change.

The second goal of the present study was to examine the relationship between perceived coercion and stage of change. According to the theory of psychological reactance, people who are mandated to participate in a treatment program may resist treatment because they were persuaded to go to treatment. How much choice did the client feel as to entering treatment? How does that relate to stage of change at treatment entry?

The third goal of the present study was to identify the stages of change for the clients in the ADETS and Short Term group. By characterizing the stage of change for the different treatment groups, DWI providers maybe able to design treatments to best fit the client’s needs.

The fourth goal of the present study was to assess how stage of change might be associated with drinking frequency and quantity. At the start of treatment we want to also see if
drinking frequency and stages of change fluctuates or shifts from the beginning of treatment to treatment termination, and up to three months follow-up.

Hypotheses listed below propose findings for DWI clients in general, but analyses for group differences will also be conducted. Any group differences may support the legal distinction between ADETS and Short Term clients and the respective separate treatment programs.

**Hypotheses**

I. **External vs. Internal Coercion and Degree of Coercion**

At admission, all clients will be more likely to report an external motivating event as being the most important in triggering entry into treatment. At admission, all clients will report a high level of perceived coercion as measured by the MacArthur Perceived Coercion Scale (MPCS). To see if one group perceives greater coercion, a t-test of mean differences will be conducted.

II. **Stage of Change over Time**

Clients in both groups will show more readiness to change (increased scores) post test, and these increases will be maintained at three month follow-up as measured by the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES). A test of between group differences will also be conducted to see if one group reports higher scores on the three subscales of readiness over the three points in time. Group differences may support the separate treatment program each receives.
III. Drinking Related Consequences

The Drinker Inventory of Consequences (DrInC) will be used to determine any differences in negative consequences related to client’s alcohol use in the ADETS and Short Term group. The DrInC will be used in order to see if the groups are different from each other.

IV. Change in Drinking Patterns

Clients in both ADETS and Short Term will report reduced number of drinks per week from pre test to post test as measured by the Quantity Frequency Index (QFI). A test of between group differences will also be conducted to see if one group reports more number of drinks per week at pre test and post test and to see if one group reports more number of drinking days at pre test.

V. Follow-up Drinking and Stages of Change

Clients who completed the follow-up at 90 days after treatment will show reduced drinking days and reduced number of drinks per week compared to both pre test and post test and increased scores on readiness to change dimension. A test of between group differences will also be conducted to see if one group reports more number of drinks per week and more drinking days in the past 90 days.

Method

(NOTE: The method as presented was approved by the DWI agency and by the UNCW Institutional Review Board)

Setting
The research study was conducted at Harvest of Wilmington, a DWI Assessment and Treatment Facility. This is a private corporation that offers treatment groups to DWI offenders who are mandated to attend treatment by the courts in order to regain driving privileges. The treatment services include outpatient group treatment, individual counseling, and drug education. Harvest of Wilmington offers clients outpatient treatment such as ADETS (16 hours), short term treatment (20 hours), long term treatment (40 hours), and intensive treatment (90 hours). For the purpose of this study, we recruited participants from ADETS (five sessions in two weeks), short term treatment (seven sessions in no less than four weeks), and long term treatment (14 sessions in no less than eight weeks). However, due to the small number of clients in the Long Term treatment, this group was not included in the study (only 3 consenting participants).

Participants

The participants included 47 DWI volunteers, ranging in age from 21 to 62. (\(M= 30.23, SD= 9.67\)). Approximately one-third of the participants were female (\(N= 15\)) and the vast majority were Caucasian (44; 2 African American, and 1 Latino). Most of the participants were single (\(N=37\)) and the rest were married (\(N=3\)) or divorced (\(N=7\)). The average number of education years completed was 13.42 (\(SD= 3.36\)). The average age at first consumption of alcohol was 16 (\(M=16.44, SD=4.44\)) and their average Blood Alcohol Content (BAC) at the time of the DWI was 0.13. ADETS participants had an average BAC of 0.12 and Short Term participants had an average BAC of 0.14 and only 7 participants had previously been to a self help group such as Alcoholics Anonymous (AA).

At pre-test, 26 participants were in the ADETS (Alcohol and Drug Education Traffic School) group and 21 participants in Short Term treatment. At post test, not all participants filled out the surveys, therefore leaving 21 participants in the ADETS group and 11 participants in the
Short Term group. Participants under 21 were excluded considering that they would be reporting illegal behavior (underage drinking).

Procedure

Data collection began in August 2008 and ended in April 2009. All DWI offender clients were invited to participate in the study at admission by an IRB approved research assistant who was either an undergraduate or graduate psychology student. Interested participants were given an informed consent form and went to an adjacent room where one of the researchers was available to explain the study and consent form. Participants were told that they would be taking part in a study about client attitudes on DWI treatment and their participation was completely voluntary. Consenting participants were asked to complete a packet of surveys at the start of the treatment, at the end of treatment, and three months after treatment. Participants who completed all 3 surveys would have their names entered into a drawing for one of two Target gift cards.

All data were coded with a subject number at random to protect the identities of the participants. Their names were linked to their participant number on a sheet of paper that was permanently stored in a locked file cabinet in a file room at Harvest of Wilmington.

At the start of treatment, surveys were completed at Harvest of Wilmington before the group began for that day. At the end of treatment, surveys were completed at Harvest of Wilmington during the discharge session. Three months after treatment, participants completed the surveys at their home. The participants were given a hard copy of the surveys and a date by which they were to complete it and return to Harvest of Wilmington. Participants were to return it to Harvest of Wilmington by mail in a pre-addressed, stamped envelope. Harvest of Wilmington phoned the participants up to 2 times to remind them about the final survey. The winners of the two $40 gift cards received it either by mail or by picking up the gift card at the
facility. At each time period, specific measures administered at each point are listed and described below.

*Measures at time points*

<table>
<thead>
<tr>
<th>Pre-test</th>
<th>Post-test</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>SOCRATES</td>
<td>SOCRATES</td>
</tr>
<tr>
<td>SOCRATES</td>
<td>QFI</td>
<td>QFI</td>
</tr>
<tr>
<td>MacArthur Perceived Coercion Scale</td>
<td>DrInC-R</td>
<td></td>
</tr>
<tr>
<td>Motivating Events Survey</td>
<td>Demographics</td>
<td></td>
</tr>
<tr>
<td>QFI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DrInC-2L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Measures*

Measures included were demographic questions, the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) (Miller & Tonigan, 1996), MacArthur Perceived Coercion Scale (Gardner, Hoge, Bennett, Roth, Lidz, Monahan, & Mulvey, 1993), Motivating Events Survey (MacKain & Bowman, 1997), a modified Quantity Frequency Index (QFI, Cahalan, Cisin, & Crossley 1969), and the Drinker Inventory of Consequences (DrInC, Miller, Tonigan, & Longabaugh, 1995).

*Demographic Information.* Participants indicated their age, gender, education completed (in years), race, marital status, BAC, and age at which they first drank alcohol on a demographics sheet. The participants were also asked if they have ever attended a self help group related to alcohol use and if they ever had a prior DWI conviction.

*Stages Of Change Readiness And Treatment Eagerness Scale.* Few instruments have been
developed to measure individual’s readiness to change and motivation to change. Rollnick, Heather, Gold, and Hall (1992) developed the RTCQ to assess harmful drinking. The Readiness to Change Questionnaire (RTCQ) was designed for clients with alcohol problems who might not be aware of having an alcohol problem. Items were initially chosen to represent a specific stage of change according to the Prochaska and DiClemente model. The Maintenance stage is not included, because some individuals endorse both precontemplation and maintenance items. Hence, the RTCQ aims at assessing three of the stages of change — Precontemplation, Contemplation and Action. The test has been shown to have a three-factor structure, corresponding to the three stages of change. Rollnick, Heather, Gold, & Hall (1992) found that of 141 excessive alcohol consumers, 42% were in precontemplation, 27% in contemplation, and 30% in action. This scale is mostly used in busy settings where an individual can be referred to treatment and where it is possible to assess for excessive drinking.

DiClemente (1990) developed the University of Rhode Island Change Assessment (URICA) which is a 32-item scale to measure psychotherapeutic change. It measures the 5 stages of change of the transtheoretical model. Clients are asked to endorse statements using a Likert Scale from 1 (not at all) to 5 (extremely) in response to how important the statement was to them. Items were summed to give a total score for each stage. The URICA does not specifically address alcohol or drug abuse problems, but presents questions to address the range of addictive disorders. The validity of the URICA has not been examined among individuals with co-occurring disorders or validated for use in criminal justice settings. It is one of the most studied measures of readiness to change. One reason is likely due to its focus on a general "problem," whereas other measures specify a behavior (i.e., smoking) and typically provide a timeline or frequency of usage. Wieczorek, Callahan, and Morales (1997) assessed readiness to change by
administering the URICA in a sample of 656 DWI offenders and classified 62% of the DWI offenders were in the precontemplation stage. In another study, researchers found that of 458 participants, 31% were in precontemplation, 25% in contemplation, 17% in action, and 3% in the maintenance stage (Nochajski & Stasiewicz, 2005). A scale that focuses on specific problems (i.e. alcohol) is needed in the present study.

The SOCRATES is an instrument designed to assess readiness to change in alcohol abusers. It consists 19 items on a 5-point Likert scale, ranging from 5 (strongly agree) to 1 (strongly disagree). The scale yields three scale scores: Recognition (Re), Ambivalence (Am), and Taking Steps (Ts).

Scores on the SOCRATES provide information as to whether the participant’s scores are low, average or high relative to people already seeking treatment for alcohol problems. High scores on the Recognition scale indicate that the individual is having problems related to alcohol or drug use. The individual expresses a desire to change and is aware of the negative consequences associated with their alcohol or drug use. Low scores on the Recognition scale indicates that the individual's perception of their alcohol/drug use is not causing any negative consequences and they express no desire to change their behavior. High scores on the Ambivalence scale indicates that the individual sometimes wonders if they are in control of their alcohol/drug use and wonders if they are harming others around them. The individual may also wonder if he or she is an alcoholic or addict. High scores on this scale indicate some awareness of one’s behavior related to their alcohol/drug use. Low scores on the Ambivalence scale indicate no awareness of problem alcohol/drug use. Low ambivalence scores are related to Recognition scores because if individuals score low on the Ambivalence scale it may be either that they 'know' their alcohol/drug use is causing problems (high Recognition) or they 'know' that
they do not have an alcohol/drug problem (low Recognition). High scores on Taking Steps scale indicates that people are already taking action to make a change in their alcohol/drug usage. Low scores on the Taking Steps scale indicates that clients are not making a change in their alcohol/drug use patterns. High scores on all scales indicate more readiness to change (Miller & Tonigan, 1996).

SOCRATES was used in the present study because the measure has a theoretical foundation and is relatively brief (19-items.) Participant’s answers were recorded directly on the questionnaire form. Scoring is accomplished by transferring to the SOCRATES Scoring Form the numbers circled by the respondent for each item. The sum of each column yields the three scale scores. Recognition subscale scores range from 7 to 35, for Ambivalence, 4 to 20, and for Taking Steps, 8 to 40.

Version 8 of the SOCRATES was used in this study (see Appendix A for complete survey). This briefer version was developed using the items from the 39-item version that most strongly loaded on each of the three major factors. The 19-item scale scores are highly related to the longer scale for Recognition ($r=.94$), Taking Steps (.91), and Ambivalence (.82) (Miller & Tonigan, 1996).

Quantity Frequency-Variety Index. A modified QFI (Cahalan, Cisin, & Crossley, 1969) was used to yield a 90-day drinking summary, and identify the preferred alcoholic beverage that the individual consumes and amount of alcohol consumed on a average weekday and weekend. Client were also asked to identify the largest amount of drinks drank in a 24 hour period. Drinking frequency range is from 1-7. Participants were asked to estimate their drinking frequency of drinking liquor, wine, and beer in the past month using a 7-point Likert scale (1=never; 2=less than a month; 3=1–3 days/month; 4=1–2 days/wk; 5=3–4 days/wk; 6=5–6
days/wk; 7=everyday). Participants then estimated the amount of liquor ($1=never; 6=4 \text{ or more pints}$), wine ($1=never; 6=5 \text{ fifths or more}$), and beer ($1=never; 6=16 \text{ or more 12 oz cans/bottles}$) they consumed per drinking occasion as well as the total number of drinking days in the past 90 days before entering treatment for ADETS and Short Term clients. At the end of treatment, ADETS participants filled out a 14 day drinking summary and Short Term participants filled out a 30 day drinking summary. Participants were also asked to record their frequency of use with regards to other drugs such as cocaine, heroin, marijuana, hallucinogens, prescription drugs, crack, caffeine, benzodiazepines, inhalants, and nicotine. Responses were coded on a 7-point Likert scale (0=never, 1=1 or 2 times in the last 3 months, 2=once per 3 months, 3=once every two weeks, 4=once per week, 5=2-4 times per week, 6=everyday) (see Appendix B for survey).

*MacArthur Perceived Coercion Scale.* Perceived coercion was measured by the MacArthur Perceived Coercion Scale which consists of five true-false items from the Admission Experience Survey. These five items assessed for whether clients believed that they had influence, control, choice, freedom, and initiation over their decision to enter treatment. The five items were "I felt free to do what I wanted about coming to the hospital"; "I chose to come into the hospital"; "It was my idea to come to the hospital"; "I had a lot of control over whether I went into the hospital"; and "I had more influence than anyone else on whether I came into the hospital." Each "true" is scored 0 and each "false" is scored 1 (Gardner et al., 1993). The items were altered to read “DWI treatment” instead of “the hospital.” Possible scores range from 0-5 (see Appendix C for survey).

*Motivating Events Survey.* The Motivating Events Survey (MacKain & Bowman, 2007) consists of 15 possible events that may have occurred in the past 30 days prior to entering treatment. The 30-day cutoff point was used because it was assumed that events that have
occurred in the recent past would be the most salient with regard to influencing treatment entry. These events were generated on the basis of examples borrowed from Cunningham and colleagues, (1994) and Krampen,(1989). Five of the 15 items are labeled as internal factors (e.g. “You were concerned with withdrawal symptoms.”) and 10 items are identified as external factors (e.g. “A parent confronted you about your drug/alcohol use.”)

Participants were asked to place an ‘X’ to the right of the event if it had occurred in the past 30 days. There are 5 internal items and 10 external items. Then the participants rated the item(s) marked with an ‘X’ on a Likert-type scale of importance in the decision to attend treatment. A rating of 1 indicates not at all important in the decision to attend treatment and a 5 indicates extreme importance to attend treatment. Participants were then asked to choose the top three reasons for what they thought to be the most important decision to enter treatment and rank them in order (see Appendix D for survey).

The Drinker Inventory of Consequences. DrInc -2Lifetime (2L) is a 50 yes/no item instrument evaluating lifetime drink related problems (see Appendix E for survey). The measure characterizes the severity of alcohol problems in five domains: physical (range of 0-24), intrapersonal (range of 0-24), social responsibility (range of 0-21), interpersonal (range of 0-30), and impulse control (range of 0-30). It has two frames of reference, lifetime and recent consequences. DrInC also contains a control scale that is comprised of 5 non-problem items that heavy drinkers would be expected to endorse (Forcehimes, Tonigan, Miller, Kenna, & Baer, 2007). The Drinker Inventory of Consequences-Recent (DrInC-R) is a 50 item instrument evaluating recent drink related problems. Respondents report on a 4-point Likert scale within the past 3 months. DrInc was developed for use in Project MATCH (Blume, Schmaling, & Marlatt, 2006).
Results

Coercion

Coercion scores were dichotomized into low coercion (0-2) and high coercion (3-5) (Rain, Steadman, & Robbins, 2003). Results indicated that the participants in both groups felt highly coerced into coming to treatment ($M=4.13, SD=1.24$). It was predicted that the ADETS clients and Short Term clients would differ significantly on the measure of coercion. An independent samples $t$-test was conducted to show a significant difference in perceived coercion and found no significant effects for coercion across groups, $t(44) = 0.68, p > 0.05$. Surprisingly, there were no significant correlations found between perceived coercion and readiness to change and there were no significant correlations found between perceived coercion and alcohol quantity or frequency.

Drinking Quantity and Frequency

It was predicted that clients would report drinking fewer alcohol beverages in the past weekday and weekend at post treatment than at pre treatment. Also, a test of between group differences was conducted in order to see if ADETS and Short Term clients differ in the amount of drinking per week, weekday, and weekend at pre treatment and post treatment and number of days drinking in the past 90 days at pre treatment.

A 2 (group, ADETS and Short Term) X 2 (time, pre test and post test) mixed analysis of variance (ANOVA) was conducted to reveal a significant difference in drinks per week between ADETS and Short Term clients. The ANOVA showed a significant main effect for time, $F(1, 28) = 7.05, p = 0.01$ and a significant main effect for group, $F(1, 28) = 5.38, p = 0.03$. However, there was no time by group interaction, $F(1, 28) = 0.28, p = 0.60$. The results support the hypothesis in that the number of drinks drank per week significantly decreased for both groups.
from pre-test to post test and the means and standard deviations are listed in Table 1 for ADETS and Short Term combined. A 2 X 2 ANOVA was conducted to reveal a significance difference in drinks drank per weekday and weekend between ADETS and Short Term client. There was no main effects for number of drinks drank per weekday, but an ANOVA showed a significant main effect for time, \( F(1, 28) = 19.12, p = .00 \) and a significant main effect for time by group interaction, \( F(1, 28) = 5.82, p = 0.007 \) for number of drinks drank per weekend. The ADETS clients drank more during the weekday and weekend than the Short Term clients at both pre and post treatment. These results are shown in Table 2 and Table 3 in order to see a difference in drinks per weekday and weekend between the two groups. Also, the largest amount drank during a 24 hour period was also assessed for pre test and post test. A 2 X 2 ANOVA revealed a significant main effect for time, \( F(1, 28) = 13. 60, p = 0.001 \). These results are shown in Table 4.

Table 1.

**Mean Number of drinks per week for both ADETS and Short Term clients combined**

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Pre treatment</th>
<th>Post treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>M</td>
<td>6.65</td>
<td>4.32</td>
</tr>
<tr>
<td>SD</td>
<td>5.87</td>
<td>4.83</td>
</tr>
</tbody>
</table>

*Note. p=0.01*

Table 2.

**Mean Number of drinks per weekday at pre and post treatment for ADETS and Short Term clients**

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
</table>

32
### Table 3.

*Mean Number of drinks per weekend at pre and post treatment for ADETS and Short Term clients*

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre treatment</td>
<td>ADETS</td>
<td>26</td>
<td>4.98</td>
<td>4.49</td>
</tr>
<tr>
<td></td>
<td>Short Term</td>
<td>21</td>
<td>2.78</td>
<td>2.62</td>
</tr>
<tr>
<td>Post treatment</td>
<td>ADETS</td>
<td>21</td>
<td>2.80</td>
<td>3.24</td>
</tr>
<tr>
<td></td>
<td>Short Term</td>
<td>11</td>
<td>1.36</td>
<td>1.79</td>
</tr>
</tbody>
</table>

*Note. p = 0.00*

### Table 4.

*Largest number of drinks drank in a 24 hour period at pre and post treatment for ADETS and Short Term clients*

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre treatment</td>
<td>ADETS</td>
<td>26</td>
<td>7.48</td>
<td>6.16</td>
</tr>
<tr>
<td></td>
<td>Short Term</td>
<td>21</td>
<td>6.61</td>
<td>5.83</td>
</tr>
<tr>
<td>Post treatment</td>
<td>ADETS</td>
<td>21</td>
<td>5.04</td>
<td>4.28</td>
</tr>
<tr>
<td></td>
<td>Short Term</td>
<td>11</td>
<td>2.22</td>
<td>2.78</td>
</tr>
</tbody>
</table>

*Note. p = 0.001*
To assess longer term drinking patterns, clients at pre treatment were asked to report the number of drinking days over the past 90 days. Only 42 of the 47 participants provided information. A one-way ANOVA was conducted to reveal a significant difference in number of drinking days at pre test. The ANOVA showed a significant difference between the ADETS clients and Short Term clients, $F(1, 41) = 4.29, p = 0.04$. The hypothesis was supported in that the ADETS and Short Term clients differed significantly in the number of days drinking in the past 90 days. The ADETS clients reported drinking significantly more in the past 90 days than the clients in the Short Term group at pre test. The means and standard deviations for the number of drinking days are listed in Table 5.

### Table 5.

**Mean Number of drinking days in the past 90 days at Pre test**

<table>
<thead>
<tr>
<th>Group</th>
<th>ADETS</th>
<th>Short Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>$n$</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>$M$</td>
<td>30.95*</td>
<td>16.24</td>
</tr>
<tr>
<td>$SD$</td>
<td>29.08</td>
<td>14.67</td>
</tr>
</tbody>
</table>

*Note. N = 42.*  
* $p = 0.04$

**Other drug use**

At pre-test, results from the QFI indicate that 20% of the participants did not drink alcohol at all 90 days before entering treatment. Only 6% of the participants drank alcohol every day and 18% drank every week. Also, 56% of participants drank caffeine everyday and 70% used nicotine every day. Six percent of participants used marijuana every day. There were no significant responses related to other drug use.
Stages of Change

It was predicted that both ADETS and Short Term client’s SOCRATES scores would show movement from pre test to post test toward a more advanced stage of change. Also, a test of between group differences was conducted to see if there is a difference between the ADETS and Short Term clients on the 3 subscales of readiness to change. A series of three 2 X 2 mixed ANOVA were conducted to see if there indeed was a change over time in for each of the 3 SOCRATES subscales: recognition, ambivalence, and taking steps. For recognition scores, the ANOVA revealed no main effect for time, \( F(1, 27) = 2.16, p > 0.05 \), no main effect for group, \( F(1, 27) = 2.50, p > 0.05 \), and no time by group interaction, \( F(1, 27) = 1.34, p > 0.05 \). The recognition scores for all participants are low scores and indicate that the participants have no desire to change their behaviors and that their perception of their alcohol use has not caused them negative consequences which is consistent with the pre-contemplation stage. The means and standard deviations for the subscale recognition are listed in Table 6.

Table 6.
Recognition at Pre test and Post test for ADETS and Short Term

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test</td>
<td>ADETS</td>
<td>20</td>
<td>14.35</td>
<td>5.65</td>
</tr>
<tr>
<td></td>
<td>Short Term</td>
<td>9</td>
<td>12.11</td>
<td>3.18</td>
</tr>
<tr>
<td>Post test</td>
<td>ADETS</td>
<td>20</td>
<td>14.10</td>
<td>6.46</td>
</tr>
<tr>
<td></td>
<td>Short Term</td>
<td>9</td>
<td>10.10</td>
<td>2.99</td>
</tr>
</tbody>
</table>

Note: Range= 7-28(very low), 29-31 (low), 32-34 (medium), 35 (high)
Not all post treatment participants completed the SOCRATES, therefore there is missing data for some clients.
A 2 X 2 mixed ANOVA was conducted to determine any difference in ambivalence scores between the ADETS clients and Short Term clients at pre test and post test. The ANOVA revealed no main effect for time, $F (1, 28) = 3.82, p > 0.05$, a significant main effect for group, $F (1, 28) = 5.76, p = 0.02$, and no significant time by group interaction, $F (1, 28) = .009, p > 0.05$. The hypothesis was supported in that the ADETS clients significantly differed from the Short Term clients in ambivalence scores, however there were no differences over time. At pre test and post test, clients in the ADETS group had higher ambivalence scores compared to the Short Term clients. However, all ambivalence scores were rated as very low for both groups. The ambivalence scores are related to the recognition scores in that if the recognition scores are low and ambivalence scores are low, there are maybe no alcohol problems occurring in this sample or that there is denial of an alcohol problem. The means and standard deviations for the subscale ambivalence are listed in Table 7.

Table 7.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test</td>
<td>ADETS</td>
<td>20</td>
<td>9.40</td>
<td>3.91</td>
</tr>
<tr>
<td></td>
<td>Short Term</td>
<td>10</td>
<td>6.60</td>
<td>2.54</td>
</tr>
<tr>
<td>Post test</td>
<td>ADETS</td>
<td>20</td>
<td>8.30</td>
<td>3.39</td>
</tr>
<tr>
<td></td>
<td>Short Term</td>
<td>10</td>
<td>5.60</td>
<td>1.84</td>
</tr>
</tbody>
</table>

*Note. Range= 4-11 (very low), 12-14 (low), 15-16 (medium), 17-18 (high), 19-20 (very high Not all post treatment participants completed the SOCRATES, therefore there is missing data for some clients.*
time, $F (1, 26) = 0.00, p > 0.05$, no main effect for group, $F (1, 26) = 0.79, p > 0.05$, and no time by group interaction, $F (1, 26) = 0.004, p > 0.05$. Low scores on the taking steps subscale indicates that the participants were not making any changes in their alcohol use. The means and standard deviations for the subscale taking steps are listed in Table 8.

Table 8.

Taking Steps at Pre test and Post test for ADETS and Short Term

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test</td>
<td>ADETS</td>
<td>18</td>
<td>25.16</td>
<td>10.79</td>
</tr>
<tr>
<td></td>
<td>Short Term</td>
<td>10</td>
<td>22.20</td>
<td>8.58</td>
</tr>
<tr>
<td>Post test</td>
<td>ADETS</td>
<td>18</td>
<td>25.28</td>
<td>9.56</td>
</tr>
<tr>
<td></td>
<td>Short Term</td>
<td>10</td>
<td>22.54</td>
<td>9.29</td>
</tr>
</tbody>
</table>

Note. Range= 8-29 (very low), 30-32 (low), 33-35 (medium), 36-38 (high) 39-40 (very high)

Not all post treatment participants completed the SOCRATES, therefore there is missing data for some clients.

Both groups appear to show a lack of readiness to change their alcohol patterns which could mean that they perceive no problem from their alcohol use or they are unaware that they may have an alcohol problem. Also, there is a lack of change over time which indicates that they did not become more aware of their negative consequences from their DWI as time progressed.

**Drinking Related Consequences**

To see if ADETS and Short Term clients reported different degrees and types of negative consequences related to drinking, a series of t-tests were performed on the DrInC subscales, and no significant differences between the ADETS and Short Term clients emerged. The means and standard deviations for both groups are listed in Table 9. The means are considered to be low scores for both groups, indicating few self-reported alcohol problems.
Table 9.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>ADETS</td>
<td>25</td>
<td>2.64</td>
<td>1.95</td>
</tr>
<tr>
<td></td>
<td>Short term</td>
<td>21</td>
<td>2.62</td>
<td>1.77</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>ADETS</td>
<td>25</td>
<td>2.52</td>
<td>3.01</td>
</tr>
<tr>
<td></td>
<td>Short term</td>
<td>21</td>
<td>2.90</td>
<td>2.84</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>ADETS</td>
<td>25</td>
<td>1.80</td>
<td>2.04</td>
</tr>
<tr>
<td></td>
<td>Short term</td>
<td>25</td>
<td>2.38</td>
<td>2.63</td>
</tr>
<tr>
<td>Impulse Control</td>
<td>ADETS</td>
<td>25</td>
<td>4.92</td>
<td>2.75</td>
</tr>
<tr>
<td></td>
<td>Short term</td>
<td>21</td>
<td>5.24</td>
<td>2.82</td>
</tr>
<tr>
<td>Social Responsibility</td>
<td>ADETS</td>
<td>25</td>
<td>1.96</td>
<td>1.84</td>
</tr>
<tr>
<td></td>
<td>Short term</td>
<td>21</td>
<td>2.33</td>
<td>1.95</td>
</tr>
<tr>
<td>Control</td>
<td>ADETS</td>
<td>25</td>
<td>2.84</td>
<td>1.49</td>
</tr>
<tr>
<td></td>
<td>Short term</td>
<td>21</td>
<td>2.86</td>
<td>1.19</td>
</tr>
</tbody>
</table>

*Note.* Range= 0-45
Physical: 0-4 (very low) Interpersonal: 0-4 (very low) Intrapersonal: 0-5 (very low) Impulse Control: 0-3 (very low) Social Responsibility: 0-3 (very low)

Motivating Events

Participants seemed to misunderstand the directions when filling out the MES, and therefore we were unable to conduct appropriate analyses to reveal any significant differences between the ADETS clients and Short Term clients in motivating factors to enter treatment. However, for those clients (N=38) who checked the events that occurred to them in the past 30 days, most of the participants (92%) had been ordered by a judge or parole officer to receive
treatment. There were no between group differences in reasons to enter treatment. The other reasons participants entered treatment was that they lost self respect for themselves (13%) and they realized from their reading or study that their physical or mental health was at risk (13%).

Follow-up

Nine of the 47 participants completed the follow-up surveys and turned them in on time. All 9 participants were in the ADETS group. An ANOVA was conducted to see if scores at post treatment were maintained after 3 months on the SOCRATES, QFI, and DrInC. There were no significant changes in drinking patterns 3 months after treatment ended. Additionally, there were no significant differences in the SOCRATES subscales among the 9 participants from post test to follow-up. Participant’s scores remained very low for all 3 subscales, indicating a lack of readiness to change consistent with a pre-contemplation stage.

Discussion

Due to lack of research on the DWI population in regards to changes in drinking patterns, coercion, and stages of change, the present study was designed to characterize clients referred for this treatment and to assess any changes in these variables after DWI treatment ended. We were also interested to see if there were meaningful differences between ADETS and Short Term groups given that they received different treatment (law makes distinction).

The results indicated that at post test, there was a significant reduction in alcohol consumption for both groups. The results indicated a significant decrease between pre treatment ($M=6.65$, $SD= 5.87$) and post treatment ($M=4.32$, $SD= 4.83$) drinks per week for both groups. Interestingly, the ADETS clients reported drinking more drinks per week at pre treatment ($M=8.29$, $SD= 6.27$) and post treatment ($M=5.63$, $SD=2.04$) compared to the Short Term clients at pre treatment ($M=3.82$, $SD=3.92$) and post treatment ($M=2.04$, $SD=2.46$). There was a
significant decrease in drinks drank during the weekend from pre test to post test and significant decrease in largest amount of alcohol consumed in a 24 hour period from pre test to post test. Also, the ADETS group ($M= 30.95, SD= 29.08$) drank significantly more in the past 90 days at pre test than the Short Term group ($M= 16.24, SD= 14.67$). This may be due to the fact that they have experienced less alcohol related consequences and therefore feel no need to change their alcohol use after getting into one legal problem compared to the Short Term clients who may have had at least one prior alcohol/drug related arrest or who may have suffered more consequences related to their DWI. However, the DrInC indicated that all clients had a low severity of alcohol related problems. Also, treatment length differed between the 2 groups. The ADETS clients received their treatment in less than 2 weeks and the Short Term clients received treatment in no less than thirty days. This could also factor into the post test differences among the clients.

As hypothesized, an external factor such as a DWI conviction may represent an opportunity to increase motivation to change behavior. The results indicated that most clients in both groups felt coerced into coming to treatment ($M=4.13, SD=1.24$) and the reason most client indicated as why they entered treatment was because of legal pressures from either a judge or parole officer. Legal pressures may be a major determinant in DWI offenders’ choice to enter treatment. Knight and colleagues (2000) suggest that treatment programs can benefit from referral pressures (external motivation) by the correctional system because client outcome is better. They conclude that legal pressure is a major factor for a client to enter treatment, but also to stay in treatment for a longer amount of time. Though clients may not initially want to enter a treatment program, having external motivations may help them in their treatment and may have a positive effect on their outcomes. Wells-Parker and Williams (2002) found that first time DWI
offenders acknowledged that they needed to change their drinking behavior and indicated that they were trying to do so. However, clients in this study did not appear to be of the same mind. Participants here appeared to have little interest in changing.

Cox and Klinger (1988) defined coercion as a lack of motivation. According to their model of alcohol use, if a client feels coerced into treatment by an external factor, it is possible that he/she has not evaluated their alcohol consumption behaviors. Also, according to the theory of psychological reactance (Brehm & Brehm, 1981), if a client feels coerced into coming to treatment, he/she may strengthen a view that is contrary to the goals of treatment and therefore not enhance ones readiness to change. The results of our study support this model in that all clients felt coerced into coming to treatment and were at a low stage of change according to the SOCRATES. However, Gregoire and Burke (2004) found that in a substance abuse program, legal coercion was found to be associated with a greater readiness to change. Future studies with larger groups may help clarify the complex relationship among these variables.

Being aware of the stage of change a client is in can be beneficial because a clinician may be able to develop better treatment options to adhere to that specific client’s needs. If a client is in the pre-contemplation stage, a clinician can find a way to help the client progress in their stage of change, in order to have a better chance of treatment outcome. Results did not support the hypothesis that the ADETS and Short Term clients would show increased movement from pre treatment to post treatment, however, the ADETS group did significantly differ from the Short Term group on the ambivalence subscale. The ADETS scored higher on the ambivalence subscale indicating that they may be wondering more about their alcohol use behaviors and are more aware of their alcohol use behaviors compared to the Short Term clients. Also, the SOCRATES scores are ranked as low, average, or high relative to people already seeking
treatment for alcohol problems (Miller & Tonigan, 1996). All participants had low scores on the subscales of recognition, ambivalence, and taking steps at pre test and at post test. Also, all participants had a low level of alcohol related consequences according to the DrInC, which indicates that maybe these 2 groups aren’t all that different from each other.

The present study aimed to gain knowledge on client attitude changes in treatment and effectiveness of treatment on readiness to change, to gain a better understanding of the potentially diverse needs of clients entering the different levels of DWI treatment, and to get a better understanding of DWI offenders’ beliefs on coercion and what initially motivates them to go into treatment. Overall, this group of clients appeared to feel highly coerced and relatively unready to change alcohol consumption. DWI treatment programs would do well to focus on moving clients from pre-contemplation to contemplation through the use of motivational enhancement strategies.

Limitations of the Present Study

There was a limited amount of time available to conduct the study. There was a time-span of approximately 8 months. The Short Term treatment and Long Term treatment time span took longer than the ADETS treatment time, therefore fewer participants were able to complete treatment on time and fill out the follow-up survey. A small sample size (N=47) makes it difficult to make conclusions about the treatment variables. Also, a small sample size exhibits low statistical power. Also, another limitation of the study is that each individual DWI service provider is different. There is no set curriculum for the Short Term clients, but there is a curriculum for the ADETS clients. Each individual provider is left to teach their own material for the Short Term group and because it is a rolling group, each client learns different material. This makes it difficult to make conclusions on DWI treatment results.
The Motivating Events Survey (MES) was administered to all participants, but it seemed that not all participants understood the directions of the survey. Most participants did not fill out the questionnaire correctly and therefore, it was difficult to conduct analyses. The Macarthur Perceived Coercion Scale (MPCS) was specifically designed for psychiatric patients within a hospital setting, and therefore may have not been suitable to assess perceptions among DWI offenders entering treatment (Gardner et al., 1993).

The data gathered in the present study was based on self report. Self-report may not provide accurate information from the participants. Social desirability is a concern for self report methods because participants may answer questionnaires in a way they believe will be viewed as socially desirable. This jeopardizes the validity of self report questionnaires. However researchers worked to make the self report questionnaires as accurate as possible by having anonymity, encouragement of honesty, and specificity.

Self-reported drinking is more of a way to describe the two different groups than to see the impact of DWI programs on drinking. The treatment is largely drug education which has limited effects on drinking behavior. There is no control in the study and the ADETS and Short Term groups were heterogeneous samples because the criterion which an individual is recommended for the type of treatment differs with each treatment group.

The present study has generated interesting ideas for future investigation. Further research needs to be conducted in order to determine how readiness to change and coercion are related. Results from other studies and the present study are mixed. Is legal coercion associated with readiness to change? Also, a bigger samples size is needed in order to retrieve more conclusive results. A longer study period is needed in order to get a larger sample size and to involve more clients in the Long Term treatment group. As seen in the present study, few group
differences emerged between the ADETS and Short Term clients, which is not surprising due to the similar criteria by which they are placed in the groups. Involving Long Term treatment clients as well as the Short Term and ADETS clients, we may be in a better position to determine the interrelationships among readiness to change and perceived coercion.
References


Carolina’s alcohol and drug education traffic schools and mandatory substance abuse assessments. Final report: Chapel Hill: Highway safety research center, UNC.


*Addictive Behaviors, 23*, 81-95.
Appendix A

Demographics Questionnaire

Thank you for participating in this study. Please fill out the questionnaire to the best of your knowledge.

1. Gender: _____Male   _____Female

2. Age:_____

3. Race/Ethnicity:
   1. African/ African American
   2. Asian/ Asian American
   3. Caucasian/ European American
   4. Hispanic/ Hispanic American
   5. Native American
   6. Other_______

4. Marital Status:
   1. Single
   2. Married
   3. Separated
   4. Divorced
   5. Widowed

5. Education:______(# of years completed)

6. Age when started to drink alcohol:_______

7. Have you ever been to a self-help group related to alcohol use?  Y or N

8. Do you have a prior DWI conviction? Y or N
   If so, how many?__________
Appendix B

Stages of Change Readiness and Treatment Eagerness Scale
SOCRATES

Instructions: Please read the following statements carefully. Each one describes a way that you might (or might not) feel about your drinking. For each statement, circle one number from 1 to 5, to indicate how much you agree or disagree with it right now. Please circle one and only one number for every statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I really want to make changes in my drinking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Sometime I wonder if I am an alcoholic.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. If I don’t change my drinking soon, my problems are going to get worse.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I have already started making some changes in my drinking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I was drinking too much at one time, but I’ve managed to change my drinking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Sometimes I wonder if my drinking is hurting other people.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. I am a problem drinker.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. I’m not just thinking about changing my drinking, I’m already doing something about it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. I have already changed my drinking, and I am looking for ways to keep from slipping back to my old pattern.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>10. I have a serious problem with drinking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Sometimes I wonder if I’m in control of my drinking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. My drinking is causing a lot of harm.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. I am actively doing things to now to cut down or stop drinking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. I want help to keep from going back to the drinking problems that I had before.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. I know that I have a drinking problem.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. There are times when I wonder if I drink too much.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. I am an alcoholic.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. I am working hard to change my drinking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. I have made some changes in my drinking, and I want some help to keep from going back to the way I used to drink.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix C

MODIFIED QFI

Next we want you to answer questions about YOUR use of alcohol and other psychoactive substances. Please answer to the best of your ability.

I. Frequency of alcohol use in LAST 3 MONTHS:
   a. ___ If you have never had an alcoholic beverage (beer, wine or liquor) in your life, check here and go to I c.
   b. ___ If you have not had any alcoholic beverage in the LAST 3 MONTHS, check here and go on to I c.
   c. If you checked I a or I b, please check the reasons for deciding not to drink (check all that apply)
      1. __ Not old enough (it's illegal)
      2. __ Religious or moral disapproval of alcohol use
      3. __ Health Reasons (e.g. illness, pregnancy)
      4. __ Concern that you might have (or develop) an alcohol problem
      5. __ Other (specify)
   d. If you did not check I a, b, or c, please answer the following questions:
      During the LAST 3 MONTHS (about 90 days) about how many days would you estimate that you drank at least one alcoholic beverage? (Think about weekends, parties, stressful events, celebrations with friends, meals, and so on). Remember to estimate between 1 and 90 days: _______ Days
   e. During the LAST 3 MONTHS (about 90 days), have you experienced a major change on your drinking habits?
      1. __ No, my drinking stayed the same as usual
      2. __ Yes, I quit drinking altogether
      3. __ Yes, I started drinking for the first time
      4. __ Yes, I started drinking much more than I usually do
      5. __ Yes, I started drinking much less than I usually do

II. Varieties of alcohol used in the LAST 3 MONTHS
a. Think carefully about all the times in the LAST 3 MONTHS that you drank any HARD LIQUOR (including, for example, scotch, gin, bourbon, creme de menthe, khalua, schnapps, mixed drinks or similar beverages with high alcohol content.

1. In the LAST 3 MONTHS, how often did you drink HARD LIQUOR?

   ___ almost everyday
   ___ 5-6 days/wk
   ___ 3-4 days/wk
   ___ 1-2 days/wk
   ___ 1-3 days/month
   ___ less than once per month
   ___ Never

2. In the LAST 3 MONTHS, on the average, how much HARD LIQUOR did you drink PER DAY on the days you drank?

   ___ 17 shots (1/5th of liquor) or more
   ___ 11-16 shots (11 shots = 1 pint)
   ___ 8-10 shots/drinks
   ___ 5-7 shots/drinks
   ___ 3-4 shots/drinks
   ___ 1-2 shots/drinks
   ___ I never drink liquor

b. Think carefully about all the times in the LAST 3 MONTHS that you drank any WINE (including, for example, table wine, dinner wine, dessert wine, port, or sherry).

1. In the LAST 3 MONTHS, how often did you drink WINE?

   ___ almost everyday
   ___ 5-6 days/wk
   ___ 3-4 days/wk
   ___ 1-2 days/wk
   ___ 1-3 days/month
   ___ less than once per month
   ___ Never

2. In the LAST 3 MONTHS, on the average, how much WINE did you drink PER DAY on the days you drank?

   ___ 17 or more 5 oz glasses of wine
   ___ 11-16, 5 oz glasses of wine (15 glasses = 3 bottles)
   ___ 8-10, 5 oz glasses of wine (10 glasses = 2 bottles)
   ___ 5-7, 5 oz glasses of wine (5 glasses = 1 bottle)
   ___ 3-4, 5 oz glasses of wine
   ___ 1-2, 5 oz glasses of wine
   ___ I never drink wine

c. Think carefully about all the times in the LAST 3 MONTHS that you drank any BEER or similar low alcohol beverages (including, for example, beer, ale, wine coolers, Zima, light or ice beer).

1. In the LAST MONTH, how often did you drink BEER?

   ___ almost everyday

56
2. In the LAST 3 MONTHS, on the average, how much BEER did you drink PER DAY on the days you drank?

- __ 17 or more 12 oz cans or bottles
- __ 11 - 16 12 oz cans or bottles
- __ 8 - 10 12 oz cans or bottles
- __ 5 - 7 12 oz cans or bottles
- __ 3 - 4 12 oz cans or bottles
- __ 1 - 2 12 oz cans or bottles
- __ I never drink beer

III. Quantity of alcohol used in the LAST 3 MONTHS

a. People often drink more than one type of alcoholic beverage on a given day. In addition, their drinking often varies depending on whether it is a weekday or weekend. Therefore, we want you to think of a TYPICAL WEEKDAY on which you drank, and estimate the amounts of each of these three beverages you had to drink.
(Example: "On Thursdays, when I would get together with friends, I would drink about three 12 oz beers and two mixed drinks")

Remember: STANDARD DRINK = 12 oz beer = 5 oz wine = 1.5 oz hard liquor

1. Estimated average drinking on a TYPICAL WEEKDAY in the LAST 3 MONTHS: 
(Please fill in below with respect to the number of Standard Drinks)

______ Number of standard drinks consumed on a typical weekday on which you drank

Now we want you to think of a typical WEEKEND DAY (Friday, Saturday or Sunday) on which you typically drank, and estimate your average drinking on that day.

2. Estimated average drinking on a TYPICAL WEEKEND DAY in the LAST 3 MONTHS: 
(Please fill in below with respect to the number of Standard Drinks)

______ Number of standard drinks consumed on a typical weekday on which you drank

3. Finally, of all the days in the LAST 3 MONTHS, what is the LARGEST AMOUNT of alcohol you have had in one 24 hour period? 
(Please fill in below with respect to the number of Standard Drinks)

______ Largest number of standard drinks consumed in a 24 hour period

OTHER SUBSTANCE USE
How often have you used any of these psychoactive substances in the LAST 3 MONTHS?
Code frequency of use according to the following:
0 = Never
1 = 1 or 2 times in the LAST 3 MONTHS
2 = once per month
3 = once every two weeks
4 = once per week
5 = 2 - 4 times per week
6 = almost everyday

<table>
<thead>
<tr>
<th>Substance</th>
<th>Frequency of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td></td>
</tr>
<tr>
<td>Caffeine</td>
<td></td>
</tr>
<tr>
<td>Nicotine</td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td></td>
</tr>
<tr>
<td>Hashish</td>
<td></td>
</tr>
<tr>
<td>Crack</td>
<td></td>
</tr>
<tr>
<td>Cocaine</td>
<td></td>
</tr>
<tr>
<td>Amphetamines (not prescribed)</td>
<td></td>
</tr>
<tr>
<td>Barbiturates (not prescribed)</td>
<td></td>
</tr>
<tr>
<td>Benzodiazapines (not prescribed)</td>
<td></td>
</tr>
<tr>
<td>Other Tranquilizers (&quot;&quot;&quot;&quot;)</td>
<td></td>
</tr>
<tr>
<td>Heroin</td>
<td></td>
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<tr>
<td>Other opiates (not prescribed)</td>
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<tr>
<td>Hallucinogens</td>
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<tr>
<td>Inhalants</td>
<td></td>
</tr>
<tr>
<td>Birth Control</td>
<td></td>
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<tr>
<td>Any drugs by injection ever</td>
<td></td>
</tr>
</tbody>
</table>

Current Prescribed medications:
Amphetamines
Barbiturates
Benzodiazapines
Other Tranquilizers
Opiates (e.g. Methadone, Darvon)
Antidepressants (e.g. Prozac)
Antipsychotics (e.g. Haldol)
Antimanic (e.g. Lithium)
Other psychoactive medication

Do you feel you currently have a drinking or drug problem?  N  Y
(What substances and when did the problems first begin?)

Have you ever in the past had a problem with or been dependent on any of these substances?  N  Y (what? and when did it first become a problem? When did it stop being a problem?)
Have you ever "needed" a drink, or a "hit" or a dose of a drug first thing in the morning?  N  Y

Have you ever had a blackout (a period of time when you continued to behave normally, but didn’t remember at all the next day) from alcohol or other drugs?  N  Y (what substances?)

Have you ever had bad "shakes" or high fevers, seizures, hallucinations, heavy sweating or other such withdrawal symptoms when you have gone without drinking or substance use for awhile?  N  Y

Have you ever attended a self-help group (like Alcoholics Anonymous, or Women for Sobriety, or Narcotics Anonymous) for yourself?  N  Y

Have you ever had treatment for an alcohol or drug problem?  N  Y

Do, or did, any of your family members have an alcohol or drug problem?  N  Y
If yes, closest relative and what kind of problem (alcohol, drugs or both?)
Appendix D

MacArthur Perceived Coercion Scale

Circle True or False.

T  F  I felt free to do what I wanted about coming to treatment.

T  F  I chose to come into treatment.

T  F  It was my idea to come to treatment.

T  F  I had a lot of control over whether I went into treatment.

T  F  I had more influence than anyone else on whether I came into treatment.
Appendix E

Motivating Events Survey

Have any of these situations happened to you in the past 30 days? 1) Check (to the right of the box) that applies. Choose ALL items that apply. 2) Rate how coercive it was for you to enter treatment. Please rate on a scale from 1 to 5 how coercive this event was in your decision to enter treatment at this time. “1” indicates not at all important in the decision to attend treatment and “5” indicates extreme importance to attend treatment. Please circle the number that best represents your rating. 3) Then, choose the top THREE reasons for what you think were the most important decisions to enter treatment and rank them in order.

<table>
<thead>
<tr>
<th>IN THE PAST 30 DAYS:</th>
<th>Check</th>
<th>Least Coercive</th>
<th>Most Coercive</th>
<th>RANK (1, 2, 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your employer or boss told you to get help or you could lose your job.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>Your wife/husband or boyfriend/girlfriend told you they would leave you if you did not get help.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>A parent confronted you about your drug/alcohol use.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>Another family member (brother, sister, child) confronted you about your drug/alcohol use.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>Your closest friend told you to get treatment.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>Someone you know who has or had a drug/alcohol problem told you to get help.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>You were ordered by a judge or parole officer to receive treatment.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>You were told you could lose custody of your children.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>You were told you could get kicked out of your current housing situation.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>You were concerned with withdrawal symptoms.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>A doctor told you that your physical or mental health was at risk.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>You realized from your own reading or study that your physical or mental health was at risk.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>You lost respect for yourself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Someone close to you was arrested or hospitalized or died due to their drug/alcohol use.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>You decided to enter treatment for religious and/or spiritual reasons.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix F

Drinker Inventory of Consequences (DrInC-2L)

INSTRUCTIONS: Here are a number of events that drinkers sometimes experience. Read each one carefully, and circle the number that indicates whether this has EVER happened to you (0 = No, 1 = Yes). If an item does not apply to you, circle zero (0).

<table>
<thead>
<tr>
<th>Has this EVER happened to you?</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have had a hangover or felt bad after drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2. I have felt bad about myself because of my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3. I have missed days of work or school because of my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4. My family or friends have worried or complained about my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5. I have enjoyed the taste of beer, wine, or liquor.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>6. The quality of my work has suffered because of my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7. My ability to be a good parent has been harmed by my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>8. After drinking, I have had trouble with sleeping, staying asleep, or nightmares.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>9. I have driven a motor vehicle after having three or more drinks.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>10. My drinking has caused me to use other drugs more.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>11. I have been sick and vomited after drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>12. I have been unhappy because of my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>13. Because of my drinking, I have not eaten properly.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Question</td>
<td>Score</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>14. I have failed to do what is expected of me because of my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>15. Drinking has helped me to relax.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>16. I have felt guilty or ashamed because of my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>17. While drinking I have said or done embarrassing things.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>18. When drinking, my personality has changed for the worse.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>19. I have taken foolish risks when I have been drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>20. I have gotten into trouble because of drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>21. While drinking or using drugs, I have said harsh or cruel things</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>to someone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. When drinking, I have done impulsive things that I regretted later.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>23. I have gotten into a physical fight while drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>24. My physical health has been harmed by my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>25. Drinking has helped me to have a more positive outlook on life.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>26. I have had money problems because of my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>27. My marriage or love relationship has been harmed by my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>28. I have smoked tobacco more when I am drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>29. My physical appearance has been harmed by my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>30. My family has been hurt by my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>31. A friendship or close relationship has been damaged by my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>32. I have been overweight because of my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>33. My sex life has suffered because of my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>34. I have lost interest in activities and hobbies because of my drinking.</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>35. When drinking, my social life has been more enjoyable.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>36. My spiritual or moral life has been harmed by my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>37. Because of my drinking, I have not had the kind of life that I want.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>38. My drinking has gotten in the way of my growth as a person.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>39. My drinking has damaged my social life, popularity, or reputation.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>40. I have spent too much or lost a lot of money because of my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>41. I have been arrested for driving under the influence of alcohol.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>42. I have had trouble with the law (other than driving while intoxicated) because of my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>43. I have lost a marriage or a close love relationship because of my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>44. I have been suspended/fired from or left a job or school because of my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>45. I drank alcohol normally, without any problems.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>46. I have lost a friend because of my drinking.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>47. I have had an accident while drinking or intoxicated.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>48. While drinking or intoxicated, I have been physically hurt, injured, or burned.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>49. While drinking or intoxicated, I have injured someone else.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>50. I have broken things while drinking or intoxicated.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>