Motivation and Stages of Change Among Drug Addicts in Drug Abuse Treatment Programs

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MOTIVATION AND STAGES OF CHANGE
AMONG DRUG ADDICTS IN DRUG ABUSE TREATMENT PROGRAMS

BY

JANICE YUSZE TSOH

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
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ABSTRACT

The present study was designed to explore motivations among drug addicts in treatment by assessing stages of change and coercion experienced when seeking or participating in treatment. This study entailed the use of measures based on the Transtheoretical Model of Change and the development of a self-report instrument to assess individuals' perceived coercion from external factors that were involved in their decisions to enter drug abuse treatment. Coercion was defined as a condition under which individuals were forced by some external factors (such as events, authorities or significant others) to comply with a demand that conflicted with their personal beliefs and interests. Perceived coercion that an individual experiences is believed to have direct influence over one's commitment to treatment, length of stay in treatment and treatment outcome; however these factors have not yet been explored nor taken into consideration in research.

Subjects were 230 clients recruited from three drug addiction treatment settings: detoxification center, outpatient methadone maintenance, and residential. In Section 1 of the study, a self-report instrument to assess perceived coercion was developed. The inventory consisted of two scales: Relevance and Helpfulness. Reasonable reliability and internal validity were demonstrated. In addition, the reliability and internal validity of the measures based on the Transtheoretical Model of Change were examined. The instruments were shown to be reasonably successful in adapting to the drug addict population in the current investigation.

In Section 2, two approaches to establish stages of change among drug addicts in treatment were compared. One was the use of a discrete stage algorithm and the other was using cluster analysis of the Stages of Change Questionnaire. The two approaches involved staging individuals into subgroups through a discrete versus continuous manner. Multivariate and univariate analyses of variance, and discriminant function analysis were used to test the external validity of the stages of change against the decisional balance measures for being in treatment and quitting drugs. The approach using cluster analysis was shown to yield more appropriate stages of change subgroups.
In Section 3, measures of perceived coercion including the Relevance and Helpfulness scales and two global items on perceived control and coercion were subjected to further analyses on their relationships with the stages of change and the decisional balance measures in order to assess the external validity of the measures. The expected relationship between perceived coercion and the stages of change using the two global items asking directly on perceived control and perceived coercion for treatment participation was supported. Individuals in the precontemplation cluster reported less control over and more coerced feeling than those in the action/maintenance cluster. The construct validity of the Relevance and the Helpfulness scales to measure perceived coercion was questionable. However, precontemplators were different from those who were in action/maintenance in that they saw the factors related to family and finances were significantly less relevant to their treatment participation. Limitations of the study and future directions are discussed.
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"Bless the Lord, O my soul, and forget not all His benefits." – Psalm 103:2
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INTRODUCTION

According to the 1990 National Household Survey on Drug Abuse (National Institute on Drug Abuse, 1991), over 74 million Americans aged 12 or above have used an illicit drug in their lifetime and about 13 million were regularly using illicit drugs at the time of the survey. Drugs that have been commonly used are marijuana, cocaine, and prescription-type psychotherapeutic drugs (NIDA, 1991). Fewer than 1% of the household population included in the survey have reported lifetime use of heroin. However, owing to the exclusion of population segments in which rates of drug use may be high (e.g. homeless and transient people, inmates), the use of heroin in the population is probably underestimated (NIDA, 1991). The trend of regular drug use has appeared to decline since 1985, yet the mortality and morbidity associated with drug use continues to be a serious problem (Schrager, Friedland, Feiner, & Kahl, 1991). Drug Abuse Warning Network (DAWN) data from 453 hospital emergency rooms (ERs) located in 21 U.S. metropolitan areas have recorded over 120,000 drug related ER episodes in 1989, over 40% of which were precipitated by cocaine (Colliver & Kopstein, 1991). Indeed, data on ERs have shown that cocaine is the leading drug related to ER episodes since 1986. From 1987 to 1989, over 70% of the drug-related ER episodes reported that drug dependence was the motivation behind drug use and that the most common reason for the ER visit was an unexpected drug reaction and the need to seek detoxification (Colliver & Kopstein, 1991).

Morbidity associated with drug use is also reflected in the rapid increase in incidence of sexually transmitted diseases (STD) and human immunodeficiency virus (HIV) infections associated with and among drug users. From 1986 to 1988, the number of primary and secondary syphilis cases in women, who were either drug users or have had drug addicted sex partners, rose from 541 to 1,814 in New York City (Brouknight, 1990). The incidence of congenital syphilis increased to 375 cases from 57 during the same period. As of December, 1988, 25% of the 82,764 AIDS cases reported to the CDC (Centers for Disease Control) were IV drug users (Schrager et al., 1991). Research has found that the origin of the diseases is
largely traceable to the sexual activities of addicts and their drug use behavior (e.g. Brown, 1988; Schrager et al., 1991). A study reported 60% of middle class adolescent heavy cocaine users said they traded sex for cocaine or money (Brouknight, 1990). The large number of drug addicted prostitutes has also contributed to the spread of the diseases to both drug users and non-drug users. Of the women charged with prostitution, 75% were tested positive for one or more drugs and about 45% were using intravenous cocaine (Schrager et al., 1991). The needle-sharing behavior of addicts has also significantly increased the spread of AIDS among drug users. Of the 112 IV drug users studied between 1984 to 1988 who were diagnosed with AIDS at Montefiore Medical Center, Bronx, New York, over 90% reported sharing needles with others regularly (Schrager et at., 1991). Drugs injected are mostly heroin and cocaine (used by at least 97% of this group of IV drug users) and were often both combined (about 70%). Moreover, from a report of the CDC on AIDS and IV drug use in 1988, 73% of infants with prenatally acquired AIDS were infected by a mother who either used drugs or was infected through heterosexual contact with an IV drug user. In fact, IV drug users have been viewed as largely responsible for pediatric AIDS cases (Brown, 1988).

Beyond the level of public health, drug use has been found to be highly associated with crime (e.g. Carmen & Sorensen, 1988; Vito, Wilson & Keil, 1990; Wish, O’Nerl & Baldau, 1989). On the average, drug abusers were more than 6 times as likely to be involved in criminal activities than non-drug users (Wish, 1988). Large scale urinalysis has been regularly used in a number of jurisdictions to identify drug users among arrestees. Based on 70,489 arrestees tested in Washington DC. under a pretrial urine-testing program from 1984 to 1988, the proportion of arrestees who were tested drug-positive increased form 56% in 1984 to 75% in 1988 (Teborg, Bellassai, Yezer & Trost, 1989). The most popular drugs used have been cocaine, heroin and PCP. Among the arrestees tested, 64% used cocaine and 33% used several drugs. The strong drug-crime link is also reflected in the inmate population. A survey conducted by the National Institute of Justice (NIJ) in 1989 showed that more than 60% of all inmates in prisons were regularly involved in drug use before their last arrest. However, over
50% of drug-involved prison inmates were not receiving programmatic treatment while incarcerated, and many of these offenders were rearrested for robbery, assault, burglary and distributing drugs after being released (Chaiken, 1989; Lipton, Falkin, & Wexler, 1992).

Given the role of IV drug users in the spreading of AIDS and the high association of drug use and crime, drug addiction is not only a health concern at an individual level but also a broad social problem. The threat imposed by drug users on both public health and safety has encouraged civil commitment practices directed toward drug users. Drug abuse treatment programs nowadays serve purposes of both protecting society and promoting individual well-being (Brown, 1988; Platt, Buhringer, Kaplan, Brown & Taube, 1988). Identifying drug abusers and getting these individuals into treatment are important tasks of the criminal justice system (Vito et al., 1990). A close linkage between the current drug abuse treatment system and the criminal justice system in the U.S. began as early as the 1930s with the establishment of the Federal Public Health Service (USPHS) hospitals in Fort Worth and Lexington (Anglin, 1988; Maddux, 1988). It was the first attempt at compulsory treatment in the country. These hospitals treated both addicts who were incarcerated Federal prisoners and voluntary patients. The hospital programs provided drug withdrawal treatment, psychotherapy and supervised activities including vocational training, remedial education and recreational activities. These treatment programs were aimed not only at withdrawal illness but also at drug-using habits and mental and social problems related to drug use. As summarized by Maddux (1988), early follow-up studies from the 1940s to 1960s showed that patients with legal pressure had better outcomes than those with no legal pressure (legal pressure was defined as legal involvement). However, Maddux (1988) reported that most patients left well before treatment completion; patients who stayed were mostly legally referred. In addition, the small number of subjects studied in these follow-up studies was also a methodological problem. Indeed, legally referred clients are found to have positive outcomes very similar to "voluntary" clients in most later treatment programs (see below). Nonetheless, follow-up studies generally reported extremely high relapse rates owing to the absence of aftercare supervisions upon release from the
programs (Maddux, 1988).

Three major civil commitment programs have been undertaken in the U.S. since the 1960s; drug abuse treatment has been provided as a form of civil commitment of convicted offenders, persons charged but not convicted and persons not charged with any offense. The first program established was the California Civil Addict Program (CAP) in 1961. This was followed by the New York State Civil Commitment Project in 1966. At a Federal level, the Narcotics Addiction Rehabilitation Act (NARA) enacted in 1966 provided compulsory treatment for drug users charged with committing nonviolent Federal crime, treatment as an alternative to sentencing, and voluntary commitment of addicts not involved in criminal proceedings. Upon the passage of the NARA, many of the basic drug treatment programs now in the community have been established (Anglin, 1988). Forms of treatment include in-patient and outpatient methadone maintenance, residential, therapeutic community and out-patient drug-free programs. Another major effort in the drug abuse criminal justice area was the Treatment Alternatives to Street Crime (TASC) in 1972. The TASC program is a formal referral program that identifies clients, refers them to treatment, monitors clients' progress, and returns violators to the criminal justice system (Hubbard, Collins, Rachal, & Cavanaugh, 1988).

To investigate the effectiveness of drug abuse treatment programs, extensive follow-up studies with improved experimental designs have been carried out (Maddux, 1988). Regarding the efficacy of mandatory treatment and civil commitment programs, the most comprehensive and well-designed program was the California CAP, which is still an on-going program. In contrast the New York State Civil Commitment and the NARA program in New York were found to be limited in design goals, ended fairly quickly and were regarded as failures (Anglin, 1988; Incardi, 1988). An evaluation study for the California CAP was conducted from 1974 to 1976 (Anglin, 1988). Subjects were 1,000 narcotic addicts admitted to the California CAP from 1962 to 1964 for a 7-year period of commitment. Using a time series approach, data used were collected in 3 periods of time including 1) the interval from the time of first narcotic use
to civil commitment admission, 2) the time during treatment (7 years), and 3) the interval from
discharge to the interview (11 to 13 years following admission). Outcome variables such as
daily narcotic use and criminal activities were compared between a treatment group (clients
who stayed full term, 7 years, in treatment) and comparison group (clients with a minimum
exposure to treatment). In general, the treatment group showed a decrease in daily narcotic
use, in the number of crimes committed, as well as in the time involved in criminal activities
by 15%, 36% and 12%, respectively, more than the comparison group (clients with a
minimum exposure to treatment). Enforced drug abuse treatment was concluded as being
effective in reducing drug use and adverse social effects. In recommending an effective civil
commitment approach, Anglin (1988) concluded that placing narcotic addicts on long term
closely monitored parole (5 - 10 years) would be effective. However, since subjects were not
randomly assigned to treatment and no treatment conditions, treatment effects revealed from
these ad hoc analyses can only be applied when comparing addicts who stayed in treatment to
those who prematurely dropped out of treatment.

In the continuous effort to understand effective elements of treatment, two large scale
nationwide studies of drug abuse treatment have been conducted; a third national study, the
Drug Abuse Treatment Outcome Study (DATOS) was begun in 1990 (Hubbard, et al., 1989).
The first study, the Drug Abuse Reporting Program (DARP), examined treatment effectiveness
for drug abusers admitted to 52 federally funded and community based treatment agencies
between 1969 and 1973. Treatment settings included methadone maintenance (MM),
therapeutic community (TC), drug-free outpatient (DF) and detoxification (DT). Over 27,000
clients were studied during treatment; about 6,400 were interviewed 6 years after discharge,
697 opiate addicts of the sample were chosen for a 12-year follow-up (Simpson & Friend,
1988). Significant positive treatment outcome was reported at the 12-year follow-up, in that
25% of the clients interviewed had never used opiates since discharge and 63% had not used
opiates daily for at least 3 years. It was found that clients in the MM, TC, and DF treatment
modalities had significantly better post-treatment outcomes on drug use, criminality and
employment than those in DT. However, there were no significant differences among the three treatment modalities in their effectiveness. This finding, consistent with those of many other evaluation studies, provides evidence that different treatment modalities produce very similar treatment outcomes (National Institute of Medicine, 1990).

In searching for predictors of treatment outcome, only length of stay in treatment has been found to be a consistent predictor (Hubbard et al., 1989; De Leon, 1988; De Leon & Jainchill, 1986). From the DARP data, a minimum of 3 months was found to be necessary to produce positive changes, and outcomes improved with time staying in treatment after the first 3 months (c.f. Hubbard et al., 1988). Regarding the data of length of stay in treatment, DARP reported only 23% of the clients were discharged from treatment because of treatment completion, 61% were "expelled" or quit; including those clients who were expelled or quit, 57% stayed over 90 days. From the second national study of the Treatment Outcome Perspective Study (TOPS) that tried to assess effective elements in treatment, it has also been found that treatment tenure relates positively to treatment success (Hubbard et al., 1988). The TOPS data suggested that treatment lengths of 6 months or more were necessary to produce reduction in drug use. Despite the positive outcome, the findings have suggested that premature drop out is potentially a serious problem.

None of the client characteristics that have been studied (e.g. demographic variables) have a consistent relationship with treatment tenure (Hubbard et al., 1989; De Leon & Jainchill, 1986). Legal status does not seem to affect treatment outcome or the length of retention in treatment. Furthermore, legal status was found to be unrelated to the reasons for leaving treatment (Simpson & Friend, 1988). Although research has shown that some legally referred clients, particularly those who are referred from the Criminal Justice System, tend to stay longer in treatment, literature has not provided consistent support for such association between legal referral and outcome success (Hubbard et al., 1988).

Indeed, dropout is prevalent in all drug abuse treatment modalities as well as in the treatment of other psychological problems (De Leon & Jainchill, 1986). Although treatment
tenure has been found to be the most consistent predictor of successful outcome (e.g. Simpson & Friend, 1988; Hubbard et al., 1988), key elements involved in keeping clients in treatment are not yet clearly known; a significant portion of clients drop out before treatment can take effect. No comprehensive profile has emerged that predicts the length of stay in treatment (Condelli & De Leon, 1993; Craig, 1984; De Leon, 1985; Hubbard et al., 1989). Investigators have been trying to search for characteristics of dropouts such as demographics, addiction severity, drug related behavior, and legal status, but no reliable predictors have been identified (Condelli et al., 1993; De Leon & Jainchill, 1986). The fact that predicting retention or dropout is difficult suggests that the client characteristics that have been studied are more similar than different among individuals in the population.

A study using the framework of the Transtheoretical Model of Change was able to correctly predict 92% of the clients' continuation and termination status in psychotherapy (Medeiros & Prochaska, 1991). Predictors were stages of change, processes of change, and decisional balance which are some of the core dimensions of behavior change as identified by the model (Prochaska & DiClemente, 1983, 1984, 1992). Using the stages of change and change processes has also predicted attendance in worksite weight control program, both accounted for over 30% of the attendance variance when these variables were assessed at midtreatment (Prochaska, Norcross, Fowler, Follick & Abrams, 1992). The Transtheoretical Model has provided a useful conceptual framework in understanding how people change behaviors. It has been successfully applied to a broad range of problem behaviors such as smoking (Prochaska & DiClemente, 1983), alcohol (DiClemente & Hughes, 1990), weight control (O'Connell & Velicer, 1988), cocaine abuse (Rosenbloom, 1991), heroin addiction (Tejero, Trujols & Hernandez, 1991), psychotherapy (Prochaska, Rossi, & Wilcox, 1991), and to some preventive behaviors including mammography, sunscreen use, and exercise (e.g. Rakowski et al., 1992; Rossi, 1989; Marcus, Rossi, Selby, Niaura & Abrams, 1992).

The Transtheoretical Model has found that as people change, they go through a series of stages that include Precontemplation (not intending to change in the foreseeable future),
Contemplation (considering changing in the foreseeable future), Preparation (intending to change in the near future and have come up with a specific plan or taken some steps towards action), Action (actively engaged in changing a behavior) and Maintenance (sustaining the change and preventing relapse) (Prochaska et al., 1992; Prochaska & Prochaska, in press). These stages of change capture specific constellations of attitudes, intentions and behavior of individuals going through the process of change. The progress from one stage to another may not necessarily be linear, but may be cyclical in many cases. Many people relapse several times and recycle back to earlier stages before they succeed in changing their problem behavior. Even for individuals who enter the same kind of treatment programs dealing with the same kind of problem behavior, their readiness to change may vary widely. As reasons or motivations to enter treatment are different among individuals, people enrolled in treatment may be in one of the stages of change ranging from Precontemplation to Maintenance. In case of drug abuse treatment, some clients who are precontemplators may be those who are forced to enter treatment by the legal system and / or other factors but do not really want to change. On the other hand, some clients may be in maintenance who have quit using drugs but need some support for sustaining the change (Rosenbloom, 1991).

Using the stages of change as a predictor, most therapy continuers are found to be in the contemplation stage of change (Medeiros et al., 1991). On the other hand, premature terminators or dropouts are more likely to be in the precontemplation stage and tend to be more oriented toward changing their environment than themselves. It is also one of the key features of most precontemplators that they try to use defenses such as changing their environment in order to deny that they have a problem. Appropriate terminators were found to highly endorse the Action stage and were ready to take action when entering treatment. Therefore, they required fewer therapy sessions to achieve their therapeutic goals. In predicting weight control program attendance, higher endorsement in action was found to enhance attendance (Prochaska, Velicer et al., 1992).

Another dimension of the Transtheoretical Model of Change is the processes of change
that represent the different strategies or techniques that people use at each stage of change and that enable them to move from one stage to the next. Processes that are found to be predictors of dropouts in psychotherapy are the reliance on stimulus control and environment reevaluation, which are oriented towards changing the environment (Medeiros et al., 1991). Through using these processes, individuals who try to convince others and themselves that the problem is outside themselves can avoid facing their problems and therefore may soon drop out of therapy. Unlike premature dropouts, therapy continuers are found to use the process of contingency management such as rewarding themselves for making progress. In the area of weight control, enhanced program attendance is found to be associated with the greater use of stimulus control and less reliance on social liberation at pretreatment; and with the greater use of counterconditioning, stimulus control and less reliance on consciousness raising at midtreatment (Prochaska, Velicer et al., 1992).

The construct of decisional balance (pros and cons for a behavior), a stage dependent construct of the model, is found to be another significant predictor of retention in therapy (Medeiros et al., 1991). The consideration of pros and cons for a behavior is particularly relevant to the early stages of change such as precontemplation, contemplation and preparation. Premature dropouts are found to consider the disadvantages of entering therapy significantly more, while both therapy continuers and appropriate terminators value highly the benefits of entering therapy. In other words, individuals who find therapy helpful are more likely to stay in therapy or terminate therapy appropriately, and in turn they would be more likely to perceive the factors that influence their decision to seek therapy as positive and helpful. Similarly, individuals who find therapy unhelpful would tend to drop out prematurely, and therefore their perception of the factors that influence them to enter treatment would tend to be negative and unhelpful. Therefore, postdecisional weighing of motivational factors of entering treatment can serve as an indicator of one’s motivation to stay in treatment, which may in turn have direct relationship with treatment tenure as well as one’s desire to commit to treatment.

In order to find effective elements in treatment as a step to improve treatment outcome,
much effort has to be directed towards researching factors that sustain clients' motivations to stay in treatment. It is therefore necessary to understand and to explore the motivational factors that clients have in entering treatment. In the case of drug abuse treatment programs, addicts enter treatment for a wide variety of reasons. Reasons for entering treatment can range from "court order" to "tired of life style" (Anglin, 1988; De Leon & Jainchill, 1986). In general, reasons that most addicts have in getting treatment belong to one or more of the following categories: legal pressure, pressure from significant others, financial crises, pressure from work or employers, health or medical problems, and personal reasons (self or intrinsic motivations). Washton (1989) sees an effective ingredient of effective treatment as increasing motivation of clients to accept and to deal with their addictions. Therefore, bringing addicts to treatment is not equivalent to getting addicts to quit illicit drugs in the long run. Similarly, the use of compulsory treatment or legal coercion can have the effect of bringing addicts into treatment who would not voluntarily seek help, yet its effect toward treatment success among these individuals is questionable (Simpson & Friend, 1988). Under such forced-choice situations, addicts who are forced to get treatment but are not yet able to accept the values behind treatment would be less likely to put efforts to participate in treatment. Thus many drug offenders in treatment reported that they were just "going along with the program" but did not put their heart into it (De Leon, 1988). In addition, since external factors such as coercion from the legal system, pressure from family or other drug-related crises which bring addicts into treatment tend to be short-lived; these external factors alone are not enough to sustain recovery from drug use nor even the motivation to stay in treatment. Clinical experience has also found that once those external forces are removed, the desire for drug use usually returns (Washton, 1989; De Leon, 1988). Similarly, the national DARP study has found that addicts who entered treatment more frequently were subjected to greater influence from legal pressure and family concerns (Simpson & Friend, 1988). The key to treatment success, therefore, may require a level of motivation from the addicts' genuine belief and acceptance of the fact that a serious problem exists and needs to be changed.
It has been expected that clients who enter treatment "voluntarily" would have a significantly better outcome than those who are legally referred, with the assumption that these voluntary clients would be more committed to treatment (e.g. Maddux, 1988). In most studies, however, "voluntary" clients are in fact non-legally referred or, to the largest extent, non-legally involved clients; the findings have consistently demonstrated that "voluntary" clients have a similar treatment outcome compared to legally referred clients (Anglin & Hsier, 1989; Anglin, 1988; Maddux, 1988). Research in this area has failed to consider some indirect pressure from the legal system (e.g. fear of being arrested for using drugs) or legal involvement (e.g. awaiting trial) that some of these "voluntary" clients may experience (Incardi, 1988). In addition, literature on admission to drug abuse treatment programs indicates that the primary motivation for seeking treatment is usually related to some forms of negative or threatening situations (Institute of Medicine, 1991). Thus even "voluntary" clients may experience coercion when entering treatment (Carroll, 1991). The arrays of motivations that drug abuse clients have in entering treatment, particularly the arrays of coercion and its perceptive value that may potentially affect one's commitment, treatment tenure and thereby treatment outcome, have not been explored and assessed in the field of drug abuse treatment.

For many clients who are in drug abuse treatment programs, the decision making process of entering treatment may not be "totally" voluntary, i.e. they may not have an absolute freedom to choose whether or not to enter treatment (Carroll, 1991). Indeed, most individuals are subjected to a set of external factors (e.g. pressure from legal system, family, work, health and financial reasons) that are potentially coercive and unwelcome in nature which impose constraints on people's freedom of choice in their decision making. According to Janis and Mann's (1977) model of decision making, an individual's freedom of choice can be threatened by two major sources: event occurrences (e.g. physical and psychological barriers), and directive agents (authoritative figures, superiors, significant others). In the case of making decisions to seek drug abuse treatment, one may experience threats that are caused by event occurrences such as bad health consequences, financial difficulties as a result of drug
use (e.g., various health problems caused by drugs, not being able to pay debts, drugs are too expensive to afford), and fear of such possible health and financial consequences (e.g., fear of getting AIDS, fear of spending all savings on drugs). Under these circumstances, a person may feel inclined to 'choose' to enter treatment because it seems impossible to overcome these barriers. Directive agents that would be coercive in one's decision to enter treatment should include the legal system, family and friends as well as employers. Coercion from these directive agents can be experienced through fear of being put in jail, being separated from loves ones, or by loosing one's job because of drug use. In addition, arbitrary assignment by these agents to enter treatment, e.g., court order, family's demand or employer's requirement, are coercive in nature. However, threats or fear from these external factors are not always perceptually coercive. Depending on one's personal beliefs and desire, if the demand from those external factors is consistent with one's desire, such threats or fears may become a positive influence and are welcome by an individual. For example, if an individual has already been thinking about seeking treatment for his/her drug use, pressure from family or work pushing that person to seek treatment may be perceived as positive and in turn may serve as an extra motivation for this individual to commit to treatment and facilitate progress. On the other hand, for individuals who do not have any desire to enter treatment, external factors that bring them into treatment are likely to be perceived as coercive and unwelcome. However, clients' motivations for entering treatment do vary with time spent in treatment and experience with treatment, which could be indicated by clients' perceived coercion of some relevant external factors and perceptive value of other internal self motivations. Studying the arrays of motivations including coercion and clients' perceptive values of those motivational factors as well as the relations with other treatment variables are important towards better understanding treatment tenure and treatment effectiveness.

The purpose of the present study was to explore the arrays of motivation among drug addicts in treatment that include the stages of change, decisional balance for quitting drugs and treatment, as well as perceived coercion. Measures were based on the Transtheoretical Model
of Change and a self-report instrument developed in the current study to assess perceived coercion that addicts in treatment have experienced in their decisions to enter treatment. Coercion was defined as a condition under which individuals are forced by some external factors (such as events, authorities or significant others) to comply with a demand that conflicts with personal beliefs and interests. The instrument measured clients' perceived value of an external factor that brings them to treatment in terms of its "relevance" and "helpfulness". The "relevance" dimension asked subjects to indicate the extent to which they agree or disagree with each item regarding their own reasons to participate in treatment. This dimension represented the perceived magnitude of the effect that a factor has on individuals in getting them to treatment. The "helpfulness" dimension was expected to reflect the perceived values of a factor affecting one's decision to enter treatment from a reference point of how helpful the factor was. The perceived helpfulness of a factor was believed to enhance the individual's commitment to treatment, which should relate directly to one's experience with treatment and in turn retention in treatment. Finally, relationships were explored between the dimensions of the Transtheoretical Model of Change and the measures of perceived coercion. It was hypothesized that individuals in treatment who experienced high coercion would tend to be in the earlier stages of change (e.g. precontemplation), while others who experienced less coercion would tend to be in the later stages of change (e.g. action and maintenance).

**Method**

**Subjects**

Two hundred and thirty drug addicts, 39.1% (n=90) females and 60.9% (n=140) males, were recruited from treatment programs offered through the Spectrum Addiction Services in Massachusetts. Treatment settings included detoxification center (n=114), methadone maintenance (n=96) and drug-free residential (n=20). Subjects in detoxification center were offered $5, and those in methadone maintenance and residential were offered $10 as incentives for participation. The mean age was 34.6 years old, ranging from 19 to 61 years.
of age. The ethnicity composition of the sample was 67.8% Caucasian, 12.2% Black, 17% Hispanic, 0.9% Asian, and 0.9% American Indian, and 11.3% other. The mean education level was 12th grade. The majority (80%) were unemployed. Heroin and cocaine were the main drugs of choice. Subject characteristics and drug use patterns are summarized in Table 1.

Procedure

A pilot study was first conducted before the actual administration of the present study. Thirty subjects were recruited from the detoxification center. Besides enhancing the procedure of screening items of the instrument to be developed in this study, the pilot study was used to deal with some practical concerns of the ease of administration and subject's demand characteristics in completing questionnaires. Subjects were ensured that their answers and names would be coded as numbers and the information that they provided would not be available to anyone outside of the study including those involved in treatment. Subjects were told that the study was aimed at learning more about the motivations that individuals may have for entering drug abuse treatment; and the purpose of collecting names was to get information on treatment tenure of participants (which was beyond the scope of this study but would serve as a piece of important information for other studies with similar interests). For the purpose of facilitating recruitment, subjects in the detoxification center were offered $5 as incentives for participating in the study.

A packet of questionnaires in the following order included 1) Informed Consent, 2) General Information Questionnaire; 3) Measure of Perceived Coercion experienced in entering treatment - Relevance Scale; 4) Change Assessment Questionnaire; 5) Measure of Perceived Coercion experienced in entering treatment - Helpfulness Scale; 6) Decisional Balance Scale for Drug Addiction Treatment; 7) Decisional Balance Scale for Quitting Drugs; and 8) Social Desirability Scale. For the purpose of this pilot study, an additional questionnaire, a Comment Sheet, asking subjects' understanding of items and instructions, relevance of the items, was given (Appendix E). The consent form was the only document that has both subject's name and an identification number. This number was the only identifier placed on all
questionnaires. Subjects were told that the entire process would take about 45 - 60 minutes. Comments and results from the pilot study indicated no change was necessary for both the questionnaire administration procedure and the contents of the questionnaires.

Actual administration of the present study was conducted in a very similar manner as in the procedures described for the pilot study above (except that the Comment Sheet was not given). The study was conducted on Saturday mornings across six weeks in one to two of the three settings each week. Announcement about the study was made by the treatment staffs, a poster was used for the methadone maintenance out-patient center. Subjects obtained the packet for the study from the researcher. They were allowed to do the survey anywhere in the treatment center and were asked to return the survey to the researcher. Subjects recruited from the methadone maintenance out-patient unit were allowed to do the survey at home owing to the limitation of space in the setting. A majority of the subjects returned the questionnaires on the same day, while some returned it the following week. Return rate of the questionnaires was 100% for both the detoxification center and the residential unit, while that for the methadone maintenance setting was 90%.

**Measures**

1. Measure of Perceived Coercion -- Instrument Development

*Scale description:*

The instrument developed in the present study was a self-report measure that was intended to assess client's perceptions of some external factors, such as legal pressure, which influenced their decisions to enter treatment. Client's perceptions of external pressures were measured in terms of perceived "relevance" and "helpfulness". Subjects were asked to rate each of the items on a 5-point Likert Scale ranging from 1) strongly disagree to 5) strongly agree on the Relevance scale. On the Helpfulness scale, subjects were asked to rate each item on a 7-point Likert Scale ranging from 1) extremely hurtful to 7) extremely helpful.

The Relevance scale was aimed at measuring the relevance of the external factors that have influenced one's decision to enter treatment. On the Helpfulness scale, each item was
rated in terms of how helpful each of the factors was to the subjects in making their decision to enter treatment with their own desire taken into consideration. It was expected that subjects who have a greater desire to enter treatment would perceive the relevant factors that drive them toward the direction of participating in treatment as more helpful. It was assumed that any factor that was perceived as coercive would be rated as very important (agree or strongly agree) but not quite helpful (lower on the Helpfulness scale, e.g. extremely hurtful, moderately hurtful). Factors that were perceived as helpful were believed to be the factors that sustain a client's motivation to go through treatment. Irrelevant factors were expected to be rated as strongly disagree or disagree in terms of relevance and neither helpful nor hurtful.

The best method to construct a coercion index was determined by comparing each coercion index to the stages of change. Furthermore, the construct validity of the coercion index was tested by the correlations between the index and the two global items on perceived control and coercion over seeking or participating in treatment (Appendix B). Separate analysis was performed on each of the Relevance and Helpfulness scales.

Item generation:

A pool containing a large number of items was generated to allow for establishment of reliable subscales following statistical analysis. Items were generated according to the categories of reasons that drug addicts commonly have for entering treatment as reported in the literature. The constructs included: 1) legal reasons, such as court orders, probation / parole condition, or indirect pressure (e.g. fear of going to jail); 2) family / friends, such as encouragement from significant others; 3) pressure from employers or work; 4) financial reasons; 5) health / medical reasons.

Initial screening:

An initial pool of items was first screened by five staff members of the Cancer Prevention Research Consortium (CPRC) at the University of Rhode Island for language clarity, which eliminated some potentially troublesome items. The CPRC staff members were asked to read individual items and sort them according to their relevance to the proposed
categories. Only items that were similarly classified by all the raters were retained. Further screening of the items was enhanced by administering the revised questionnaire to a group of 30 clients recruited from the target population. A total of 30 items, with 5 items for each proposed factor was used for both Relevance and Helpfulness scales (Form B and D respectively in Appendix F).

2. Stages of Change

Change Assessment Questionnaire. This 32-item questionnaire developed to assess subjects' readiness to change their problem behavior (McConnaughy, Prochaska, Velicer, 1983; McConnaughy, DiClemente, Prochaska & Velicer, 1989) was used. For the purpose of the present study, the instructions were modified to ask subjects to respond to the items relating to their drug use problem (Form C of Appendix F). Subjects were asked to respond on a 5-point Likert Scale ranging from 1) strongly disagree to 5) strongly agree. Eight items comprised each of the four stages of stage: Precontemplation (PC), Contemplation (C), Action (A) and Maintenance (M). Internal consistency coefficient alphas for the four scales were: PC, .88; C, .88; A, .89; M, .88 (McConnaughy et al. 1983). The coefficient of the measure used in the current study was calculated.

The Change Assessment Questionnaire has been shown to be a valid measure to capture the stages of change in psychotherapy as well as in a number of health behavior problems including alcohol use and weight control (e.g. DiClemente & Hughes, 1990; Prochaska, Velicer et al., 1992). The questionnaire yielded four highly reliable and statistically well-defined scales representing the four stages of change (McConnaughy et al., 1989).

Stages of change algorithm A series of statements adapted from a categorical classification system used in the context of the Transtheoretical Model were used to assess individuals' intentions and actions toward quitting drug use (Appendix A). This measure classified subjects into one of the discrete mutually exclusive groups in the following manner:

1) Precontemplation: currently using drugs and have no thought to quit drug use within the next
6 months; 2) Contemplation: currently using drugs and plan to quit in the next 6 months but not the next 30 days; 3) Preparation: currently using drugs and plan to quit in the next 30 days; 4) Action: quit use of drugs within the prior 6 months; 5) Maintenance: no drug use for more than 6 months.

A similar type of classification schema has been reliable across several areas including smoking, psychic distress, weight control, cocaine use etc. (O'Connell & Velicer, 1988; Prochaska & DiClemente, 1983; Rosenbloom, 1991). In the area of drug addiction, Rosenbloom (1991) used a similar type of classification system to stage subjects into Precontemplation, Contemplation, Action, and Maintenance. Although only 5.1% and 9.6% of her subjects fell into the Precontemplation and Contemplation stage of change respectively, subjects in each stage demonstrated reliable differences in the use of processes, decisional balance and self-efficacy which were consistent with the Transtheoretical Model of Change.

3. Decisional Balance Scale for Drug Addiction Treatment

A shortened version of the revised Psychotherapy Decisional Balance Sheet (PDBS-R) (Medeiros, 1987, 1989; Penny, 1988) consisting of 16 items was used to assess individuals' relative weighing of the pros and cons for entering drug abuse treatment. Some wordings of the instructions and items were changed so as to be applicable for the present study (Form E of Appendix F). The PDBS-R contains 32 items representing the 8 categories of gains versus losses for self and others proposed by Janis and Mann (1977) that are believed to capture the cognitive and motivational components in human decision making. The 8 categories include: a. gains or losses for self; b. gains or losses for others; c. self-approval and self-disapproval; d. approval and disapproval from others. The items are scored along two primary dimensions: PROS and CONS. The PROS dimension of this decisional balance sheet consists of items representing positive consequences of entering psychotherapy while the CONS dimension has items suggesting negative consequences of entering therapy. Studies involving the use of this decision making model in different areas such as smoking cessation, weight control, psychological distress, and drug addictions have consistently demonstrated 2 dimensions of
decision making, pros and cons for the targeted behavior (Prochaska, Velicer et al., in press).

The shortened version used in the present study contained 16 items from four of the eight categories representing 8 pros and 8 cons. The four categories included: self approval, gains for self, self disapproval and losses for others. Madeiros and Prochaska (1991) have found that the above four categories served as significant predictors for termination and continuation status in psychotherapy. Subjects were asked to rate how important each statement was in their decisions to enter treatment on a 5-point Likert scale ranging from 1) not at all important to 5) extremely important.

4. Decisional Balance Scale for Quitting Drugs

A 12-item Decisional Balance Scale for Quitting Drugs was adapted from the decisional balance scale for cocaine use developed by Rosenbloom (1991). Wordings regarding cocaine use were changed to drug use. Similar to the revised Psychological Decisional Balance Sheet, subjects were asked to rate each item on a 5-point Likert scale ranging from 1) not important to 5) extremely important. The items represent PROS and CONS for cocaine use with 6 items on each dimension. The internal consistency coefficient of the PROS and CONS dimensions was .87 and .86 respectively (Rosenbloom, 1991). The validity of the instrument has been demonstrated in the cocaine population (Rosenbloom, 1991). (Form F of Appendix F).

5. General Information Questionnaire

Information on demographics including age, income, education, legal status, addictive behavior such as drug use behavior, impacts of addiction, treatment types and goals, source of referral, length of stay in treatment, treatment participation and satisfaction and so on was collected using this questionnaire developed for the present study (Form A of Appendix F). Some of the questions in this questionnaire were adapted from the Addictive Severity Index,ASI (McLellan, Luborsky, Woody & O'Brien, 1980, 1985), which is a semistructured interview that collects data in seven problem areas: medical condition, employment problems, alcohol use, drug use, criminality, family and social problems, and psychiatric problems.
Information on client background and current status were obtained in each of the areas. The ASI has been used to predict treatment outcome and to assign clients to appropriate treatments (McLellan, Luborsky, Woody & O'Brien, 1985). Questions on drug use pattern were adapted from the Cocaine Assessment Profile developed by Washton (1989).

6. Social Desirability Scale

Jackson's Social Desirability Scale (Jackson, 1967) was used to assess response bias due to social desirability (Form G of Appendix F). This instrument consists of 20 items that are presented in a true-false format. It has been found to be a valid and reliable measure to determine if a response set tends toward the direction of social desirability.

RESULTS

The results of the current study are presented in the following three sections: 1. instrument development and internal validation; 2. external validation of stages of change; 3. external validation of perceived coercion measures. Each section contains results and a brief discussion. A general discussion addressing summaries of the findings, implications, limitations of the present study and future directions follow these three sections.

SECTION 1: INSTRUMENT DEVELOPMENT AND INTERNAL VALIDATION

Results

Measure of Perceived Coercion

A principal components analysis (PCA) was conducted separately for the Relevance scale and the Helpfulness scale. A 30 X 30 matrix of interitem correlations was used as input for each analysis based on all subjects (n=230). The number of components to retain was determined by Velicer's (1976) minimum average partial (MAP) procedure and parallel analysis using Horn's rules (1967) as well as Lautenschlager's (1989) guidelines based on Monte Carlo analyses for determining parallel analysis criteria. Both MAP and the parallel analysis have been shown to be the most accurate procedures to determine the number of
components to retain across a wide range of simulated situations (Zwick & Velicer, 1986).

I. Relevance Scale

A four-factor solution was suggested by both MAP and parallel analysis (using both Horn's and Lautenschlager's guidelines). Both varimax and oblique rotations were performed on the four-factor solution suggested and yielded consistent results. Item deletion was based on one of the three criteria including factor loadings, coefficient alphas and item analysis. Items that loaded less than .50, loaded on a non-target component (theoretically wrong component), or items that were complex (loaded on more than 2 components with loadings greater than .40) were eliminated. Coefficient alpha was also computed to indicate the internal consistency of each component. Items with low or negative total-item correlations, which lowered the internal consistency of a subscale were deleted. In addition, items were not retained if they had a highly skewed distribution, high (4.0 or greater) or low (2.0 or less) mean endorsement, and / or significantly high correlation (.30 or greater) with the Jackson Social Desirability Scale (Jackson, 1967). Further PCA's using oblique rotations were conducted and a final 16-item version of the Relevance scale was derived (table 2). The four factors, were interpreted as Family, Financial, Legal and Work as sources of reasons that were perceived as factors which brought subjects into treatment. All four components accounted for 61% of the item variance. Items loadings ranged from .63 to .87. Table 2 presents the final 16 items and their loadings on each component. While a five factor solution was hypothesized, the Health factor did not emerge as a distinct factor. Rather, the items generated for this factor loaded on other factors and/or were complex. The coefficient alphas for the Family, Financial, Legal, and Work subscales were .66, .79, .74, and .82 respectively. All four subscales have non-significant correlations with the Jackson Social Desirability Scale (Jackson, 1967). Table 3 shows the means, standard deviations, coefficient alphas and scale correlation.

II. Helpfulness Scale

A 4-component solution was suggested by MAP, while a 3-component solution was suggested by the parallel analysis procedure, using Horn's rules and Lautenschlager's
guidelines. Both solutions were considered and interpreted. In using factor loadings as one of
the procedures for item reduction as mentioned above, it was found that both cases contained a
component that consisted of five items which were presented as the last five items on the
questionnaire (question 26 to 30, Form D in Appendix F). Those five items were originated
from the item pool of the family, legal and financial factors. This finding suggested the
potential existence of a response set that was dependent upon the location of the items on the
questionnaire. Therefore, no further exploratory factor extraction procedures were carried out
with the items on this scale.

An attempt was made to impose the four-factor structure derived from the Relevance
scale on the Helpfulness scale. Internal consistency for each factor was computed. The
coefficient alphas for the Family, Financial, Legal and Work subscales were .75, .77, .68, and
.77 respectively. All scales were weakly and non-significantly correlated with the Social
Desirability Scale (Jackson, 1967). Table 4 shows the scale statistics and Pearson correlations
among the factors.

A confirmatory factor analysis using structural equation modeling was conducted using
the EQS statistical package (Bentler, 1989). Maximum Likelihood (ML) was employed as an
estimation procedure based on its robustness against small samples (n ≥ 200) (Boomsma,
1987). The plausibility of this four-factor correlated model was evaluated by the measures of
goodness of fit available in EQS including the chi-square statistic ($\chi^2$), the root mean square
residual (RMSR), and comparative fit index (CFI) (Bentler, 1989; 1990).

The chi-square statistic is an absolute measure of fit. A non-statistically significant and
small chi-square relative to its degree of freedom is generally considered as a good fit. However, chi-square statistic is not robust to any violations of its assumption such as non-
normality and is therefore not to be used as the only goodness of fit measure (Long, 1987).
The RMSR is a measure of the amount of variance unexplained by the model. Generally, a
RMSR of 0.05 or less indicates an acceptable fit (Hayduk, 1987). The CFI is an index that
measures the relative fit of the model as compared to the null model in which no factor
structure is assumed to exist among the items. This index ranges from 0 to 1 with the latter being a perfect fit. A CFI .90 or above is generally considered an excellent fit of the model to the data.

Assessment of the goodness of fit measures indicated the four-factor correlated structure derived from the Relevance scale was an acceptable factor structure for the data of the Helpfulness scale, with the chi-square statistic $\chi^2 (98) = 175.21$, RMSR = .049, and CFI = .92. All factor loadings were statistically significant ($p < .001$), and ranged from .41 to .83 with a mean of .67. The factor loadings and error variances are shown in Table 5.

**Stages of Change**

The 4 scales of the Change Assessment Questionnaire representing four stages of change as derived from previous studies (McConnaughy et al., 1983, 1989; Prochaska et al., 1989) were used in the current analysis. Since the psychometric properties of the questionnaire have been shown to be promising in previous studies, no instrument refinement procedures were carried out for the current data. Internal consistency of each factor was generally good; alphas of the precontemplation (PC), contemplation (C), action (A), and maintenance (M) scales were .84, .83, .86, and .72 respectively (Table 6). Three of the scales, PC, C, and A were found to have significant correlation with the Social Desirability Scale, however, the correlation was in an acceptable range ($<.20$).

**Decisional Balance for Drug Addiction Treatment**

A principal components analysis was conducted on a 16 X 16 matrix of interitem correlations from the 16-item questionnaire. Both MAP (Velicer, 1976) and parallel analysis using Horn's (1965) and Lautenschlager's (1989) guidelines recommended a 2-component solution. The two components accounted for 48% of the variance. The factor solution reflected a Pros and a Cons components as shown in previous studies (e.g. Medeiros, 1990). The Pros component contained all the 8 items that originated from the Pros scale of the instrument. On the other hand, the Cons component consisted of 7 out of the 8 items from the Cons scale of the measure. The one item "By going to treatment I am admitting that my drug
use is a problem." (Form E of Appendix F), loaded strongly on both Pros and Cons components. The result was mainly due to an inappropriate adaptation from the original item "By going to therapy I am admitting that I am crazy." from the Cons scale of the revised Psychotherapy Decisional Balance Sheet (PDBS-R) (Medeiros, 1987, 1989; Penny, 1988). The final 15 items and their loadings on each component are shown in Table 7. Despite the mistake in adaptation of one of the items, the scales showed acceptable coefficient alphas of .89 and .76 for Pros and Cons scales, respectively. The Cons scale had a significant but non-substantial negative correlation (-.26) with the Social Desirability Scale (Jackson, 1967) (Table 8).

**Decisional Balance for Quitting Drugs**

A principal components analysis was performed on a 12 X 12 matrix of interitem correlations from the 12-item questionnaire. A two-component solution was suggested by both MAP (Velicer, 1976) and parallel analysis using Horn's (1965) and Lautenschlager's (1989) guidelines. The two components accounted for 50% of the total variance. The factor solution reflected a Pros and a Cons components as shown in Rosenbloom's study (1991). Each of the Pros and Cons components contained all the 6 items that originated from the Pros and Cons scales respectively of the instrument. The 12 items and their loadings on each scale are shown in Table 9. Both scales showed an acceptable internal consistency with coefficient alphas of .78 and .79 for Pros and Cons scales, respectively. The Cons scale was significantly correlated with the Social Desirability Scale (Jackson, 1967) but the correlation was fairly weak (-.15) (Table 10).

**Discussion**

The Relevance and Helpfulness Scales used to assess perceived coercion in a population of drug addicts in treatment were developed and demonstrated reasonable internal consistency in the present study. Measures of decisional balance for treatment and quitting drugs that were developed in previous studies for psychotherapy and cocaine use respectively were shown to be reasonably successful in adapting to the drug addict population in the current
investigation given some modifications in wordings of the items. The Change Assessment Questionnaire (URICA) was the only instrument that did not have wording changes implemented at the item level, an acceptable internal consistency of the instrument was demonstrated. Some scales from the measures based on the Transtheoretical Model of Change were found to have significant but relatively weak correlations with the Jackson Social Desirability Scale (1967), all of which were less than +/-.26, i.e. with less than 7% of the variance associated with social desirability.

The analyses of the Relevance Scale revealed a four-factor structure, rather than the five-factor structure proposed. The factors of family, finance, legal and work were demonstrated as proposed, while the factor of health failed to emerge as a distinct factor. The results may suggest that the construct of health as defined by the items was too diffused. In fact, item analysis showed that four out of the six items generated for the health construct were highly skewed with item means of 4.0 or more (item score ranges from 1 to 5), which suggested that these items have too little discriminating power and might explain their failure to emerge as a distinct factor.

The exploratory principal components analysis using data on the Helpfulness Scale indicated some potential structural problems of the scale in which some items were subjected to response bias. One speculation is that the response bias introduced in this instrument was due to repeated exposure to the same items insofar. This scale was the fourth questionnaire in the packet and had the same items as the Relevance scale, which was the second questionnaire in the packet. Although subjects were not told to do the questionnaires in the order as they appeared, the majority seemed to do the surveys this way. Future studies investigating different response formats on a single set of items should consider counter-balancing the order of the questionnaires to minimize potential effects of over-exposure. As in previous studies investigating self efficacy and temptation based on the Transtheoretical Model of Change (e.g. Rosenbloom, 1991), different response formats were presented to the subjects at the same time as they read the items, which proved to be reasonably successful. Another potential source of
problems that burdened the validity of this measure was the lack of logical consistency between the relevance of the factor and the degree of helpfulness or hurtfulness in some cases. In comparing the item scores of the same items on the Relevance Scale and on the Helpfulness Scale, some inconsistencies were found. For the apparently irrelevant factors bringing subjects into treatment (a score below 3, i.e. disagree or strongly disagree on the Relevance Scale), the corresponding item score of the Helpfulness Scale was expected to be 4 (neither helpful nor hurtful). However, analyses showed that on the average, only 50% of the responses satisfied the above assumption. Therefore, such discrepancies in the data could introduce invalidity to the measure and could produce difficulties for the emergence of well defined factors. However, the four-factor structure derived from the Relevance Scale was shown to be a reasonable model to explain the data for the Helpfulness Scale through confirmatory factory analysis.

Analysis on the Decisional Balance for Drug Addiction Treatment has shown consistent results as found in previous studies based on the Transtheoretical Model of Change in a number of different areas (Prochaska, Velicer et al., in press). The pros and cons components emerged as the only components from the principal components analysis. Coefficient alphas for each scale have also demonstrated the reliability of this instrument. This shortened version adapted from the revised Psychotherapy Decisional Balance Sheet (PDBS-R) (Medeiros, 1987, 1989; Penny, 1988) has been demonstrated to be a useful measure for assessing the decisional balance construct for drug addicted population. The Decisional Balance for Quitting Drugs Questionnaire has also demonstrated its internal validity and reliability. The 12-item measure adapted from Rosenbloom's (1991) Decisional Balance for Quitting Cocaine was shown to be appropriate for the drug addicted population in the current study. The results have supported that these two measures of decisional balance can be used to test the external validity of the stages of change.
SECTION 2: EXTERNAL VALIDATION OF STAGES OF CHANGE

Two approaches were used to establish stages of change among drug addicts in treatment in the current investigation. One was the use of a stage algorithm comprised of a short series of statements that describe an individual's intention and/or behavior regarding quitting drugs completely (Appendix A). Response to the stage algorithm statements indicates the degree of an individual's readiness to quit using drugs completely. Subjects were classified into one of the five stages: precontemplation, contemplation, preparation, action, or maintenance, according to their responses to the stage algorithms. The other approach was the use of cluster analysis techniques on the response to the four scales: Precontemplation, Contemplation, Action, and Maintenance of the Change Assessment Questionnaire, which involved grouping individuals based on their profiles on these four scales. Results from each approach were subjected to external validation by the decisional balance measures on seeking treatment and quitting drugs using multivariate and univariate analyses of variance (MANOVA and ANOVA), as well as discriminant function analysis (DFA).

Results

Stage Algorithm

Of the 230 subjects, 226 subjects provided a response to the stage question yielding the following stage distribution: 14.2% (n=32) in precontemplation, 14.6% (n=33) in contemplation, 32.3% (n=73) in preparation, 12.8% (n=29) in action, and 26.1% (n=59) in maintenance. However, further investigation of the stage distribution suggested some logical inconsistencies between subjects' responses to the stage question and the information they provided for other related questions such as personal treatment goals, illicit drug use at the time of survey, the amount of methadone prescribed, and settings they were in. For example, in examining the stage distribution across settings, it was found that 20 out of the 29 subjects who claimed to be in maintenance (have stayed off any drug use for more than 6 months) were in fact recruited from the detoxification center; there were 50% of subjects who claimed to be in action or maintenance who admitted that they were using illicit drugs at the same time. As a
result, a corrective procedure was used to re-stage subjects based on their responses to the stage question and some additional information in order to reduce logical inconsistencies. Subjects who reported a non-abstinence personal treatment goal such as "controlled, occasional use of drugs" was used to classify subjects into the precontemplation stage in addition to those who were classified in precontemplation originally. Subjects were classified into action or maintenance only if they were completely drug free.

Using the corrective procedure on the stage algorithm, 61 subjects were not able to be classified into one of the stages because of conflicting or insufficient information. Of the 169 subjects who were re-staged, the following stage distribution was found: 40.8% (n=69) precontemplation, 10.1% (n=17) contemplation, 24.8% (n=42) preparation, 21.3% in action (n=36), and 3.0% (n=5) maintenance. Since the number of subjects in maintenance was disproportionately small and might yield unstable statistical results, further analysis combined maintenance with action. This grouping according to the corrected stage algorithm was tested against the measures on decisional balance.

**External validation of stages with decisional balance measures**

A one-way MANOVA using stages of change as the independent variable was performed on four dependent variables including the Pros and Cons scales of each of the two decisional balance measures for treatment and that of quitting drugs. The mean of the item scores of each scale was used as scale scores for the analysis. Results showed a significant main effect, Wilks' $\Lambda = .77$, $F(12, 428.9) = 3.75$, $p < .001$, which accounted for 23% of the variance. Follow-up univariate analyses (ANOVA) were conducted for each of the four scales to determine group differences for validating the stage algorithm. Significant main effects were found on the Pros for seeking treatment, and both Pros and Cons for quitting drugs (Table 11). Tukey post-hoc test on Pros for seeking treatment indicated that subjects in contemplation, preparation, and action scored significantly higher than precontemplators. On the Pros for quitting drugs, subjects in action scored significantly higher than precontemplators. On the other hand, subjects in action scored significantly lower on the Cons
for quitting drugs than contemplators. Figures 1 and 2 illustrate the relationships between stages and the mean values for the Pros and Cons scales of the Decisional Balance for Drug Addiction Treatment and the Decisional Balance for Quitting Drugs respectively.

A direct discriminant function analysis (DFA) was conducted using the four Pros and Cons scales as predictors for the stages of change. One significant discriminant function was obtained, Wilks’ \( \Lambda = .77 \), \( \chi^2 (12) = 43.30, p < .001 \), Canonical correlation \( (R_c^2) = .18 \). The primary predictors (those with loadings above .50) for the discriminant function were the pros for seeking treatment and the pros for quitting drugs, which had loadings of -.62 and -.54 respectively. The group centroids (group means) calculated from the discriminant function has supported the sequential order of the four stages (precontemplation, contemplation, preparation and action/maintenance) in terms of their readiness to change. The group centroids for the precontemplation, contemplation, preparation and action/maintenance were 0.50, 0.14, -0.25, and -0.66 respectively. Using the jackknifed classification procedure, 39.6% of the 169 subjects were correctly classified into one of the stages. The most accurate classification occurred in action, where 53.7% of the sample was correctly classified, while the most misclassification occurred in preparation, in which only 16.7% were correctly classified.

**Change Assessment Questionnaire**

Cluster analysis was used in order to classify subjects into subgroups based on the similarities they shared on their responses to the Stages of Change Questionnaires. Cluster analyses were performed on the total sample of 230 subjects based on their profiles on the four scales from the Change Assessment Questionnaire. Scale scores were the means of the item scores for each scale, which were then converted into standardized T-scores with a mean of 50 and a standard deviation of 10. Ward’s minimum variance method (Ward, 1963) was used as it has been demonstrated to be the most desirable method among other cluster analytic procedures (Milligan, 1980; Milligan & Cooper, 1987). Using Ward’s procedure, each subject is treated as an individual cluster and then the clusters are merged into subgroups. The Euclidean distance measure of similarity was calculated for merging clusters with the smallest
distance. Finally, the number of clusters was determined by the following guidelines: interpretability of distinct clusters, visual inspection of the cluster dendogram (Aldenderfer & Blashfield, 1984), as well as the Cubic Clustering Criteria (Sarle, 1983; Milligan & Cooper, 1985). The resulting profiles from the cluster analyses were then compared to the those obtained from previous studies using the same procedure in other areas (e.g. DiClemente & Hughes, 1990; McConnaughy, et al., 1983, 1989).

Solutions of 3 to 9 clusters were considered. The 6-cluster solution was the most interpretable, from which 4 clusters with distinct profiles were derived. The clusters were labeled: precontemplation (n = 76), ambivalent (n = 49), preparation (n = 34), and action/maintenance (n = 71). The means and standard deviations for the scale scores of each cluster are shown in Table 11. Each cluster profile is described below.

Precontemplation Cluster: Seventy-six subjects were classified into this cluster and were characterized by a profile of above average score on the Precontemplation scale and below average score on the Contemplation, Action, and Maintenance scales (Figure 3). The precontemplation cluster was formed by combining three clusters with similar profiles. These profiles differed on the actual scores on each of the four scales, they all had very similar shapes and displayed similar differences among the scale scores. The subjects in this cluster were not considering or actively engaging in quitting drugs, rather they seemed to deny their drug use as a problem and maintained the status quo with respect to their drug use.

Ambivalent Cluster: The 49 subjects comprising this cluster showed a flat profile across all scales of the stages of change (Figure 4). They displayed a slightly above average endorsement in all of the four scales. These subjects endorsed conflicting statements and seemed to be somewhat ambivalent or reluctant toward changing their drug use behavior.

Preparation Cluster: There were 34 subjects classified into this cluster. The cluster profile was characterized by a below average endorsement on both Precontemplation and Maintenance scales, and above average on the Contemplation and Action scales (Figure 5). These subjects have made a decision to change their drug use behavior and have started
actively participated in changing.

**Action / Maintenance Cluster:** The 71 subjects within this cluster were characterized by below average scores on Precontemplation, but well above average scores on Contemplation, Action and Maintenance scales (Figure 6). These subjects reported high investment and involvement in changing their drug use behavior, and have started to maintain their behavior change and work toward relapse prevention.

**External validation of clusters with decisional balance measures**

A one-way MANOVA was conducted on four variables including the Pros and Cons scales of the two measures on decisional balance for treatment and that of quitting drugs, using the stage clusters as the independent variable. The MANOVA yielded a significant main effect, Wilks' $\Lambda = .61, F(12, 590.29) = 10.06, p < .001$, which accounted for 39% of the variance. Follow-up ANOVAs were conducted for each of the four scales to determine group differences. Significant main effects were found on both Pros and Cons for seeking treatment, and the Pros for quitting drugs. Summaries of the follow-up univariate tests and the Tukey post-hoc tests are presented in Table 12. On the Pros for seeking treatment, the action/maintenance cluster endorsed significantly higher scores than both precontemplation and ambivalent clusters but was similar to the preparation cluster whereas subjects in the precontemplation cluster scored significantly lower than all other clusters. On the Cons for seeking treatment, the precontemplation cluster scored significantly higher than both preparation and action/maintenance clusters, but was similar to the ambivalent cluster. For the Pros for quitting drugs, subjects in the preparation cluster scored significantly higher than other clusters except for the action/maintenance cluster. Once again, the precontemplation cluster scored significantly lower on the Pros for quitting drugs than all other clusters. On the other hand, no significant difference was found on the Cons of quitting drugs across the clusters. Figures 7 and 8 illustrate the mean values for the Pros and Cons scales of the Decisional Balance for Drug Addiction Treatment and the Decisional Balance for Quitting Drugs across clusters respectively.
A direct discriminant function analysis (DFA) was performed using the four Pros and Cons scales as predictors for the clusters. One significant discriminant function was obtained, Wilks' \( \Lambda = .62 \), \( \chi^2 (9) = 108.00 \), \( p < .001 \), \( R_c^2 = .37 \). The primary predictors for the discriminant function were the Pros for seeking treatment and the Pros for quitting drugs, which have loadings of .73 and .62 respectively. The group centroids as calculated from the discriminant function for the precontemplation, ambivalent, preparation, and action/maintenance clusters were -0.98, -0.08, 0.70, and 0.76 respectively. This result has supported the sequential order of the placement of the stage clusters in terms of their motivation to change, which was from the least motivated to the most motivated to change. The jackknifed classification analysis showed that 52.6% of the 230 subjects were correctly classified into one of the stages. The most accurate classification occurred in the precontemplation cluster, where 69.7% of the sample was correctly classified, while the most misclassification occurred in ambivalent cluster, in which 38.8% was correctly classified.

**Discussion**

Both approaches using stage algorithms or cluster analysis to classify subjects with respect to their readiness to change appeared to be externally validated by the measures of decisional balance for being in treatment and quitting drugs. Generally, subjects in precontemplation perceived lower pros for treatment and pros for quitting drugs, and therefore they found treatment to be unfavorable as they were less ready to change. On the other hand, subjects who were considering or have started to change their drug use behavior were more likely to be more conscious about the advantages of being in treatment and for quitting drugs.

The relationships between the stages of change based on the stage algorithm and the pros and cons measures were consistent with those found in previous studies across different areas (Prochaska, Velicer et al., in press). As illustrated by both Figures 1 and 2, the pros for both seeking treatment and quitting outweighed the cons in precontemplation. The crossover took place about contemplation to preparation in both cases showing that subjects have had the pros and cons balanced and sorted out in order to make a serious decision about quitting and
becoming positive toward treatment. The cons for treatment and quitting then outweighed the pros after the crossover in other stages. The results demonstrated the change in recognizing the advantages of seeking treatment and quitting as one’s readiness of change progressed, particularly from the initial phase of change, precontemplating to contemplating or preparing for quitting. This finding supported that the decisional balance model is one of the best predictors of movement through early stages as demonstrated in smoking populations (Velicer, DiClemente, Prochaska, & Brandenburg, 1985).

Using the pros and cons measures as variables in predicting stages of change, the classification analysis from the DFA indicated that most misclassification occurred in preparation, in which only 17% of the subjects were correctly classified. This was less then the 25% expected by chance alone. According to the classification results, over 43% of the subjects who were staged in preparation by the stage algorithm were misclassified into precontemplation or contemplation, another 40% were misclassified into action. The finding implied some potential problems in the staging algorithm for preparation since this stage was indistinguishable from other stages when using the measures on decisional balance. However, it should be noted that stages of change also are not distinguished by decisional balance alone, but also by other constructs such as processes of change that were not included in the current analysis (Prochaska & DiClemente, 1992).

In addition, the initial problem of logical inconsistencies as encountered in using the stage algorithm suggested that using a single staging question was inappropriate for this drug using population that was prone to validity problems. Part of the inconsistencies might be due to the lack of clarity of "quit using drugs completely" and "staying off any drug use." It was found that some subjects who were still on methadone saw themselves as having stayed off any drug use and they might not perceive methadone as a "drug."

The stage clusters formed by cluster analysis using the four scale scores on the Change Assessment Questionnaire were also externally validated. Consistent with the hypotheses, the cons for both being in treatment and quitting outweigh the pros in precontemplation (Figures 7
and 8). The crossover took place at the ambivalent cluster in both measures of decisional balance showing that subjects in this cluster have their pros and cons for treatment and quitting at the same level. Therefore, the subjects in the ambivalent cluster were ambivalent and conflicted about making a serious decision to quit using drugs and to actively participate in treatment. The pros for treatment and quitting continued to outweigh the cons after the crossover in other clusters. The results showed the shift in recognizing the advantages of being in treatment and quitting as one's motivation and commitment to change progressed, particularly from the initial phase of change, precontemplating to preparing for changing.

The results of the DFA using the pros and cons measures as variables in predicting clusters membership indicated a reasonably good percentage of correct classification ranging from 39% to close to 70%, which was well above chance (25%). The findings support the relationships between the grouping placement from cluster analysis and the measures of decisional balance. The centroids however, appeared not to be able to distinguish the preparation from the action/maintenance clusters. Consistent with the findings from the previous studies examining the relationships between stages of change and decisional balance (e.g. Velicer et al., 1985), the pros and cons have been found to be less relevant to the later stages involving action taking once decision about quitting has been made.

Although both approaches in staging appeared to convey consistent global findings between stages or clusters and the decisional balance construct, at a micro-level these two approaches yielded some different findings. One difference in the findings regarding the stage relationship with the cons scale of quitting drugs. The stage algorithm showed a much more dramatic change on the cons scale across stages (mainly between contemplation and action) as compared to a non-significant change across clusters. Compared to the findings from the previous study on a cocaine-using population, a non-significant change in cons for quitting across stages was reported and the pros for quitting was interpreted as a more critical variable for movement in stages (Rosenbloom, 1991). Based on the results of Rosenbloom's study (1991), the approach using cluster analysis appeared to be more promising in replicating the
previous finding. Furthermore, both the Tukey post-hoc tests and the DFA demonstrated that the clusters were more distinguishable across or predictable using the decisional balance measures as compared to the stages using the stage algorithm. Comparing the two approaches, using cluster analysis to group subjects according to their readiness and involvement in changing their drug use behavior appear to yield more promising results. Therefore the clusters obtained from the cluster analyses were used for externally validating the measures of perceived coercion.

SECTION 3: MEASURES OF PERCEIVED COERCION AND EXTERNAL VALIDATION

The relevance and helpfulness scales developed in section 1 were subjected to further analyses. Their relationships with the stages of change and the decisional balance measures were examined to provide the external validity of the measures. The correlation between each of the measures and the two global items related to coercion was also evaluated with respect to their construct validity. One global item was on perceived control over treatment participation: "how much do you feel you are in control of choosing whether or not to participate in treatment," the other was directly asking perceived coercion: "how much do you currently feel that you are being forced or pressured to participate in treatment against your wishes." Subjects were asked to rate on a 5-point scale from 1 (not at all) to 5 (extremely) on the two global questions. Lastly, the relationships between the global items of perceived control / coercion and the measures based on the Transtheoretical Model of Change, as well as demographic variables were analyzed.

Results

Relevance Scale

A one-way MANOVA was conducted on the Relevance scale using stage clusters as an independent variable. The MANOVA yielded a significant main effect, Wilks' $\Lambda = .80$, $F(12, 529.44) = 3.78$, $p < .001$, which accounted for 20\% of the variance. Follow-up univariate analyses (ANOVA) were conducted for each of the four scales to determine differences across
stage clusters. Significant main effects were found on the Family and Finance subscales. Summaries of the follow-up univariate tests and the Tukey post-hoc tests are presented in Table 14. On the Family subscale, the precontemplation cluster scored significantly less than other clusters. On the Finance subscale, the action/maintenance cluster endorsed significantly higher than both precontemplation and ambivalent clusters, but was similar to the preparation cluster which also scored significantly higher than the precontemplation cluster.

Pearson correlation coefficients between each of the Relevance subscales and each of the four pros and cons measures were calculated (Table 15). Generally, the correlations between the relevance subscales and the pros and cons measures were weak or non-significant. The strongest positive correlations were found between the Family ($r = .31, 38; p < .01$) and Finance subscales ($r = .21, .41; p < .01$) with the Pros for Drug Addiction Treatment and the Pros for Quitting respectively. On the other hand, the correlations between the relevance subscales and the Cons of both measures was weak and non-significant.

**Helpfulness scale**

A one-way MANOVA using stage clusters as an independent variable was performed on the Helpfulness scale. The MANOVA yielded a non-significant main effect, Wilks' $\Lambda = .96$. The means and standard deviations of each of the subscales across the stage clusters are presented in Table 16. The trend observed from the means was consistent across subscales, that the precontemplation clusters always showed the lowest means on all the subscales as compared to other clusters. The correlations between each of the helpfulness subscales and the Pros and Cons for the two decisional balance scales were weak ($r < .16$) and / or non-significant ($p > .05$). The results showed a weak and non-significant relationship between the Helpfulness scale and the measures based on the Transtheoretical Model of Change (Table 15).

**Relationship between the Relevance and Helpfulness Scales**

Pearson correlation coefficients were calculated between the subscales from the Relevance and Helpfulness Scales (Table 15). In most cases, there were no significant correlations observed between any of the subscales from the Relevance and the Helpfulness
Scales. The one exception was the Legal subscale from the Relevance scale and its counterpart from the Helpfulness scale had a moderate significant correlation coefficient of .35 (p < .01).

**Construct Validity of the Relevance and Helpfulness Scales**

Pearson correlation coefficients were calculated for each of the subscales from the Relevance and Helpfulness Scales with the scores of each of the two global questions related to perceived control / coercion (Table 15). No significant correlations were observed between any of the subscales and the two global items. The construct validity of the two measures in relation to perceived coercion was therefore highly questionable.

**Global Measures of Perceived Control / Coercion**

The distribution of scores of the two items for globally measure perceived control and coercion revealed a skewed distribution. For the item on perceived control over treatment participation, 85% of subjects scored between 3 (moderately) to 5 (extremely) on a range from 1 to 5. On the other hand, on the item of perceived coercion, over 80% of the subjects scored either 1 (not at all) or 2 (slightly). A one-way MANOVA was performed using clusters as the independent variable on the scores of the two global items. The results showed a significant main effect, Wilks' $\Lambda = .91, F(6, 440) = 3.47, p < .002$, which accounted for 9% of the variance. Follow-up ANOVAs on each of the item scores revealed significant main effects for both items. Summaries of the follow-up univariate tests and the Tukey post-hoc tests are presented in Table 17. The precontemplation cluster reported significantly less control over treatment participation and being more coerced into treatment than the action/maintenance cluster. Figure 9 shows both the raw and the standardized scores on perceived control and coercion across clusters.

The perceived control item had a significant positive correlation ($r = .30, p < .01$) with the Pros for being in treatment but a weak and non-significant correlation with the Cons. On the other hand, the item of perceived coercion was found to have a significant positive correlation ($r = .22, p < .01$) with the Cons for being in treatment but not with the Pros. Both items had weak or non-significant correlations with the Pros and Cons for quitting drugs.
Separate one-way MANOVA's were performed on the two global items of perceived control / coercion using demographic variables such as gender, ethnicity, education, income, marital status, referral reasons, legal status, treatment settings and so on as independent variables. Results have only shown a significant main effect of treatment settings on the items, Wilks' $\Lambda = .94, \chi^2(4, 442) = 3.56, p < .01$, which accounted for 6% of the variance. A two-way MANOVA was then performed on the global items using stage clusters and settings as independent variables to further investigate any potential effects of stages on the observed treatment setting effects on coercion. Results showed no significant stage x setting interaction effect, only significant main effects of stages Wilks' $\Lambda = .94, \chi^2(6, 424) = 2.26, p < .04$ and that of settings Wilks' $\Lambda = .95, \chi^2(4, 442) = 2.56, p < .04$. Follow-up ANOVAs on each item was then conducted using setting as independent variable indicated a significant main effect on perceived coercion, $\chi^2(2, 222) = 4.54, p < .01, \eta^2 = .04$, but not on perceived control. Subjects from detoxification center reported feeling being coerced in treatment participation ($M = 1.84, SD = 0.12$) than those recruited from the outpatient methadone maintenance setting ($M = 1.41, SD = 0.08$). Pearson correlations were calculated between the global items and age, weak and non-significant correlations were shown on both items with age.

**Discussion**

The results apparently failed to support the construct validity for the Relevance and the Helpfulness scales developed as measures of perceived coercion. However, there were some significant relationships revealed between the Relevance Scale and the constructs of the Transtheoretical Model of Change.

Individuals who were in the stage clusters of action, preparation or ambivalence, i.e. those either actively involved in changing or at least contemplating changing, tended to perceive the relevant factors that brought them into treatment as family related and in some cases financially related as well. However, the observed differences across stage clusters on their perceived reasons for seeking treatment might be in part due to the significant correlations
between these scales and the Pros for the treatment and quitting drugs. Nonetheless, the Relevance scale has shown some preliminary associations between the different categories of external factors and individuals' readiness to change in a drug abuse treatment setting. Medeiros and Prochaska (1991) found that individuals who are contemplating changing tend to be therapy continuers. The results of the current study suggest that family and financially related factors can potentially serve as facilitators for longer treatment retention. To the individuals who are contemplating about quitting drugs, these factors could be sources of positive influence rather than being sources of coercion.

Relationships between the Helpfulness scale and the measures of the Transtheoretical Model of Change were not found in the current study. It was hypothesized that individuals who were contemplating or engaging actively in changing would tend to perceive the factors that brought them into treatment as helpful compared to those who were not motivated or considering changing. Although the trend of mean values of all the subscales has shown that the precontemplation cluster consistently weighed all the factors as less helpful or more hurtful than other clusters, the differences among the stage clusters was too small to support the hypothesis. Any potential relationships that might exist between this scale and the Transtheoretical Model of Change may require a much larger sample size. However, given the small effect shown by the current results, the magnitude of any potential relationships might be very small.

The hypothesis that there was no significant correlation between the subscales of the Relevance and the Helpfulness scales was generally supported. Interestingly, the Legal subscale of the Relevance scale was found to be significantly correlated in a positive direction with its counterpart of the Helpfulness scale. This positive correlation suggested that individuals who saw themselves as being brought into treatment by legally related factors also tended to perceived those factors as helpful. However, given only about 10% of the subjects in the current study were legally referred to treatment, this finding and its implication require further extensive investigation.
On the other hand, the findings from the global items measuring perceived control and coercion in relation to treatment participation and the measures of the Transtheoretical Model of Change have provided some preliminary support for the relationship between perceived coercion and the model. Consistent with the hypothesis, individuals in the precontemplation stage clusters who were not considering changing, were more likely to feel forced into treatment as well as to feel less in control over treatment participation than others who were actively involved in changing. In fact, as illustrated by Figure 9, the pattern of perceived control and coercion across cluster mimics to some degree the pattern of pros and cons for treatment and quitting drugs (Figures 7 & 8). The pattern is characterized by continued increase of perceived control and continued decrease of perceived coercion from precontemplation to action/maintenance. The relationship of perceived control and coercion within stage clusters is also revealing. Similar to the relationships of pros and cons for treatment and quitting drugs across clusters, perceived coercion outweighed perceived control in precontemplation, a cross-over occurred at the ambivalent cluster, and the reverse relationship with perceived control outweighing the perceived coercion took place in the preparation and action/maintenance clusters.

Individuals who felt more control over treatment participation appeared to be concerned more about the advantages of being in treatment. On the other hand, individuals who admitted more that they were being forced into treatment showed greater concerns about the disadvantages of being in treatment. However, the influence of perceived control and coercion over treatment participation on the pros and cons for treatment was found to be relatively small. Only 5 to 9% of the variance of the pros and cons for treatment could be explained by perceived control and coercion respectively. The extent to which addicts felt in control or coerced to participate in treatment did not relate to the pros and cons for quitting drugs. Although the findings based on two items of perceived control / coercion were limited because of psychometric properties of these one-item measures, perceived coercion can potentially be a construct related to the stages of change. The current results support the long-
standing Transtheoretical view that precontemplators are more likely to be coerced into treatment (Prochaska & DiClemente, 1984).

The weak relationships between perceived control and coercion over treatment participation and demographic variables, particularly legal status and referral source, provide support for perceived coercion as a different construct from the traditional "coercion" variable that has been studied and has shown little effect on treatment retention (Simpson et al., 1988). "Voluntary" clients were as likely as legally referred or legally involved clients to feel coerced or be in control over treatment participation. The finding supports that perceived coercion is dependent on the individual’s interpretation and perception of the sources of influence that are more dynamic or changeable, rather than the actual source of influence such as legal involvement which is more static. The only association between perceived coercion and static variables was found when comparing perceived coercion across treatment settings. The finding that addicts in the detoxification center across all stages of change reported feeling more coerced than the outpatient clients was quite expectable. Clients in a highly structured environment as in an inpatient detoxification center would probably feel less freedom; in addition, clients in this setting particularly were undergoing their first step of quitting drugs, which might have exaggerated the coercive perception of their environment.

GENERAL DISCUSSION

Based on the global items of perceived control and perceived coercion for treatment participation, the findings provided strong support that perceived coercion and control relate linearly to the stages of change. Individuals in the precontemplation cluster reported less control over treatment participation and more coerced feeling than those in the action/maintenance cluster. The relationships of perceived control and coercion across clusters appeared to be similar to that of pros and cons for treatment and quitting drugs. However, the construct of perceived coercion as tapped by these two global items appeared to be different from the decisional balance construct as they were related weakly to the pros and cons. This
study has provided initial support that perceived coercion should be considered a distinct construct related to the stages of change, which may therefore have potential effects on treatment retention.

On the other hand, the construct validity of the Relevance and Helpfulness scales as measures of perceived coercion was not supported in the study. However, a preliminary relationship between the Relevance scale and the stage of change was found. Interestingly, individuals in the precontemplation clusters differed from others in their reasons for participating in treatment. They saw family / significant others and financial reasons as less relevant for their treatment participation, while more committed addicts who were in the preparation and action/maintenance clusters perceived both factors as more relevant reasons for treatment. One interpretation was that these factors may potentially serve as facilitators for treatment retention, given that more committed individuals were found to stay in treatment longer (Medeiros et al., 1991). As addicts become able to perceive the values behind their family members urging them to participate in treatment or when they realize the financial strains they are in were a result of drug use, they perceive these factors as important in their decisions to participate in treatment. They may be more ready and committed to make a change, more likely to stay in treatment longer, and more likely to benefit from treatment. The findings also suggest that specifically family and financially related factors may be sources of positive influence rather than coercion depending on one's readiness to change. One contribution from the Relevance scale is that it may provide implications about which factors seemed to be facilitators for readiness for change during treatment.

The Helpfulness scale, on the other hand, did not appear to relate to the stages of change or other constructs relevant to motivation for quitting drugs and staying in treatment. Beside the suspected problems introducing response bias into this scale, the "logical inconsistencies" between relevance and helpfulness in a significant portion of the cases as mentioned previously might have obscured any potential relationship between this scale and the stages of change. The "logical consistency" expected from the relationship between the
relevance and helpfulness of a factor was based on the assumption that if a factor was irrelevant, it could not be either helpful or hurtful. However, as shown by the current data, most factors could in fact be seen as irrelevant but at the same time were evaluated as helpful or hurtful. This finding suggests that some factors can be valued as potentially helpful and may serve as sources of positive influence to some individuals, while the factors that are valued as potentially hurtful may serve as sources of coercion for other individuals. The helpfulness or hurtfulness of the factors on the scale may be more prone to be evaluated based on one's projection or imagination rather than actual experience. Comparing the two scales, the results suggest that the Relevance scale may be most useful for revealing interactions between external motivations, such as family influence, and individuals' readiness of change.

Relationships between the stage clusters and the decisional balance measures supported the use of the Transtheoretical model for assessing motivation among drug addicts in treatment. Individuals' motivational considerations about quitting drugs and about being in treatment was assessed using the decisional balance measures of the Transtheoretical Model. The pattern of pros and cons for treatment as well as for quitting within and across stage clusters has replicated the previous findings on the relationship of the pros and cons to the stages of change (Prochaska et al., 1991). The pros for quitting drugs was the lowest in the precontemplation cluster, and it increased significantly through ambivalent, through preparation and action/maintenance clusters. Relationships between the pros and the cons for quitting were revealed within each cluster. In the precontemplation cluster, the cons for quitting outweighed the pros, a crossover took place at the ambivalent clusters, and the pros then outweighed the cons in preparation and action/maintenance clusters. Similarly, drug addicts' perceptions of treatment changed according to their readiness to change and concerns about quitting. A marked continuous increase in pros for treatment and a continuous decrease in cons from precontemplation to action/maintenance were shown. Once again, the pattern with the cons for treatment outweighing the pros at precontemplation, a cross-over at the ambivalent cluster, and the pros outweighing the cons among more committed individuals in the preparation and
action/maintenance clusters, was replicated. One observation is noteworthy: subjects in the current study appeared to have a very similar value on the cons of quitting drugs, regardless of their readiness to change, their value of the pros of quitting, or their perception of treatment. This result was consistent with the finding among cocaine addicts in treatment (Rosenbloom, 1991), which showed little change in the cons for quitting across stages. It is probably generalizable across a population of drug addicts in treatment with similar action-oriented modalities, that treatment may be more successful to increase the pros of quitting than to decrease the cons of quitting even when clients' readiness and commitment to change their drug using behaviors has increased. Relapse following treatment in these treatment settings has been phenomenal (e.g. Institute of Medicine, 1990). One reason may be the addicts' remaining high value of the positive features of drug use that make them vulnerable to relapse once they leave a structured treatment setting back to the community. Support for this interpretation warrants more research.

Characteristics of drug addicts at different stages of change in the current study were very revealing, particularly for the precontemplators and those in action/maintenance. Precontemplators in drug addiction treatment, who are not considering seriously changing their drug use behaviors, view cons for treatment and quitting drugs greater than the pros, and they perceive themselves as more coerced than in control of treatment participation. Furthermore, they see family and financially related factors as less relevant to their reasons for entering treatment. On the other hand, addicts who are both behaviorally and intentionally engaging in quitting drugs have opposite perceptions and evaluations as compared to the precontemplators. These individuals value the pros for treatment and quitting drugs more than the cons, they see themselves as more in control and less coerced in treatment participation, and they also tend identify family and financially related factors as relevant reasons for their seeking treatment.

One of the most important controversies in the area of substance abuse treatment is the use of compulsory treatment or legal coercion. It is not only because of the ethical issues involved, but also because of the questionable relationships between the use of coercion and
treatment effectiveness (Simpson et al., 1988). The findings of the current study have shown that addicts in treatment are very different in their readiness to change. Particularly, addicts who perceive themselves as being more coerced to participate in treatment are precontemplators who are the least ready to change. The use of coercive strategies in the substance abuse treatment area is facing a big challenge: coercion may make precontemplators enter treatment but can it make them accept treatment? In fact, clinicians tend to agree that "for those people who must have treatment, the least coercion and the least perceived pressure, the better for therapeutic consequences" (Carroll, 1991, p.137). Therefore one of the keys to enable clients who are not yet ready to quit using drugs to benefit from treatment appears to be making sources of coercion become that of positive influence.

Results from the current study have also shown the URICA (Change Assessment Questionnaire) subscales are more successful than the stage algorithm in assessing drug addicts' motivation to change their drug using behaviors. Using cluster analysis on the profiles of scores of the precontemplation, contemplation, action and maintenance subscales, the important information about relationships among the subscale scores can also be taken into account. This advantage of assessing individuals' motivation to change using profile analysis seems to be particularly important to the present type study. Drug addicts in this study were all participating in action-oriented treatment programs, regardless of their own readiness to change. They were behaviorally engaging in quitting at least to a certain extent. Conflicts between intention and behavior was evident in such a population. A good illustration was shown by the profile of the ambivalent cluster, which was characterized by an average endorsement across all stages as a result of endorsing conflicting statements about attitudes and behaviors of changing. The readiness to change among these individuals may not be fully captured discretely by the stage algorithm as they were very likely to have characteristics from more than one stages of change. As suggested by Prochaska and DiClemente (1992), the analysis of the profile of scores across the URICA subscales may be useful to investigate subgroups of individuals who are bridging across one or more of the stages of change.
Compared to Rosenbloom's study (1991) where the application of the stage algorithm was shown to be successful in a cocaine population in treatment; the sample used in the study was composed mostly of volunteers who appeared to be at the more advanced stages of change, with 85% in action or maintenance according to the algorithm. It was likely that more of these individuals were engaged both intentionally and behaviorally in changing, and were more willing to address their drug use as a problem they needed to change. This may explain the success in using the stage algorithm to capture cocaine addicts' readiness to change in a discrete manner. Based on the results obtained from the current study, the use of the URICA to assess individuals' readiness to change in this population is recommended.

Limitations and future directions

One limitation of the current study in developing an instrument to assess perceived coercion was that all subjects were recruited from "voluntary" based treatment programs that were not mandatory and subjects were allowed to leave treatment at any time. Therefore, the construct of perceived coercion might not be as salient as in cases where a proportion of subjects were mandated to go to treatment, which made the development of such instrument difficult. In fact, the mean values of the global items for perceived control and coercion revealed that most subjects in the study had "moderate" to "extreme" control over treatment participation, and "not at all" to "slightly" coercion experienced in going to treatment. Therefore, the majority of the subjects apparently did not experience much coercion at the time of the study, as they had been in treatment for a period of time. It was likely that perceived coercion may not be as salient as it may have been at the beginning of treatment. Addicts who participated in the current study were those who have already been in treatment for a period of time. These individuals were those who have stayed in treatment, and might not experience as much perceived coercion. They may have become more ready to change and thereby reduced the level of coercion experienced.

Another important limitation of the current study was the failure to recruit addicts at the time when they just entered treatment. Drug addicts in the current study had been in
treatment for some period of time and it was very likely that clients who were most resistant to changing their drug using behavior have already dropped out. Similarly, clients who were maintainers may have already appropriately terminated treatment. Future studies investigating perceived coercion should recruit subjects who are entering treatment, although it would not be necessary to exclude those who are already undergoing treatment. By recruiting addicts at intake, a more heterogeneous pool of subjects regarding their readiness to change and perception of treatment and most likely their perception of the relevance of the factors that bring them to treatment, can be captured before many of them drop out from treatment. As discussed above, it is necessary to test a measure of perceived coercion while the effect of coercion as experienced is most salient. It is also important to conduct longitudinal studies to assess changes on the Relevance subscales as well as their relationships with the changes on the Transtheoretical Model of Change constructs. In addiction, longitudinal studies can also reveal the change of salience of the perceived coercion effects which is important in understanding coercion.

To conclude, perceived coercion is an important element of the arrays of motivation that deserves further research. The current study has shown that perceived coercion is a distinct construct that is related to change. The observed relationships between perceived control and coercion and the stages of change, as well as their weak relationships with static demographic variable have further supported its dynamic nature. Individuals' perception of the sources of influence appear to be affected by individuals' stages of change. It will be interesting to investigate when and how coercion may become positive influence, which will in turn maximize the motivational effects.

For future research on perceived coercion as experienced among drug addicts in treatment, the use of a global scale and the Relevance scale is warranted. A stronger global measure on perceived coercion with more items consisting of both perceived control and coercion dimensions will need to be developed to provide a more reliable and sensitive measure for perceived coercion. The Relevance scale may assess facilitators or positive
influence of specific external forces such as family and finances. This scale has demonstrated reasonable internal validity psychometrically, and has been found to capture the common external factors that could likely serve as sources of coercion experienced by drug addicts who seek treatment. Furthermore, one of the important reasons to study perceived coercion is to find out how to use coercive strategies effectively when these strategies are necessary. In order to understand the interaction of the use of different types of coercive strategies and individual characteristics, comprehensive measures such as the Relevance scale, which is capable of assessing different aspects of coercion should be used. Research on how perceived coercion and the stages of change may predict treatment retention, relapse and/or other treatment outcome in this population will provide a better understanding of the effects of perceived coercion and its relationship with the stages of change, decisional balance for quitting and treatment on treatment effectiveness. Furthermore, studies exploring dynamic predictors such as the stages of change, decisional balance for quitting drugs and treatment, should include perceived coercion as a promising contribution toward finding the keys to longer retention in treatment and thereby increasing treatment effectiveness.
| Treatment Setting                  | N     | %    |
|-----------------------------------|-------|------|
| Detoxification Center             | 112   | 48.7 |
| Methadone Maintenance             | 98    | 43.6 |
| Residential (drug-free)           | 20    | 8.7  |
| **Total**                         | 230   |      |

| Referral                          |       |      |
|-----------------------------------|-------|------|
| Legal                             | 26    | 11.5 |
| Self                              | 184   | 81.0 |
| Other (e.g. medical staffs)       | 17    | 7.5  |
| missing                           | 3     |      |

| Gender                            |       |      |
|-----------------------------------|-------|------|
| Male                              | 140   | 39.1 |
| Female                            | 90    | 60.9 |

| Pregnant                          |       |      |
|-----------------------------------|-------|------|
| Yes                               | 7     | 8.5  |
| No                                | 75    | 91.5 |
| missing                           | 8     |      |
| **Total**                         | 90    |      |

| Age                               |       |      |
|-----------------------------------|-------|------|
| under 21                          | 3     | 1.3  |
| 21-25                             | 22    | 9.6  |
| 26-30                             | 40    | 18.4 |
| 31-35                             | 56    | 24.9 |
| 36-40                             | 55    | 24.0 |
| 41-45                             | 40    | 17.4 |
| 46-50                             | 6     | 2.6  |
| 51 or older                       | 7     | 3.0  |
| missing                           | 1     |      |

| Race                              |       |      |
|-----------------------------------|-------|------|
| Caucasian                         | 156   | 67.8 |
| Black                             | 28    | 12.2 |
| Hispanic                          | 39    | 17.0 |
| Asian                             | 2     | 0.9  |
| American Indian                   | 2     | 0.9  |
| Other                             | 3     | 1.3  |
Table 1. (continued)

Subject Characteristics

| Marital Status      | N  | %   |
|---------------------|----|-----|
| Single              | 107| 46.5|
| Living together     | 13 | 5.7 |
| Married             | 49 | 21.3|
| Separated           | 16 | 7.0 |
| Divorced            | 40 | 17.4|
| Widowed             | 5  | 2.2 |

Education

| Education                | N  | %   |
|--------------------------|----|-----|
| less than High school    | 83 | 36.3|
| High school              | 84 | 36.7|
| Some college             | 50 | 21.8|
| College                  | 7  | 3.0 |
| Post graduate            | 5  | 2.2 |
| missing                  | 1  |     |

Yearly Income

| Yearly Income            | N  | %   |
|--------------------------|----|-----|
| not applicable           | 67 | 31.6|
| under $5,000             | 32 | 15.1|
| $5,000 - 9,999           | 40 | 18.9|
| $10,000 - 19,999         | 24 | 11.3|
| $20,000 - 29,999         | 23 | 10.8|
| $30,000 - 39,999         | 9  | 4.3 |
| $40,000 or over          | 17 | 8.0 |
| missing                  | 6  |     |

Employment Status

| Employment Status        | N  | %   |
|--------------------------|----|-----|
| Unemployed               | 184| 80.7|
| Part time                | 11 | 4.8 |
| Full time / self employed| 33 | 14.5|
| missing                  | 2  |     |

Legal Status

| Legal Status             | N  | %   |
|--------------------------|----|-----|
| Case pending             | 47 | 22.7|
| Probation                | 30 | 14.5|
| Parole                   | 9  | 4.3 |
| not applicable           | 121| 58.5|
| missing                  | 23 |     |

HIV positive

| HIV positive             | N  | %   |
|--------------------------|----|-----|
| Yes                      | 31 | 13.6|
| No                       | 160| 70.5|
| Not sure                 | 36 | 15.9|
| missing                  | 3  |     |
Table 1. (continued)

| Drug of Choice | N   | %    |
|----------------|-----|------|
| Cocaine only   | 20  | 8.7  |
| Heroin only    | 84  | 36.5 |
| Cocaine and Heroin | 91  | 39.6 |
| Other polydrug use involving cocaine and / or heroin | 13  | 5.6  |
| Other          | 22  | 9.6  |

| IV Drug Users | N   | %    |
|---------------|-----|------|
| Yes           | 160 | 69.6 |
| No            | 70  | 30.4 |

| Frequency of Drug Use | N   | %    |
|-----------------------|-----|------|
| Daily                 | 205 | 89.1 |
| 4-6 times a week      | 13  | 5.7  |
| Once a week or less   | 12  | 5.2  |

| Money Spent for Drugs Per Week | N   | %    |
|--------------------------------|-----|------|
| None                           | 4   | 1.8  |
| under $100                     | 14  | 6.4  |
| $100 - 499                     | 64  | 29.1 |
| $500 - 999                     | 88  | 40.0 |
| $1,000 - 1,999                 | 41  | 18.6 |
| $2,000 or more                | 9   | 4.1  |
| missing                        | 10  |      |

| Frequency of Alcohol Use       | N   | %    |
|--------------------------------|-----|------|
| Never / seldom                 | 53  | 23.3 |
| Daily                          | 63  | 27.8 |
| 4-6 times a week               | 31  | 13.7 |
| Once a week or less            | 80  | 35.2 |
| missing                        | 3   |      |

| Average Amount of Alcohol Use in Each Occasion (Drinks) | N   | %    |
|--------------------------------------------------------|-----|------|
| None                                                   | 53  | 25.5 |
| 2 drinks or less                                        | 35  | 16.8 |
| 3-5                                                     | 56  | 26.9 |
| 6-9                                                     | 30  | 14.4 |
| 10 or more                                              | 34  | 16.4 |
| missing                                                 | 22  |      |
Table 2. Relevance Scale - Reasons for Participating in Treatment for Drug Addiction: Final 16 items and loadings

| Scales / Items                  | Component |
|--------------------------------|-----------|
|                                | I | II | III | IV |
| **Work**                       |   |    |     |    |
| 1. I don't want to lose my job because of drug use. |   |    | .87 |    |
| 2. I may lose my job if I don't go to treatment.  |   |    | .80 |    |
| 3. my employer will eventually find out I use drugs if I don't quit. |   |    | .80 |    |
| 4. when I use drugs, I miss more time from work.  |   |    | .75 |    |
| **Finance**                    |   |    |     |    |
| 1. I have to borrow money to buy drugs.            |   |    | .79 |    |
| 2. buying drugs resulted in money problems.        |   |    | .77 |    |
| 3. using drugs made me fail to keep up with bills. |   |    | .76 |    |
| 4. I can no longer afford to buy the amount of drugs I need. |   |    | .75 |    |
| **Legal**                      |   |    |     |    |
| 1. The court ordered me to go to treatment.        |   |    | .83 |    |
| 2. going to treatment is one of the conditions of my probation or parole. |   |    | .79 |    |
| 3. going to treatment is a way out of jail.        |   |    | .71 |    |
| 4. going to treatment can put me in a better position before the judge. |   |    | .67 |    |
| **Family / Significant Others** |   |    |     |    |
| 1. People close to me want me to go to treatment.  |   |    | .72 |    |
| 2. my drug use has been upsetting my family or friends. |   |    | .72 |    |
| 3. my spouse or lover will reject me if I continue to use drugs. |   |    | .65 |    |
| 4. my drug use is a bad influence on my children or family members. |   |    | .63 |    |
Table 3. Relevance Scale - Reasons for participating in treatment: Mean, Standard Deviations, Coefficient Alphas & Scale Correlations

| Scales (number of items) | M  | SD  | Alpha | Correlations |
|--------------------------|----|-----|-------|--------------|
|                          |    |     |       | Social       |
|                          |    |     |       | Desirability |
| Family / Significant     |    |     |       |              |
| Others (4)               | 3.75 | 0.96 | .66    | 1.00         | .09 |
| Financial (4)            | 3.94 | 1.01 | .79    | .38** | 1.00 | -.03 |
| Legal (4)                | 2.46 | 1.12 | .74    | .14* | .16* | 1.00 | -.13 |
| Work (4)                 | 3.08 | 1.25 | .82    | .28** | .22** | .27* | 1.00 | -.03 |

Scale means range from 1 (strongly disagree) to 5 (strongly agree).
* p < .05
** p < .01
Table 4. Helpfulness Scale - How Hurtful or Helpful is Each of the Factors to Treatment Participation (16-item version using items in the Relevance Scale): Mean, Standard Deviations, Coefficient Alphas & Scale Correlations

| Scales (number of items) | M    | SD  | Alpha | Family | Finan. | Legal | Work | Social Desirability |
|-------------------------|------|-----|-------|--------|--------|-------|------|---------------------|
| Family / Significant Others (4) | 3.77 | 1.68 | .75   | 1.00   |        |       |      | -.04                |
| Financial (4)            | 3.57 | 1.87 | .77   | .81**  | 1.00   |       |      | -.08                |
| Legal (4)                | 4.22 | 1.16 | .68   | .15*   | .10    | 1.00  |      | .00                 |
| Work (4)                 | 3.78 | 1.32 | .77   | .60**  | .58**  | .20** | 1.00 | -.03                |

Scale means range from 1 (extremely hurtful) to 7 (extremely helpful).
* p < .05
** p < .01
Table 5. Factor Loadings and Error Variance of the Helpfulness Scale (using the 16-item version of the Relevance Scale)

| Scales / Items          | Factor Loadings | Error Variance |
|-------------------------|-----------------|----------------|
| **Work**                |                 |                |
| 1. I don’t want to lose my job because of drug use. | .77             | .40            |
| 2. I may lose my job if I don’t go to treatment. | .71             | .19            |
| 3. my employer will eventually find out I use drugs if I don’t quit. | .78             | .39            |
| 4. when I use drugs, I miss more time from work. | .68             | .54            |
| **Finance**             |                 |                |
| 1. I have to borrow money to buy drugs. | .70             | .40            |
| 2. buying drugs resulted in money problems. | .83             | .31            |
| 3. using drugs made me fail to keep up with bills. | .72             | .48            |
| 4. I can no longer afford to buy the amount of drugs I need. | .54             | .71            |
| **Legal**               |                 |                |
| 1. The court ordered me to go to treatment. | .63             | .60            |
| 2. going to treatment is one of the conditions of my probation or parole. | .67             | .55            |
| 3. going to treatment is a way out of jail. | .63             | .61            |
| 4. going to treatment can put me in a better position before the judge. | .64             | .59            |
| **Family / Significant Others** |             |                |
| 1. People close to me want me to go to treatment. | .56             | .68            |
| 2. my drug use has been upsetting my family or friends. | .81             | .34            |
| 3. my spouse or lover will reject me if I continue to use drugs. | .41             | .83            |
| 4. my drug use is a bad influence on my children or family members. | .55             | .69            |
Table 6. URICA (The University of Rhode Island Change Assessment Questionnaire): Mean, Standard Deviations, Coefficient Alphas & Scale Correlations

| Scales (number of items) | M    | SD  | Alpha | PC        | C       | A       | M       | Social Desirability |
|-------------------------|------|-----|-------|-----------|---------|---------|---------|---------------------|
| Precontemplation (8)    | 1.99 | 0.83| .84   | 1.00      |         |         |         | -.19**              |
| Contemplation (8)       | 4.21 | 0.63| .83   | -.46**    | 1.00    |         |         | .15*                |
| Action (8)              | 4.07 | 0.71| .86   | -.39**    | .81**   | 1.00    |         | .19**               |
| Maintenance (8)         | 3.78 | 0.66| .72   | -.23**    | .61**   | .65**   | 1.00    | .04                 |

Scale means range from 1 (strongly disagree) to 5 (strongly agree).
* \( p < .05 \)
** \( p < .01 \)
Table 7. Decisional Balance Scale for Drug Addiction Treatment: Final 15 items and loadings

| Scales / Items                                                                 | Component I  | Component II |
|--------------------------------------------------------------------------------|--------------|--------------|
| **Pros**                                                                        |              |              |
| 1. I think that seeking treatment will help me to start getting my life in order. | .81          |              |
| 2. Seeking treatment makes me feel good about myself.                           | .77          |              |
| 3. I think that a successful treatment experience will help me be more effective in working toward important goals in my life. | .76          |              |
| 4. I feel that seeking treatment has long standing positive effects.            | .75          |              |
| 5. Going to treatment may better equip me to cope with problems in the future. | .74          |              |
| 6. I feel that getting help from treatment is something to be proud of.       | .69          |              |
| 7. I view going to treatment as a sign of strength.                            | .65          |              |
| 8. I feel that I am more sincere in my desire to change if I go to treatment. | .63          |              |
| **Cons**                                                                       |              |              |
| 1. I feel that focusing on myself in treatment will decrease my ability to be of help to others. | .71          |              |
| 2. I see going to treatment as a sign of weakness.                             | .71          |              |
| 3. I think going to treatment is something to be ashamed of.                  | .69          |              |
| 4. I feel that I am troubling many people who are important to me by my seeking treatment. | .67          |              |
| 5. I feel that seeking treatment will make me less giving to others.          | .63          |              |
| 6. I worry that my going to treatment will have negative effects on important people in my life. | .57          |              |
| 7. I think that going to treatment is only for people with problems.          | .55          |              |
Table 8. Decisional Balance for Drug Addiction Treatment: Mean, Standard Deviations, Coefficient Alphas & Scale Correlations

| Scales (number of items) | M   | SD  | Alpha | PROS | CONS | Social Desirability |
|--------------------------|-----|-----|-------|------|------|---------------------|
| PROS (8)                 | 4.10| 0.82| .89   | 1.00 |      | -.07                |
| CONS (7)                 | 2.26| 0.96| .76   | .09  | 1.00 | -.26**              |

Scale means range from 1 (not important) to 5 (extremely important).

* $p < .05$

** $p < .01$
Table 9. Decisional Balance Scale for Quitting Drugs: Items and loadings

| Scales / Items                                                                 | Component |
|-------------------------------------------------------------------------------|-----------|
| **Pros**                                                                      |           |
| 1. When using drugs I fail to keep up with bills.                            | .82       |
| 2. As I became more involved with drugs, I pulled away from people I was once close to. | .79       |
| 3. Buying drugs has contributed to my experiencing some financial strain.     | .76       |
| 4. When using drugs, I borrow money that I fail to pay back.                  | .67       |
| 5. My drug use has led me to act irresponsibly.                               | .63       |
| 6. I experience sleeping problems when I use drugs.                           | .49       |
| **Cons**                                                                      |           |
| 1. Drugs make me feel more confident and sociable.                           | .81       |
| 2. I feel more confident when I use drugs.                                   | .77       |
| 3. I am more fun to be with when I use drugs.                                 | .72       |
| 4. I feel better about myself while using drugs.                              | .69       |
| 5. Drugs give me that extra boost of energy.                                  | .60       |
| 6. Drugs help me relieve tension.                                             | .55       |
Table 10. Decisional Balance for Quitting Drugs: Mean, Standard Deviations, Coefficient Alphas & Scale Correlations

| Scales  | M    | SD  | Alpha | CORR PROS | CORR CONS | Social Desirability |
|---------|------|-----|-------|-----------|-----------|---------------------|
| PROS (6) | 3.79 | 0.93| .78   | 1.00      |           | -.00                |
| CONS (6) | 2.90 | 0.99| .79   | .26**     | 1.00      | -.15*               |

Scale means range from 1 (not important) to 5 (extremely important).

* p < .05
** p < .01
Table 11. Stage Differences of the Decisional Balance Measures of Drug Addiction Treatment and Quitting Drugs

| Scales / Stages of Change | Mean | SD  | Follow-up Pattern (Tukey post-hoc comparison) | F (3, 165) | Effect Size | η² |
|---------------------------|------|-----|-----------------------------------------------|-----------|------------|----|
| I. Pros for Drug Addiction Treatment |      |     |                                               |           |            |    |
| 1. Precontemplation (PC)  | 46.24| 11.11| PC < C, A/M, Prep                             | 6.38**    | .10        |    |
| 2. Contemplation (C)      | 53.74| 7.48 |                                               |           |            |    |
| 3. Preparation (Prep)     | 51.46| 8.16 |                                               |           |            |    |
| 4. Action / Maintenance   | 53.29| 9.56 |                                               |           |            |    |
| (A/M)                     |      |     |                                               |           |            |    |
| II. Cons for Drug Addiction Treatment |      |     | none significant                              | 2.93*     | .05        |    |
| 1. Precontemplation       | 51.57| 9.92 |                                               |           |            |    |
| 2. Contemplation          | 53.99| 11.12|                                               |           |            |    |
| 3. Preparation            | 48.54| 7.40 |                                               |           |            |    |
| 4. Action / Maintenance   | 47.20| 9.73 |                                               |           |            |    |
| III. Pros for Quitting Drugs |      |     |                                               | 4.77**    | .07        |    |
| 1. Precontemplation       | 46.74| 10.78| PC < A/M                                      |           |            |    |
| 2. Contemplation          | 53.19| 8.06 |                                               |           |            |    |
| 3. Preparation            | 51.07| 8.40 |                                               |           |            |    |
| 4. Action / Maintenance   | 53.06| 9.45 |                                               |           |            |    |
| IV. Cons for Quitting Drugs |      |     |                                               | 3.99**    | .08        |    |
| 1. Precontemplation       | 51.11| 9.61 | A/M < C                                       |           |            |    |
| 2. Contemplation          | 55.67| 10.89|                                               |           |            |    |
| 3. Preparation            | 49.23| 9.14 |                                               |           |            |    |
| 4. Action / Maintenance   | 46.57| 9.60 |                                               |           |            |    |

Scale scores are standardized with M=50, SD=10
* p < .05
** p < .01
Table 12. Change Assessment Questionnaire (URICA) Scale Scores for Each Stage Clusters

| Clusters / URICA Scales | Raw Mean | Raw SD | Standardized Mean | Standardized SD |
|-------------------------|----------|--------|-------------------|-----------------|

### I. Precontemplation Cluster
1. Precontemplation 2.86 0.83 60.48 8.15
2. Contemplation 3.70 0.69 41.96 10.96
3. Action 3.51 0.82 42.11 11.51
4. Maintenance 3.36 0.68 43.68 10.31

### II. Ambivalent Cluster
1. Precontemplation 2.08 0.36 51.16 4.27
2. Contemplation 4.21 0.29 50.03 4.68
3. Action 4.08 0.32 50.12 4.46
4. Maintenance 3.82 0.20 50.61 2.95

### III. Preparation Cluster
1. Precontemplation 1.21 0.21 40.67 2.53
2. Contemplation 4.43 0.49 53.48 7.80
3. Action 4.29 0.47 53.11 6.61
4. Maintenance 3.29 0.32 42.63 4.92

### IV. Action / Maintenance Cluster
1. Precontemplation 1.36 0.37 42.46 4.54
2. Contemplation 4.64 0.34 56.92 5.47
3. Action 4.56 0.40 56.88 5.55
4. Maintenance 4.43 0.34 59.88 5.18

Raw scale scores range from 8 to 40
Standardized scale scores have M=50, SD=10
Table 13. Cluster Differences of the Decisional Balance Measures of Drug Addiction Treatment and Quitting Drugs

| Scales / Clusters | Mean  | SD    | Follow-up Pattern (Tukey post-hoc comparison) | $\eta^2$ |
|-------------------|-------|-------|---------------------------------------------|---------|
| **I. Pros for Drug Addiction Treatment** |       |       |                                             |         |
| 1. Precontemplation (PC) | 43.96 | 11.62 | PC < Amb, Prep, A/M; Amb < A/M              | .24     |
| 2. Ambivalent (Amb)   | 48.93 | 7.55  |                                             |         |
| 3. Preparation (Prep) | 53.42 | 7.20  |                                             |         |
| 4. Action /Maintenance (A/M) | 55.73 | 6.37  |                                             |         |
| **II. Cons for Drug Addiction Treatment** |       |       |                                             | .08     |
| 1. Precontemplation   | 53.90 | 10.86 | A/M, Prep < PC                              |         |
| 2. Ambivalent         | 49.48 | 9.16  |                                             |         |
| 3. Preparation        | 46.76 | 8.45  |                                             |         |
| 4. Action /Maintenance | 47.66 | 8.95  |                                             |         |
| **III. Pros for Quitting Drugs** |       |       |                                             | .18     |
| 1. Precontemplation   | 44.58 | 11.06 | PC < Amb < Prep, A/M                        |         |
| 2. Ambivalent         | 49.37 | 6.81  |                                             |         |
| 3. Preparation        | 55.25 | 8.10  |                                             |         |
| 4. Action /Maintenance | 53.76 | 8.50  |                                             |         |
| **IV. Cons for Quitting Drugs** |       |       |                                             | .64     |
| 1. Precontemplation   | 49.98 | 9.69  |                                             |         |
| 2. Ambivalent         | 49.69 | 9.11  |                                             |         |
| 3. Preparation        | 48.14 | 10.81 |                                             |         |
| 4. Action /Maintenance | 50.99 | 10.62 |                                             |         |

Scale scores are standardized with M=50, SD=10

*p < .01
Table 14. Cluster Differences of the Relevance Scale on the Reasons of Seeking / Participating in Treatment

| Scales / Clusters | Mean | SD  | Follow-up Pattern (Tukey post-hoc comparison) | F (3, 165) | Effect Size |
|-------------------|------|-----|-----------------------------------------------|------------|-------------|
| I. Family         |      |     |                                               |            |             |
| 1. Precontemplation (PC) | 13.04 | 4.30 | PC < Amb, Prep, A/M;                          | 11.21*     | .14         |
| 2. Ambivalent (Amb) | 15.53 | 2.84 |                                               |            |             |
| 3. Preparation (Prep) | 15.06 | 3.46 |                                               |            |             |
| 4. Action /Maintenance (A/M) | 16.47 | 3.32 |                                               |            |             |
| II. Finance       |      |     |                                               |            |             |
| 1. Precontemplation | 14.46 | 4.66 | PC < Prep, A/M;                               | 5.48*      | .07         |
| 2. Ambivalent      | 15.02 | 3.91 | Amb < A/M                                     |            |             |
| 3. Preparation     | 16.59 | 2.85 |                                               |            |             |
| 4. Action /Maintenance | 17.04 | 3.53 |                                               |            |             |
| III. Legal         |      |     |                                               |            |             |
| 1. Precontemplation | 10.57 | 4.14 |                                               | 1.08       |             |
| 2. Ambivalent      | 9.96  | 4.69 |                                               |            |             |
| 3. Preparation     | 8.67  | 4.43 |                                               |            |             |
| 4. Action /Maintenance | 9.61  | 4.43 |                                               |            |             |
| IV. Work           |      |     |                                               |            |             |
| 1. Precontemplation | 11.86 | 4.79 |                                               | 0.50       |             |
| 2. Ambivalent      | 12.49 | 4.31 |                                               |            |             |
| 3. Preparation     | 12.48 | 5.33 |                                               |            |             |
| 4. Action /Maintenance | 12.68 | 5.54 |                                               |            |             |

Scale scores are raw sums of the four items in each scale range from 4 to 20.
* p < .01
Table 15. Pearson Correlation Coefficients among Measures of Perceived Coercion, Stages of Change and Decisional Balance for Drug Addiction Treatment and Quitting Drugs

| Relevance Scale | r-fam | r-fin | r-leg | r-wrk | h-fam | h-fin | h-leg | h-wrk | ctrl | crcn |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| Family (r-fam) | 1.00  |       |       |       |       |       |       |       |      |      |
| Finance (r-fin)| .38** | 1.00  |       |       |       |       |       |       |      |      |
| Legal (r-leg)  | .14*  | .16*  | 1.00  |       |       |       |       |       |      |      |
| Work (r-wrk)   | .29*  | .22** | .27** | 1.00  |       |       |       |       |      |      |

| Helpfulness Scale | r-fam | r-fin | r-leg | r-wrk | h-fam | h-fin | h-leg | h-wrk | ctrl | crcn |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| Family (h-fam)    | .04   | .01   | -.05  | .00   | 1.00  |       |       |       |      |      |
| Finance (h-fin)   | .00   | .04   | -.03  | -.06  | .81** | 1.00  |       |       |      |      |
| Legal (h-leg)     | .06   | .05   | .35** | .10   | .14*  | .10   | 1.00  |       |      |      |
| Work (h-wrk)      | .04   | .01   | -.03  | -.01  | .60** | .58** | .20** | 1.00  |      |      |

| Global Measures   | r-fam | r-fin | r-leg | r-wrk | h-fam | h-fin | h-leg | h-wrk | ctrl | crcn |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| Control (ctrl)    | .07   | .00   | -.10  | .08   | .08   | .02   | .11   | .03   | 1.00 |      |
| Coercion (crcn)   | -.10  | -.07  | .12   | .04   | -.10  | -.03  | .03   | -.04  | -.34**| 1.00 |

| URICA             | PC    | C     | A     | M     |       |       |       |       |      |      |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| PC                | -.28**|.25** | .18** | .00   | -.08  | -.09  | -.14* | -.05  | -.21**| .20**|
| C                 | .49** | .35** | -.02  | .16*  | .09   | .03   | .09   | .01   | .20** | -.13 |
| A                 | .47** | .26** | -.06  | .17*  | .15*  | .09   | .09   | .06   | .24** | -.10 |
| M                 | .38** | .28** | .05   | .23** | .07   | .05   | .12   | -.02  | .14*  | -.08 |

| Decisional Balance for Treatment | r-fam | r-fin | r-leg | r-wrk | h-fam | h-fin | h-leg | h-wrk | ctrl | crcn |
|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| PROS                             | .31** | .21** | .03   | .12   | .17*  | .11   | .09   | .07   | .30**| -.03 |
| CONS                             | .03   | .09   | .23** | .23** | .07   | .06   | .15*  | .07   | .02  | .22**|

| Decisional Balance for Quitting Drugs | r-fam | r-fin | r-leg | r-wrk | h-fam | h-fin | h-leg | h-wrk | ctrl | crcn |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| PROS                                 | .38** | .41** | .08   | .23** | .10   | .10   | .16*  | .13*  | .14* | -.11 |
| CONS                                 | .05   | .15*  | .10   | -.02  | .13   | .16*  | .15*  | .14*  | -.04 | .11  |

*p < .05
**p < .01
Table 15. (continued)

Pearson Correlation Coefficients among Measures of Perceived Coercion, Stages of Change and Decisional Balance for Drug Addiction Treatment and Quitting Drugs

|       | PC | C  | A    | M    | Pros (tx) | Cons (tx) | Pros (drug) | Cons (drug) |
|-------|----|----|------|------|-----------|-----------|-------------|-------------|
| **URICA** |    |    |      |      |           |           |             |             |
| PC    |    |    |      |      | 1.00      |           |             |             |
| C     | -.46** |    | 1.00 |      |           |           |             |             |
| A     | -.39** | .81** | 1.00 |      |           |           |             |             |
| M     | -.23** | .61** | .65** | 1.00 |           |           |             |             |
| **Decisional Balance** |    |    |      |      |           |           |             |             |
| for Treatment |    |    |      |      |           |           |             |             |
| PROS (tx) | - .34** | .51** | .58** | .42** | 1.00      |           |             |             |
| CONS (tx) | .40** | -.02 | .02 | .05 | .07 | 1.00 |           |             |
| **Decisional Balance** |    |    |      |      |           |           |             |             |
| for Quitting Drugs |    |    |      |      |           |           |             |             |
| PROS (drug) | - .33** | .38** | .41** | .29** | .59** | .03 | 1.00 |             |
| CONS (drug) | .06 | .08 | .11 | .10 | .17* | .23** | .26** | 1.00 |

*p < .05

**p < .01
Table 16. Means and Standard Deviation of the Helpfulness Scale for Each Cluster

| Scales / Clusters          | Mean | SD  |
|----------------------------|------|-----|
| I. Family                  |      |     |
| 1. Precontemplation (PC)   | 14.27| 6.26|
| 2. Ambivalent (Amb)        | 15.33| 6.37|
| 3. Preparation (Prep)      | 15.88| 7.21|
| 4. Action /Maintenance (A/M)| 15.56| 7.24|
| II. Finance                |      |     |
| 1. Precontemplation        | 13.22| 6.62|
| 2. Ambivalent              | 14.25| 7.17|
| 3. Preparation             | 15.09| 7.28|
| 4. Action /Maintenance     | 15.11| 8.57|
| III. Legal                 |      |     |
| 1. Precontemplation        | 15.82| 5.67|
| 2. Ambivalent              | 17.69| 4.14|
| 3. Preparation             | 17.41| 4.10|
| 4. Action /Maintenance     | 17.51| 4.08|
| IV. Work                   |      |     |
| 1. Precontemplation        | 14.94| 4.86|
| 2. Ambivalent              | 14.69| 5.21|
| 3. Preparation             | 15.85| 5.23|
| 4. Action /Maintenance     | 15.35| 5.89|

Scale scores are raw sums of the four items in each scale range from 4 to 20.
Table 17. Cluster Differences of the Global Items on Perceived Control and Perceived Coercion over Treatment Participation

| Items / Clusters | Mean  | SD   | Mean  | SD   | Follow-up Pattern | F (3, 221) | Effect Size |
|------------------|-------|------|-------|------|------------------|-----------|-------------|
|                  | Raw   | Standardized |           |       |                  |           |             |
|                  | Mean | SD   | Mean | SD   | Tukey post-hoc Comparison |       |             |
| I. Perceived Control |       |       |       |       |                  |           |             |
| "How much do you feel you are in control of choosing whether or not to participate in treatment?" |       |       |       |       |                  |           |             |
| 1. PC            | 3.44  | 1.15 | 46.74 | 10.32 | PC < A/M         | 5.39*     | .07         |
| 2. Amb           | 3.67  | 1.14 | 49.30 | 10.30 |                  |           |             |
| 3. Prep          | 3.94  | 0.95 | 51.71 | 8.57  |                  |           |             |
| 4. A/M           | 4.08  | 1.01 | 53.02 | 9.17  |                  |           |             |

II. Perceived Coercion
"How much do you currently feel that you are being forced or pressured to participate in treatment against your wishes?"

| 1. PC            | 1.98  | 1.27 | 53.04 | 11.82 | A/M < PC         | 3.68*     | .05         |
| 2. Amb           | 1.61  | 1.06 | 49.71 | 8.78  |                  |           |             |
| 3. Prep          | 1.44  | 0.93 | 48.12 | 8.58  |                  |           |             |
| 4. A/M           | 1.43  | 0.86 | 48.01 | 7.96  |                  |           |             |

Raw item means range from 1 (not at all) to 5 (extremely).
Standardized item means have M=50, SD=10
Clusters: PC = Precontemplation; Amb = Ambivalent; Prep = Preparation;
A/M = Action / Maintenance
*p < .01
Figure 1. Decisional Balance for Drug Addiction Treatment across Stages of Change (N=169)
Decisional Balance of Drug Addiction Treatment Across Stages

- **PC (n=68)**
- **Cont (n=17)**
- **Prep (n=42)**
- **Action/Maint (n=41)**

| Stages          | PROS       | CONS       |
|-----------------|------------|------------|
| PC (n=68)       | 45         | 50         |
| Cont (n=17)     | 55         | 52         |
| Prep (n=42)     | 48         | 53         |
| Action/Maint (n=41) | 50   | 55         |

Standardized score M=50, SD=10
Figure 2. Decisional Balance for Quitting Drugs across Stages of Change (N=169)
Decisional Balance of Quitting Drugs Across Stages

![Graph showing decisional balance across stages of quitting drugs]

- PROS
- CONS

Stages:
- PC (n=68)
- Cont (n=17)
- Prep (n=42)
- Action/Maint (n=41)
Figure 3. Precontemplation Cluster Profile for the Stages of Change for Quitting Drugs (n = 76)
Precontemplation (n=76)

Stages of Change

Standardized score M=50, SD=10
Figure 4. Ambivalent Cluster Profile for the Stages of Change for Quitting Drugs (n = 49)
Ambivalent (n=49)

Stages of Change

Standardized score M=50, SD=10
Figure 5. Preparation Cluster Profile for the Stages of Change for Quitting Drugs (n = 34)
Preparation (n=34)

Stages of Change

Standardized score M=50, SD=10
Figure 6. Action / Maintenance Cluster Profile for the Stages of Change for Quitting Drugs (n=71)
Action / Maintenance (n=71)

Stages of Change

Standardized score M=50, SD=10
Figure 7. Decisional Balance for Drug Addiction Treatment across Clusters (N=230)
Decisional Balance of Drug Addiction Treatment Across Clusters

- PROS
- CONS

Clusters:
- PC (n=76)
- Ambiv (n=49)
- Prep (n=34)
- Action/Maint (n=71)

Standardized score M=50, SD=10
Figure 8. Decisional Balance for Quitting Drugs across Clusters (N = 230)
Decisional Balance of Quitting Drugs Across Clusters

Standardized score M=50, SD=10

- PROS
- CONS

Clusters

PC (N=76) Ambiv (n=49) Prep (n=34) Action/Maint (n=71)
Figure 9. Perceived Control and Coercion over Treatment Participation across Clusters (N=225)
Perceived Coercion and Control Over Seeking / Participating in Treatment Across Clusters

Clusters:
- PC (n=72)
- Ambiv (n=49)
- Prep (n=34)
- Action/Maint (n=70)

Standardized score M=50, SD=10
Appendix A
Stage Algorithm

Please check ONE of the following which best describes your drug use:

__1. I do **not** intend to stay off drugs completely in the **next 6 months**.

__2. I **intend** to stay off drugs **completely** in the **next 6 months** but **not** in the next 30 days.

__3. I **intend** to stay off drugs **completely** in the **next 30 days**.

__4. I **have stayed off** any drug use for **less than 6 months**.

__5. I **have stayed off** any drug use for **more than 6 months**.
Appendix B

Items Assessing Global Perceived Control and Perceived Coercion in Treatment Participation

1. How much do you feel you are in control of choosing whether or not to participate in treatment?
   
   _1 not at all    _2 slightly    _3 moderately    _4 very    _5 extremely

2. How much do you currently feel that you are being forced or pressured to participate in treatment against your wishes?
   
   _1 not at all    _2 slightly    _3 moderately    _4 very    _5 extremely

Appendix C

Cover Letter to Participants
Dear participant,

Thank you for expressing your interest to participate in this survey which will take about 30 to 45 minutes to complete. Your participation will be a valuable part of the overall study, through which we hope to obtain a better understanding of what brings people to treatment. Additionally, we want to learn how the program participants view the factors that bring them into treatment.

Attached are two informed consent forms and one set of questionnaires. Please read the consent forms carefully. If you would like to participate in the study, please sign the consent forms. After you have completed the questionnaires, please return them together with one consent form to the researcher conducting the study, and you will receive $5 cash for your participation. The other consent form is for you to keep.

Participation in this study is strictly voluntary and please be assured that all of the information that you provide will be kept completely confidential and will not be available to your counselor or treatment facility. Your honest and accurate responses will provide the most valuable information to us in this study.

Thank you very much for your time and interest in our project.

Sincerely,

Janice Tsoh
(University of Rhode Island)
Appendix D

Informed Consent
Informed Consent Form

A study on Motivations People Have for Participating in Drug Addiction Treatment

I UNDERSTAND THAT:

1. I am 18 years old or older.

2. The purpose of this study is to learn more about the motivations that people have for participating in drug addiction treatment.

3. I will be asked to complete a set of questionnaires about myself, my opinions on drug use, the reasons that I have for seeking treatment, how I view the factors that bring me into treatment and the problems I have encountered while using drugs.

4. My answers to the questions will be kept completely confidential and no names or other information will be disclosed which may identify me. My name and responses will be coded by number. At no point will any of my responses be available to anyone outside the study, including those involved in my treatment. Final results will contain no names or information that can identify individual participants.

5. By giving my name to the investigator of this study, I give permission to him/her to know the length of time I have stayed in the current treatment. This is the only purpose for collecting names in this study.

6. This study may provide important information regarding why people enter treatment for drug addiction, and offer information to others to help them design treatment programs that can best suit people's needs. I realize that the accuracy and honesty of my answers are very important.

7. I will receive $5 cash for my participation in this study when I return my completed questionnaires to the researcher conducting this study. In addition, I will sign a receipt after I collect the money.

8. Answering some of the questions may potentially cause emotional distress because of their sensitive nature, which is one possible risk of participation in this study.

9. I may contact the Vice-Provost for Research at URI, 70 Lower College Rd., Kingston, RI 02881 (phone 401-792-2653) if I am dissatisfied with the conduct of this study.

10. My choice to participate in this study will in no way affect my treatment.

11. I have the choice to be in this study and may withdraw from it at any time. I may choose not to answer any questions I do not want to, although each serves an important and specific function as a part of the whole study.

12. If I have any questions about this study I may contact Janice Tsoh at (401) 792-2830.

I have read the Consent Form. My questions have been answered. My signature on this form indicates that I understand each of the above items. I hereby agree to be in this study and give permission to the researcher of this study, Janice Tsoh, to obtain the information from Spectrum regarding the total length of time that I have stayed in treatment at Spectrum Primary Care.

Signature of Participant

Signature of Researcher

Typed/printed Name

Janice Tsoh

Typed/printed Name

5/29/92

Date

Date
Appendix E

Comment Sheet

We would like to know your comments about the questionnaires that you have just filled out. Please answer all questions below. Your opinions will be highly valued and appreciated.

1. How do you find the instructions in general?
   (1) Very difficult to understand  (2) Difficult  (3) No comment
   (4) Easy  (5) Very easy to understand

2. Which form(s) do you find the instructions are not clear?
   - all forms  _ Form A  _ B  _ C  _ D  _ E  _ G  none

3. How do you find the items on the questionnaire in general?
   (1) Very difficult to understand  (2) Difficult  (3) No comment
   (4) Easy  (5) Very easy to understand

4. On which form(s) do you find the items are difficult to understand?
   - all forms  _ Form A  _ B  _ C  _ D  _ E  _ G  none

5. For FORM B (Reasons for Seeking/Participating in Treatment) and D (How Do You View the Factors That Bring You to Treatment?), how many of the items cover the reasons you have for participating in treatment?
   (1) Most  (2) Many  (3) Some  (4) Few  (5) Very few

6. What are some other reasons that you may have for participating in treatment?

Other Comments

Thank You.
Appendix F

QUESTIONNAIRE PACKET
A. Demographics
1. Sex: _1 female _2 male
2. Age: ______ years old
3. Race: _1 White _2 Black _3 Hispanic _4 Asian _5 American Indian _6 Other
4. Marital Status: _1 single _2 married _3 divorced _4 separated _5 widowed _6 living together
5. For females only: are you currently pregnant? _1 yes _2 no
6. Last grade you completed in school (please circle):
   High school 8 9 10 11 12
   College 1 2 3 4 5
   Post-Graduate 1 2 3 4 5
Other
7. Your gross yearly income
   _1 not applicable
   _2 less than 4,999
   _3 5,000 - 9,999
   _4 10,000 - 19,999
   _5 20,000 - 29,999
   _6 30,000 - 39,999
   _7 Over 40,000
8. Your family gross yearly income
   _1 not applicable
   _2 less than 4,999
   _3 5,000 - 9,999
   _4 10,000 - 19,999
   _5 20,000 - 29,999
   _6 30,000 - 39,999
   _7 Over 40,000
9. Current employment status:
   _1 unemployed _2 part time _3 full time _4 Other
10. Current legal status: _1 case pending _2 probation _3 parole _4 not applicable
Legal involvement (life time):
   11. Have you ever been incarcerated? _1 Yes _2 No
   12. If yes, how long? (please specify) __years __months __days
   13. Number of total charges in life
Family/social relationships:
   14. Who do you currently live with?
      _1 parents _2 spouse _3 relatives _4 friends/roommates _5 alone
   15. How many children do you have? __
   16. Number of close friends __
B. Medical History
17. Number of hospitalizations related to drug use __________
18. Number of hospitalizations unrelated to drug use __________
19. What is your current health status? __ 1 poor __ 2 fair __ 3 good __ 4 excellent
20. Are you HIV positive? __ 1 yes __ 2 no __ 3 not sure

C. Drug / Alcohol Use Pattern
During the period just before seeking treatment, what kind(s) of drug(s) and how much did you use regularly?
21. __ cocaine how much? __________ grams / bags (please circle the appropriate unit)
22. __ heroin how much? __________ grams / bags
23. __ marijuana how much? __________ grams / bags
24. __ PCP how much? __________ grams / bags
25. __ other (please specify) __________ how much? __________
26. how often did you use drugs? __ (1) daily __ (2) 4 - 6 times a week __ (3) once a week
   __ (4) 2 - 3 times a month __ (5) once a month __ (6) other (please explain) __________
27. Please check ONE of the following which best describes your drug use:
   __ 1. I do not intend to stay off drugs completely in the next 6 months.
   __ 2. I intend to stay off drugs completely in the next 6 months but not in the next 30 days.
   __ 3. I intend to stay off drugs completely in the next 30 days.
   __ 4. I have stayed off any drug use for less than 6 months.
   __ 5. I have stayed off any drug use for more than 6 months.
28. Please check the MOST important reason which explains why you became heavily involved with drug use: (please check ONE only)
   __ 1 many people in my social circle use drugs
   __ 2 using drugs relieve painful emotional feelings.
   __ 3 drugs can take away physical pain
   __ 4 using drugs help me enjoy my sex life more
   __ 5 my chemical predisposition: given the history of chemical dependency in my family
   __ 6 the highly addictive quality of drugs
29. Did you quit using drugs in the past 12 months? __ 1 yes __ 2 no
30. Regardless of whether or not you are in the process of trying to quit, are you still using any illicit drugs at all? __ 1 yes __ 2 no
31. What is / was your usual method of drug use?
   __ 1 snort __ 2 smoke __ 3 i.v. __ 4 other (please explain) __________
32. How long ago did you first try any illicit drug(s)? __________ years and __________ months ago
33. On the average, how much money did you spend on drugs per week? __________
Before this current quit attempt. (please specify)

34. when was the last time you tried to quit? ________ years and ________ months and ________ days ago

35. how long did this attempt last? ________ years and ________ months and ________ days

36. Before seeking the current treatment, how often did you drink alcohol?

   ___(1) daily  ___(2) 4 - 6 times a week  ___(3) once a week  ___(4) 2 - 3 times a month

   ___(5) once a month  ___(6) other (please explain)________________________

37. How many drinks did you have on the average? __________________________

D. Impacts of drug use on your life:

To what degree has your drug use had a negative impact on the following areas?

38. Family Relationships:  ___1 not at all  ___2 a little  ___3 somewhat  ___4 a lot  ___5 extremely

39. Social Relationships:  ___1 not at all  ___2 a little  ___3 somewhat  ___4 a lot  ___5 extremely

40. Physical health:  ___1 not at all  ___2 a little  ___3 somewhat  ___4 a lot  ___5 extremely

41. Emotional well-being:  ___1 not at all  ___2 a little  ___3 somewhat  ___4 a lot  ___5 extremely

41a. Self esteem:  ___1 not at all  ___2 a little  ___3 somewhat  ___4 a lot  ___5 extremely

42. Work:  ___1 not at all  ___2 a little  ___3 somewhat  ___4 a lot  ___5 extremely

43. Financial situation:  ___1 not at all  ___2 a little  ___3 somewhat  ___4 a lot  ___5 extremely

44. Legal status:  ___1 not at all  ___2 a little  ___3 somewhat  ___4 a lot  ___5 extremely

E. Treatment History, Expectation and Satisfaction

45. How long have you been in your current treatment? ________ years ________ months ________ days

46. How long is your current treatment supposed to be? ________ years ________ months ________ days

47. How long do you think you need the treatment? ________ years ________ months ________ days

48. What drugs are prescribed by the current treatment and how much? (please fill in the amount)

   ______ mg (milligrams) of methadone

   ______ mg Librium

   ______ mg tranzene

   ______ mg Valium

   Other __________________________ how much? ____________ none

49. How helpful to you is the current treatment?

   ___1 not at all helpful  ___2 slightly  ___3 moderately  ___4 very  ___5 extremely helpful

50. How active are you in participating in treatment?

   ___1 not at all active  ___2 slightly  ___3 moderately  ___4 very  ___5 extremely active

51. How much do you feel you are in control of choosing whether or not to participate in treatment?

   ___1 not at all  ___2 slightly  ___3 moderately  ___4 very  ___5 extremely
52. How much do you currently feel that you are being forced or pressured to participate in treatment against your wishes?  
   1 not at all  2 slightly  3 moderately  4 very  5 extremely

53. What is your personal treatment goal? (please check the most appropriate ONE only)
   1 Give my body a rest and then go back to use drugs  
   2 Controlled, occasional use of drugs  
   3 Total abstinence from drug use  
   4 Total abstinence from all illicit drug use including alcohol  
   5 "Going along" with the treatment program until my crises are over

54. Sources of referral for the current treatment:
   1 legal  2 self  3 Other (please specify) __________________________

55. How many times have you been in treatment of your drug use before (excluding the current one)? ______

56. How confident are you to stay off drugs completely after the current treatment?
   1 not at all  2 slightly  3 moderately  4 very  5 extremely

57. How motivated are you to stay off drugs completely after the current treatment?
   1 not at all  2 slightly  3 moderately  4 very  5 extremely

58. How motivated are you to stay in the current treatment?
   1 not at all  2 slightly  3 moderately  4 very  5 extremely

59. What type of aftercare program will you recommend the most to people who have similar needs as you do? (if more than 1, please indicate your first choice)
   1 outpatient counseling  2 residential  3 half-way house  4 other __________________________

Please rate how much you agree with each of the following statement regarding what brought you to treatment by circling the number that best describes your response.

| I came to treatment because of . . . | Strongly disagree | neutral | Strongly agree |
|-------------------------------------|-----------------|--------|----------------|
| 60. legal reasons                    | 1 2             | 3 4    | 5              |
| 61. pressure from work or employer   | 1 2             | 3 4    | 5              |
| 62. financial reasons                | 1 2             | 3 4    | 5              |
| 63. family / friends                | 1 2             | 3 4    | 5              |
| 64. health reasons                   | 1 2             | 3 4    | 5              |
| 65. self motivations                | 1 2             | 3 4    | 5              |
| 66. other                           | 1 2             | 3 4    | 5              |

THANK YOU.
| ID NUMBER | SPECIAL CODES |
|-----------|--------------|

**FORM B Reasons for Seeking / Participating in Treatment**

Please indicate the extent to which you AGREE or DISAGREE with each statement regarding WHY you participate in treatment according to the scale with A = Strongly disagree and E = Strongly agree. Please BLACKEN the circle that best describes your answer.

**GENERAL PURPOSE DATA SHEET II**

form no. 83739

**I AM SEEKING / PARTICIPATING IN TREATMENT BECAUSE...**

1. my spouse or lover will reject me if I continue to use drugs.
2. using drugs has lowered my sex drive.
3. my drug use is a bad influence on my children or family members.
4. going to treatment is one of the conditions of my probation or parole.
5. I can no longer afford to buy the amount of drugs I need.
6. using drugs made me fall to keep up with bills.
7. I may be arrested someday if I continue to use drugs.
8. I want to decrease my chance of getting AIDS.
9. I may lose my job if I don't go to treatment.
10. I experience health problems when I use drugs.
11. my employer required me to go to treatment.
12. when I use drugs, I miss more time from work.
13. buying drugs resulted in money problems.
14. using drugs is threatening to my health.
15. I have to borrow money to buy drugs.
16. I worry about getting AIDS if I continue to use drugs.
17. I am afraid that I will end up dead if I don't stop taking drugs.
18. the court ordered me to go to treatment.
19. my drug use has caused me to drift away from people I have been close to.
20. I don't want to lose my job because of drug use.
21. going to treatment can put me in a better position before the judge.
22. my drug use has been upsetting my family or friends.
23. my employer will eventually find out I use drugs if I don't quit.
24. I will spend all my savings on drugs if I don't go to treatment.
25. my drug use has caused a variety of problems at work.
26. people close to me want me to go to treatment.
27. I prefer participating in treatment to going to prison.
28. I can stay with my family and loved ones if I go to treatment.
29. going to treatment is a way out of jail.
30. going to treatment is more affordable than buying drugs.
Please indicate the extent to which you agree or disagree with each statement below. In each case, make your choice in terms of HOW YOU FEEL RIGHT NOW. For all the statements that refer to your "PROBLEM", answer in terms of your DRUG USE. And "HERE" refers to the place of TREATMENT or program.

**FORM C Change Assessment Questionnaire (Page 1)**

1. As far as I'm concerned, I don't have any problems that need changing.
2. I think I might be ready for some self-improvement.
3. I am doing something about the problems that had been bothering me.
4. It might be worthwhile to work on my problem.
5. I'm not the problem one. It doesn't make much sense for me to be here.
6. It worries me that I might slip back on a problem I have already changed, so I am here to seek help.
7. I am finally doing some work on my problem.
8. I've been thinking that I might want to change something about myself.
9. I have been successful in working on my problem but I'm not sure I can keep up the effort on my own.
10. At times my problem is difficult, but I'm working on it.
11. Being here is pretty much of a waste of time for me because the problem doesn't have to do with me.
12. I'm hoping this place will help me to better understand myself.
13. I guess I have faults, but there's nothing that I really need to change.
14. I am really working hard to change.
15. I have a problem and I really think I should work on it.
16. I'm not following through with what I had already changed as well as I had hoped, and I'm here to prevent a relapse of the problem.
17. Even though I'm not always successful in changing, I am at least working on my problem.
18. I thought once I had resolved the problem I would be free of it, but sometimes I still find myself struggling with it.
19. I wish I had more ideas on how to solve my problem.
20. I have started working on my problems but I would like help.
Please indicate the extent to which you agree or disagree with each statement below. In each case, make your choice in terms of HOW YOU FEEL RIGHT NOW. For all the statements that refer to your "PROBLEM", answer in terms of your DRUG USE. And "HERE" refers to the place of TREATMENT or program.

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

How Do You View the Factors that Bring You to Treatment?

Instructions: Some of the following statements may represent the factors that bring you to your current drug addiction treatment. Please think about how each factor below affects your participation in treatment in terms of How Hurtful or How Helpful it is, then circle the number that best describes your response.

Hurtfulness / Helpfulness: 1 = Extremely hurtful 2 = Moderately hurtful 3 = Slightly hurtful 4 = Neither hurtful nor helpful 5 = Slightly helpful 6 = Moderately helpful 7 = Extremely helpful

| How hurtful / helpful is each of the following to my participation in treatment? | Extremely hurtful | Neither hurtful / helpful | Extremely helpful |
|---|---|---|---|
| 1 My spouse or lover will reject me if I continue to use drugs. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 Using drugs has lowered my sex drive. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3 My drug use is a bad influence on my children or family members. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 Going to treatment is one of the conditions of my probation or parole. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5 I can no longer afford to buy the amount of drugs I need. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6 Using drugs made me fail to keep up with bills. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7 I may be arrested someday if I continue to use drugs. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 I want to decrease my chance of getting AIDS. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9 I may lose my job if I don’t go to treatment. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10 I experience health problems when I use drugs. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11 My employer required me to go to treatment. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12 When I use drugs, I miss more time from work. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13 Buying drugs resulted in money problems. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14 Using drugs is threatening to my health. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
How hurtful / helpful is each of the following to my participation in treatment?

|                                                                 | Extremely | Neither | Extremely |
|-----------------------------------------------------------------|-----------|---------|-----------|
|                                                                 | hurtful   | harmful | helpful   |
| 15 I have to borrow money to buy drugs.                        | 1         | 2       | 3         |
|                                                                 | 4         | 5       | 6         |
|                                                                 | 7         |         |           |
| 16 I worry about getting AIDS if I continue to use drugs.     | 1         | 2       | 3         |
|                                                                 | 4         | 5       | 6         |
|                                                                 | 7         |         |           |
| 17 I am afraid that I will end up dead if I don’t stop taking | 1         | 2       | 3         |
| drugs.                                                          |           | 4       | 5         |
|                                                                 | 6         |         | 7         |
| 18 The court ordered me to go to treatment.                    | 1         | 2       | 3         |
|                                                                 | 4         | 5       | 6         |
|                                                                 | 7         |         |           |
| 19 My drug use has caused me to drift away from people I      | 1         | 2       | 3         |
| have been close to.                                            |           | 4       | 5         |
|                                                                 | 6         |         | 7         |
| 20 I don’t want to lose my job because of drug use.            | 1         | 2       | 3         |
|                                                                 | 4         | 5       | 6         |
|                                                                 | 7         |         |           |
| 21 Going to treatment can put me in a better position          | 1         | 2       | 3         |
| before the judge.                                              |           | 4       | 5         |
|                                                                 | 6         |         | 7         |
| 22 My drug use has been upsetting my family or friends.       | 1         | 2       | 3         |
|                                                                 | 4         | 5       | 6         |
|                                                                 | 7         |         |           |
| 23 My employer will eventually find out I use drugs if I      | 1         | 2       | 3         |
| don’t quit.                                                    |           | 4       | 5         |
|                                                                 | 6         |         | 7         |
| 24 I will spend all my savings on drugs if I don’t go to      | 1         | 2       | 3         |
| treatment.                                                     |           | 4       | 5         |
|                                                                 | 6         |         | 7         |
| 25 My drug use has caused a variety of problems at work.      | 1         | 2       | 3         |
|                                                                 | 4         | 5       | 6         |
|                                                                 | 7         |         |           |
| 26 People close to me want me to go to treatment.             | 1         | 2       | 3         |
|                                                                 | 4         | 5       | 6         |
|                                                                 | 7         |         |           |
| 27 I prefer participating in treatment to going to prison.    | 1         | 2       | 3         |
|                                                                 | 4         | 5       | 6         |
|                                                                 | 7         |         |           |
| 28 I can stay with my family and loved ones if I go to        | 1         | 2       | 3         |
| treatment.                                                     |           | 4       | 5         |
|                                                                 | 6         |         | 7         |
| 29 Going to treatment is a way out of jail.                   | 1         | 2       | 3         |
|                                                                 | 4         | 5       | 6         |
|                                                                 | 7         |         |           |
| 30 Going to treatment is more affordable than buying drugs.   | 1         | 2       | 3         |
|                                                                 | 4         | 5       | 6         |
|                                                                 | 7         |         |           |

THANK YOU.
FORM I  Pros and Cons of Seeking / Participating in Treatment

The following statements represent different opinions about seeking / participating in drug addiction treatment. Please rate how IMPORTANT each statement is to you according to a 5-point scale with A = Not important to E = Extremely important.

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1. I worry that my going to treatment will have negative effects on important people in my life.

2. I think that seeking treatment will help me to start getting my life in order.

3. Going to treatment may better equip me to cope with problems in the future.

4. I feel that seeking treatment will make me less giving to others.

5. I think going to treatment is something to be ashamed of.

6. By going to treatment I am admitting that my drug use is a problem.

7. I feel that focusing on myself in treatment will decrease my ability to be of help to others.

8. I feel that I am more sincere in my desire to change if I go to treatment.

9. Seeking treatment makes me feel good about myself.

10. I think that going to treatment is only for people with problems.

11. I feel that seeking treatment has long standing positive effects.

12. I see going to treatment as a sign of weakness.

13. I view going to treatment as a sign of strength.

14. I think that a successful treatment experience will help me be more effective in working toward important goals in my life.

15. I feel that getting help from treatment is something to be proud of.

16. I feel that I am troubling many people who are important to me by my seeking treatment.

THANK YOU.

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FORM F Pros and Cons of Drug Use

The following statements represent different opinions about drug use. Please rate how important each statement is to you according to a 5-point scale with A = Not important to E = Extremely important.

1. I feel better about myself while using drugs.
2. Drugs make me feel more confident and sociable.
3. I am more fun to be with when I use drugs.
4. My drug use has led me to act irresponsibly.
5. I feel more confident when I use drugs.
6. When using drugs I fail to keep up with bills.
7. Drugs help me relieve tension.
8. I experience sleeping problems when I use drugs.
9. As I became more involved with drugs, I pulled away from people I was once close to.
10. When using drugs, I borrow money that I fail to pay back.
11. Drugs give me that extra boost of energy.
12. Buying drugs has contributed to my experiencing some financial strain.

THANK YOU.
Following is a list of statements, each of which may or may not be true about you. For each statement, please blacken the circle represents the most appropriate response, True or False.

| No. | Statement                                                                 | Response |
|-----|---------------------------------------------------------------------------|----------|
| 1   | I always try to be considerate of the feelings of my friends.             | A. True  |
| 2   | Nothing that happens to me makes much difference one way or the other.   | B. False |
| 3   | I often take some responsibility for looking out for newcomers in a group.| B. False |
| 4   | I have a number of health problems.                                       | A. True  |
| 5   | In the long run, humanity will owe a lot more to the teacher than to the salesperson. | B. False |
| 6   | I often have the feeling that I am doing something evil.                 | B. False |
| 7   | I am seldom ill.                                                          | A. True  |
| 8   | I almost always feel sleepy and lazy.                                     | B. False |
| 9   | My memory is as good as other people's.                                   | A. True  |
| 10  | I am not willing to give up my own privacy or pleasure in order to help other people. | B. False |
| 11  | Most of my teachers were helpful.                                         | A. True  |
| 12  | We should let the rest of the world solve their own problems and just look out for ourselves. | B. False |
| 13  | My life is full of interesting activities.                                | A. True  |
| 14  | I often question whether life is worthwhile.                              | B. False |
| 15  | I am able to make correct decisions on difficult questions.              | A. True  |
| 16  | I believe people tell lies any time it is to their advantage.             | B. False |
| 17  | Rarely, if ever, has the sight of food made me ill.                       | A. True  |
| 18  | I find it very difficult to concentrate.                                  | B. False |
| 19  | I am always prepared to do what is expected of me.                       | A. True  |
| 20  | Many things make me uneasy.                                               | B. False |
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