Published in final edited form as:

J Behav Health Serv Res. 2009 April ; 36(2): 159–176. doi:10.1007/s11414-008-9117-3.

Influence of Perceived Coercion and Motivation on Treatment Completion and Re-Arrest among Substance-Abusing Offenders

Michael Prendergast, PhD,

Integrated Substance Abuse Programs, Semel Institute for Neuroscience and Human Behavior, David Geffen School of Medicine at UCLA, 1640 S. Sepulveda Blvd., Suite 200, Los Angeles, CA 90025, USA. Phone: +1-310-2675503. Fax: +1-310-3120559

Lisa Greenwell, PhD,

Integrated Substance Abuse Programs, Semel Institute for Neuroscience and Human Behavior, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA. Phone: +1-310-2675385. Fax: +1-310-4737885

David Farabee, PhD, and

Integrated Substance Abuse Programs, Semel Institute for Neuroscience and Human Behavior, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA. Phone: +1-310-2675535. Fax: +1-310-3120559

Yih-Ing Hser, PhD

Integrated Substance Abuse Programs, Semel Institute for Neuroscience and Human Behavior, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA. Phone: +1-310-2675388. Fax: +1-310-4737885

Michael Prendergast: mlp@ucla.edu; Lisa Greenwell: lgreenwe@ucla.edu; David Farabee: dfarabee@ucla.edu; Yih-Ing Hser: yhsr@ucla.edu

Abstract

The effects of perceived coercion and motivation on treatment completion and subsequent rearrest were examined in a sample of substance-abusing offenders assessed for California's Substance Abuse and Crime Prevention Act (SACPA) program. Perceived coercion was measured with the McArthur Perceived Coercion Scale; motivation was measured with the subscales of the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES). At treatment entry, clients were more likely to believe that they had exercised their choice in entering treatment than that they had been coerced into treatment. SACPA clients scored relatively low on Recognition and Ambivalence regarding their drug use but relatively high on Taking Steps to address their drug problem. Correlations between perceived coercion and motivation measures at treatment entry indicated that these are separate constructs. In logistic regression models, the Recognition subscale of the SOCRATES significantly predicted "any re-arrest," and Ambivalence and Taking Steps predicted "any drug arrest."

Introduction

A substantial percentage of the publicly funded drug treatment population in the USA is comprised of clients who are referred to treatment by the criminal justice system. Estimates of referrals from the criminal justice system to community-based treatment programs vary but may be as high as 50% of treatment program populations.^{1–3} Given the large numbers of

criminal justice treatment clients, a major policy and clinical issue for the criminal justice and the drug treatment systems is the effectiveness and the appropriateness of coercing substance-abusing offenders to enter and remain in treatment and how such coercion influences or interacts with motivation for treatment.

Policies of coerced treatment for substance abusers rest on three main assumptions.⁴ First, drug use is sufficiently highly correlated with crime in that a reduction in drug use is accompanied by a reduction in criminal activity other than use of illicit drugs. In the absence of such a relationship between drug use and crime, it would be unreasonable to expect the criminal justice system to provide drug treatment that might help the offender's drug problem but would not necessarily curtail his criminal behavior. The second assumption is that treatment provided to drug-abusing offenders is effective in reducing their drug use and thereby their criminal activity—at least that part of their criminal behavior that is related to their drug use. Third, drug-abusing offenders who enter treatment involuntarily and who may not perceive that they have a drug problem can nonetheless benefit from treatment. Unless these three assumptions can be supported, the issue of coerced treatment, at least as a criminal justice policy, is moot. Not meeting these assumptions would not logically preclude treatment—coerced or otherwise—from being offered in the criminal justice system, but political and fiscal realities would make the success of such a proposal extremely unlikely, apart from any constitutional or ethical concerns.

In fact, considerable evidence provides support for each of these assumptions. First, drug users do commit a high percentage of crime, and the frequency of their criminal activity, particularly property offenses, tends to be directly related to their level of drug use.^{5–11} Second, drug treatment provided to offenders has at least moderate effects in reducing drug use and criminal activity and in improving other areas of social functioning.^{12–16} Finally, coerced clients and those who may not recognize or acknowledge that they have a drug problem can, through treatment participation and interaction with other clients, become engaged in treatment and do as well as voluntary clients.^{17,18} Although the three assumptions do have empirical support, much more remains to be known about the external pressures and the internal perceptions of coerced treatment to determine the conditions under which coerced treatment is effective, to ensure that as many clients as possible benefit from treatment and to use treatment and criminal justice resources efficiently.

In 2004, Longshore, Prendergast, and Farabee published a chapter⁴ that discussed coerced treatment in terms of four interrelated topics: (1) the dimensions of coerced treatment, including coercion as a continuous variable, sources of coercion, and perceived coercion; (2) the outcomes of coerced treatment; (3) factors that moderate the impact of treatment on outcomes among offenders, in particular, external pressure and internal motivation; and (4) methods of increasing treatment engagement among coerced clients, including motivational interviewing, contingency management, and procedural justice (i.e., a person's perception of being treated fairly). The conclusion to the chapter (pp. 117–118) summarized ten recommendations for areas needing further research. The current paper addresses three of these recommendations:

- An important topic for future research is the relationship between objective and perceived coercion and the conditions under which objective indicators such as a criminal justice order and a person's perception of coercion are either convergent or divergent.
- Future research should recognize that internal motivation for treatment is not necessarily low among persons entering treatment under coercion.
- Treatment motivation is a personal factor that might moderate the effect of or interact with coercion.

The remainder of this section reviews relevant literature on perceived coercion and motivation and lists the research questions and hypotheses relating to these constructs.

Perceived coercion

Much of the empirical and theoretical literature on coerced treatment has focused on objective, external, or legal sources of pressure on individuals to enter treatment, such as courts, prisons, or parole boards. Indeed, a large percentage of clients in community-based treatment programs do enter treatment under some type of criminal justice referral or are under criminal justice supervision. For example, the Drug Abuse Treatment Outcome Studies (DATOS), a multisite prospective study of treatment effectiveness, reported that 64% of clients in residential programs and 57% of clients in outpatient (non-methadone) programs were involved in the criminal justice system and that 33% of residential clients and 42% of outpatient clients were in treatment as the result of a referral from a criminal justice agency.¹

Clients referred by the criminal justice system are often assumed to have been admitted to treatment against their will. But evidence from a variety of sources indicates that such clients do not necessarily enter treatment involuntarily. Analysis of the DATOS data indicates that 40% of clients who were referred to treatment by the criminal justice system said that they “think [they] would have entered drug treatment without pressure from the criminal justice system.”¹⁹ Even in the coercive setting of prison, treatment participation is not necessarily involuntary. In a survey of male general-population prison inmates,²⁰ 50% said that they would be interested in participating in a drug or alcohol treatment program during incarceration. Of those who expressed an interest in treatment, nearly half reported that they would be willing to participate in treatment even if doing so meant that they would need to remain in prison for an additional 3 months.

It is important to understand coercion both objectively and subjectively. Wild, Newton-Taylor, and Alletto²¹ found in a survey of 300 clients entering substance abuse treatment that 35% of those clients who entered treatment under an external referral did not report that they had been coerced and 35% of those who were self-referred to treatment did report being coerced into treatment. Similarly, psychiatric patients who indicated that they entered treatment voluntarily were in fact under some form of official custody or had been admitted through an involuntarily commitment process.²² While perceived coercion has been found to be related to psychiatric patients' legal status upon admission to treatment, there is variation in the degree to which patients perceive their admission to have been coerced,^{23,24} suggesting the importance of understanding coercion from the subjective viewpoint of the patient as well as objectively.

Although direct referral from the criminal justice system or less formal pressure from a probation or parole officer can bring offenders into treatment, the extent to which offenders will engage in treatment depends in part on how much choice they believe that they had in entering treatment (degree of perceived coercion) and whether they are ready to take advantage of treatment (degree of internal motivation). Although there is considerable evidence that legal referral by itself can result in outcomes equivalent to “voluntary” referrals, there is little information concerning how legal coercion interacts with internal motivation to affect treatment participation and outcomes. Knight et al.²⁵ examined treatment retention as a function of legal pressure and self-reported treatment readiness and found that, while both were predictive of a client remaining in treatment for at least 90 days, motivation was the stronger predictor. Furthermore, their analysis showed no interaction effect between these two constructs. It should be noted, however, that Knight et al. did not measure the clients' perceived coercion.

One argument against coerced treatment is that treatment can be effective only if the person is truly motivated—in other words, wants to change; a variation of this position is that people

who are addicted to substances must “hit bottom” before they are able to benefit from treatment, a circumstance that is not true of many coerced clients. At the least, coerced clients are more resistant to treatment than are clients who enter treatment voluntarily.²⁶ According to this view, it is a poor investment to devote resources to individuals who are unlikely to change because they have little or no motivation to change. It remains an empirical question, however, whether coerced clients lack recognition of their problem and have no desire to change.

Motivation

Numerous studies have found that motivation is predictive of treatment participation, treatment completion, and outcomes among general treatment clients and those involved in the criminal justice system.^{27–29} These studies indicate that clients with high motivation are more likely than those with low motivation to become actively involved in treatment, to complete the prescribed course of treatment, and to have better outcomes following treatment.²⁵ For instance, De Leon and Jainchill³⁰ found that treatment clients who exhibited a low level of internal motivation for change were more likely to drop out of treatment early. Simpson, Joe, and Rowan-Szal³¹ reported that among clients in community treatment programs, most of whom were involved in the criminal justice system, those with high motivation for change at treatment admission (measured as “desire for help”) were nearly twice as likely to have positive outcomes for substance use and criminality as those with low motivation. In a study examining motivation among clients participating in a drug court and in California’s Substance Abuse and Crime Prevention Act (SACPA) program, Cosden and colleagues³² found that motivation for treatment was significantly related to severity of drug use, that motivation was a weak, but significant predictor of program completion, and that motivation did not significantly predict post-treatment recidivism, although program completion did. Using a sample of treatment clients in Philadelphia, Shen, McLellan, and Merrill³³ reported that the level of motivation made a substantial contribution to outcomes, defined as change in the number of days experiencing the problems, which continued to hold true when clients were equated on their level of lifetime problem severity. Findings also indicated that perceived need for treatment was negatively related to problem recognition; that is, clients who did not believe that they had a problem had little or no motivation for treatment. Hiller and colleagues³⁴ have reported similar findings.

The work of Prochaska and DiClemente on “stages of change” has become the conceptual and theoretical foundation for much of the recent work on motivation in the substance abuse field and in behavioral health generally.^{35–38} This transtheoretical model posits five stages that represent progressively greater commitment to change (motivation). In the precontemplation stage, the person is unaware or ignorant of a problem and consequently of the need for change. The contemplation stage consists of a period when the person becomes aware that a problem exists and begins to weigh the pros and cons of the problem behavior. In the preparation stage, the decision process tips in favor of making a change, and the person commits to a plan to begin the change. This commitment leads to an action stage, in which the person takes active steps to carry out the plan of changing the problem behavior. Finally, once efforts to make the change are successful, the person enters the maintenance stage, when additional actions are taken to sustain the new behavior and to prevent relapse to the former problem behavior.

Researchers have developed several self-report instruments intended to measure the stages of change and, thus, motivation. These include the Recovery Attitude and Treatment Evaluator (RAATE),³⁹ the Readiness to Change Questionnaire (RTCQ),⁴⁰ the University of Rhode Island Change Assessment (URICA),⁴¹ the Texas Christian University motivation scales,²⁹ and the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES).⁴² However, the analyzed factor structure of these measures does not correspond precisely to the stages of the transtheoretical model. For instance, for the SOCRATES, the motivation

instrument used in this analysis, factor analysis yielded three dimensions, rather than the expected five. These were labeled Recognition, Ambivalence, and Taking Steps. Miller and Tonigan⁴² note that the three scales derived from SOCRATES do not “appear to measure the stage constructs as conceived by Prochaska and DiClemente.^{35,36} Rather the scales of SOCRATES seem better understood as continuously distributed motivational processes that may underlie stages of change” (p. 84).

The purpose of this paper is to better understand perceived coercion and motivation as they separately and jointly relate to treatment completion and re-arrest outcomes. The analyses are based on individual and administrative data collected from a sample of offenders who attended treatment under California's SACPA program. The analyses address the following research questions (RQ) and associated hypotheses (H):

RQ1: What are the levels of perceived coercion and of motivation among drug-abusing offenders referred to treatment?

RQ2: Are perceived coercion and motivation separate constructs when considering drug-abusing offenders entrance to treatment?

H1: Perceived coercion and motivation will be weakly correlated with one another when assessed at treatment entry.

RQ3: How do perceived coercion and motivation influence treatment completion and subsequent arrest over the 12 months following treatment entry, when controlling for background characteristics?

H2: Within a multivariate model controlling for background characteristics, perceived coercion and motivation will make independent contributions to treatment completion and re-arrest.

Methods

Source of data: SACPA clients

In November 2000, 61% of the voters in California approved Proposition 36, which was enacted into law as the Substance Abuse and Crime Prevention Act (SACPA; California Penal Code, Section 1210). SACPA provides that adults who are convicted of nonviolent drug offenses and who are otherwise eligible for SACPA can be sentenced to probation with drug treatment instead of to probation without treatment or to incarceration. Offenders on probation or parole who commit nonviolent drug offenses or who violate drug-related conditions of their release are also eligible for SACPA treatment. Offenders who are eligible and who accept the judge's referral to SACPA are ordered to appear for assessment and, based on the assessment, to enter treatment at a designated treatment program. Generally, SACPA clients can have three non-violent drug-related arrests or violations before they are terminated from SACPA. Although judges may respond to drug-related arrests or violations with increased treatment requirements, the legislation prohibits the use of jail sanctions for the first two arrests or violations. After successful completion of treatment and fulfillment of other SACPA conditions, SACPA clients can petition for their conviction to be set aside. The large majority (84%) of SACPA clients were initially referred to outpatient treatment (based on fiscal year July 1, 2004–June 30, 2005).⁴³ Several studies have examined various aspects of the implementation and effectiveness of SACPA.^{32,44–48}

Study design

Data for this paper were collected as part of the NIDA-funded study “Treatment System Impact and Outcomes of Proposition 36 (TSI),” which was designed to assess the impact of SACPA on the state's drug treatment delivery system and to evaluate the effectiveness of the services

delivered. As described in more detail in Hser, Teruya, Evans, and colleagues,⁴⁶ the study involved the participation of 38 treatment assessment sites in seven counties in California; the counties were selected for participation on the basis of population size, region of the state, and diversity of SACPA implementation strategies. Depending on the county, staff at central assessment centers or at treatment programs collected SACPA data from all participants who were assessed for treatment; they did not collect any separate data for the TSI study. Instead, assessment sites either already used all instruments needed in the TSI study (see below) or agreed to add them to their assessment package. Each county provided training on administration of the instruments used as part of its SACPA assessment training. Clients were not paid for these assessments. Of 10,675 clients assessed over the TSI recruitment period, 7,416 (67%) agreed to have their SACPA data provided to the TSI study. Records on treatment participation were obtained from the Department of Alcohol and Drug Programs and records on arrest histories from the California Department of Justice (DOJ). The Institutional Review Boards at UCLA and the California Health and Human Services Agency approved all study procedures.

Measures

Data for the analyses presented in this study were taken from three assessment instruments and two administrative databases. The Addiction Severity Index (ASI) is a standardized 40-min clinical instrument widely used in addiction research to quantify problem areas of alcohol and drug users. The instrument has excellent inter-rater and test-retest reliability as well as high discriminant and concurrent validity.^{49–51} In addition to collecting basic demographic information, the ASI assesses seven domains of functioning: alcohol use, drug use, employment, family and social relationships, legal, psychological, and medical status. This analysis used questions from the sections of the ASI pertaining to demographics, alcohol and drug use, previous treatment, employment, and criminal justice involvement.

Motivation was operationalized by scores on the SOCRATES, which assesses readiness for change among drug and alcohol abusers.⁴² The version of the SOCRATES used in the TSI study was 8D, a 19-item questionnaire for clients presenting with drug abuse problems, with five response categories ranging from Strongly Disagree to Strongly Agree. The SOCRATES consists of three subscales: Recognition, Ambivalence, and Taking Steps. Items on the Recognition subscale include “I have a drug problem” and “I really want to make changes in my use of drugs.” Items on the Ambivalence subscale include “Sometimes I wonder if I am an addict” and “There are times when I wonder if I use drugs too much.” Items on the Taking Steps subscale include “I have already started making some changes in my use of drugs” and “I am actively doing things now to cut down or stop my use of drugs.” Higher scores on the subscales indicate a higher level of motivation and readiness for treatment. The possible ranges for each scale are as follows: Recognition (seven items)—7 to 35; Ambivalence (four items)—4 to 20; and Taking Steps (eight items)—8 to 40. The range for the Total score is 19 to 95. High scores on Recognition indicate that the subject acknowledges having a problem related to drugs or alcohol. High scores on Ambivalence indicate uncertainty (but also openness to reflection) as to whether one's substance use is a problem. High scores on Taking Steps indicate that the subject is already making lifestyle changes to reduce his or her drug use. For interpretation of SOCRATES scores, Miller and Tonigan⁴² provide a table of decile rankings based on a sample of 1,672 men and women presenting for alcohol treatment in Project MATCH. This sample is equivalent in treatment status to the present TSI sample, although the primary drug problem differs in the two samples.

Perceived coercion was measured by questions adapted for the TSI study from the McArthur Perceived Coercion Scale (PCS), a five-item assessment of clients' perception of their degree of choice and control in being referred to mental health treatment.^{52,53} In the TSI assessment

administered at treatment entry, the five PCS items were translated from statements to questions. The five items, answered Yes or No, are “Do you feel free to do what you want about entering treatment?”, “Do you choose to enter treatment?”, “Is it your idea to enter treatment?”, “Do you feel you have a lot of control over whether you enter treatment?”, and “Do you feel you have more influence than anyone else on whether you enter treatment?” For this analysis, perceived coercion (range, 0–5) was scored such that a higher value indicates a greater level of perceived coercion.

Treatment data were obtained from the California Alcohol and Drug Data System (CADDs) through August 2006. The CADDs record has a variable indicating whether the client entered treatment on a referral from SACPA. CADDs also has a variable indicating the client's status upon discharge from treatment. There are four possible discharge statuses: completed treatment, did not complete treatment but made satisfactory progress, did not complete treatment and did not make satisfactory progress, and transferred to another treatment provider. The most conservative indication of success is treatment completion. The instructions for filling out the CADDs form define a treatment completer as a participant who “has successfully completed his/her recovery plan and has met the major goals set forth in that plan. The participant is not being referred or transferred to any other alcohol or drug program.” Given the multiple modalities covered by CADDs and the diversity of needs among clients entering, this definition is independent of expected or actual length of treatment, although length of participation is related to successful completion of the “recovery plan.” Arrest histories were obtained from the California DOJ, as requested in February 2006. Since there is about a 3-month time lag between an arrest and its appearance in the DOJ database, the request for arrest records took this time lag into account. The time period of interest for each client was 12 months after treatment entry. Data-linking procedures and quality of administrative data are described elsewhere⁴⁶.

Participants

As indicated above, all participants in the TSI study had been referred from the courts for assessment and assignment to appropriate SACPA treatment programs. Although data collection for the TSI study took place between November 2003 and December 2006, the sample for this analysis was limited to those clients assessed from November 2003 to December 2005 because, in January 2006, the Department of Alcohol and Drug Programs implemented a new treatment participation data system, and thus, treatment data for 2006 were not available for this study. The data for this analysis came from people who had been admitted to treatment through SACPA (as indicated on the CADDs form), who completed the ASI, the SOCRATES, and the PCS at treatment admission, and who had an arrest record obtained at follow-up. The resulting dataset had 1,708 records.

Statistical analyses

Initial analyses focused on descriptive statistics for background characteristics and for measures of perceived coercion and motivation, including correlations between the PCS scores and the SOCRATES scores. The latter was conducted to determine whether perceived coercion and motivation (as measured here) can be considered separate constructs. In the next step, point biserial correlations were conducted between each of the independent variables (perceived coercion and motivation) and three outcome variables: treatment completion, “any arrest,” and “any drug arrest.” In the final step of analysis, four logistic regression models were carried out, for each of the three outcome variables, to examine whether perceived coercion and motivation predicted outcomes. Model 1 included background variables that are commonly found to be predictive of treatment outcomes in this population:^{54–56} gender, age, race/ethnicity, education, employment, primary drug, previous drug treatment, and lifetime arrests (because of outliers, the number of previous treatments was truncated to 7). Model 2 added perceived

coercion to Model 1. Model 3 added motivation to Model 1. Model 4 included all three sets of predictors. Cases with missing values on any of the predictor or outcome variables were dropped from the models. Because of missing data on variables included in the regression models, the number of cases included was 1,289 for treatment completion and 1,612 for the two arrest outcomes.

Results

Participant characteristics

Table 1 shows demographic and other characteristics of clients who entered a SACPA treatment program measured at treatment entry. Just over 70% were men and the average age was 36 years; over one half (52.2%) were White, followed by Hispanics (30.8%), African Americans (11.7%), Asians (1.3%), and Native Americans (0.2%). Most had not completed high school ($M=11.4$ years). Only 21% of clients reported full-time employment in the prior 30 days. Typical of California treatment admissions, the majority (57%) reported methamphetamine as their primary drug. The average number of previous treatment episodes was 1.3; 40% reported no previous treatment. Over their lifetime, clients reported an average of 7.1 arrests and slightly over 2 years of incarceration. This profile of clients is similar to that found in SACPA programs statewide. Specifically, in fiscal year 2004–2005, when most clients for the TSI study were assessed, 72% of all SACPA clients were men; the average age was 35; 48% were White, 34% Hispanic, and 14% African American; 55% reported methamphetamine as their primary drug; and 50% had no prior treatment.⁵⁷

Twenty-seven percent of the SACPA clients completed treatment, for an average of 127 days ($SD=97.8$), just over 4 months. Over the 12 months after treatment entry, 57% were arrested for any crime and 41% were arrested for a drug crime.

Perceived coercion and motivation at treatment entry

The means and standard deviations for the perceived coercion and motivation measures are shown in Table 2. The mean for the PCS is 1.6, indicating a low level of perceived coercion. It appears that despite being under pressure to enter SACPA, many clients who completed the PCS perceived that their level of coercion to enter treatment was low; that is, they felt that they were relatively free and autonomous in their entrance into SACPA treatment.

With respect to motivation as measured by the SOCRATES, the average Recognition score of 29.2 falls into decile 30, the average Ambivalence score of 12.6 also falls into decile 30, and the average Taking Steps score of 35.6 falls into decile 60. While SACPA clients had low ratings on the level of recognition of whether they had a drug problem and on their contemplation about what to do about it, they were more positive in stating that they had been taking steps to do something about their drug use.

Table 2 also shows the bivariate correlations between perceived coercion and the motivation measures. Given the large sample size, the significance level for all of the correlations is less than 0.0001. The absolute value of the correlations range from 0.13 to 0.20, which are conventionally considered small,⁵⁸ suggesting that perceived coercion and motivation are separate constructs. The relation between perceived coercion and the motivation subscales is negative. Substantively, clients with high perceived coercion tended to have lower motivation as measured by the SOCRATES subscales; conversely, clients with low perceived coercion tended to have higher motivation.

Perceived coercion and motivation as predictors of treatment completion and re-arrest

The only significant ($p < 0.05$) point biserial correlation of perceived coercion or motivation with outcomes was that between the Socrates Recognition subscale and “arrested for drug crime” ($r = 0.10, p < 0.001$). To examine the issue within a multivariate model, a set of logistic regressions was developed to test the effects of perceived coercion and motivation on each of the outcomes of interest (treatment completion, any arrest, and any drug arrest), controlling for demographic and other background variables (see Tables 3, 4, and 5). For each outcome, Model 1 includes only background variables, Model 2 considers perceived coercion and background variables, Model 3 considers the motivation scales and background variables, and Model 4 combines all three types of predictor variables. The results are expressed as odds ratios and 95% confidence intervals.

Regarding treatment completion (Table 3), of the background variables included in Model 1, only the age was significant. Older clients were more likely to complete treatment. As seen in the other three models, neither the perceived coercion nor the motivation scales, separately or combined, were a significant predictor of treatment completion.

For any arrest within 12 months of treatment entry (Table 4), several of the background variables in Model 1 were significant predictors of arrest. Greater likelihood of arrest occurred among clients who were African Americans relative to Whites, were male, were younger, had more previous arrests, and reported cocaine, heroin, methamphetamine, and “other drug” as their primary drug (relative to those who reported no primary drug). In Model 2, perceived coercion was not significant. Among the motivation scales, Recognition was a significant predictor in Model 3 and remained so when adding perceived coercion in Model 4.

Of particular interest is “any drug arrest” because preventing or reducing drug use is a major goal of SACPA (Table 5). As seen in Model 1, clients who were African American or Native American, male, and younger, and who had a greater number of previous arrests were significantly more likely to have an arrest on a drug-related charge. Again, perceived coercion was not a significant predictor of any drug arrest. Two of the motivation subscales did predict any drug arrest. Clients with a high score on Ambivalence were more likely to be arrested for a drug crime, whereas clients scoring high on Taking Steps were less likely to be arrested for a drug crime.

Discussion

The purpose of this paper, following recommendations by Longshore et al.,⁴ was to examine perceived coercion and motivation among substance-abusing offenders, using a sample that had been referred to treatment by the criminal justice system under California's Substance Abuse and Crime Prevention Act. The sample was typical of the SACPA treatment population generally. With respect to primary drug, the sample had more methamphetamine users than would be found in national samples or in many state samples of treatment clients.

The first research question addressed was: What are the levels of perceived coercion and of motivation among drug-abusing offenders referred to treatment? Among this sample, on the PCS, in which a higher score represents a higher degree of perceived coercion, the average score of 1.6 indicates that clients were more likely to believe that they had exercised their choice in entering treatment than that they had been coerced into treatment. Although all clients in the sample were under pressure from the criminal justice system, none of them was forced into treatment against their will. That is, over the various steps of processing, SACPA clients had a choice—although each choice had consequences. If an offender met the qualifications for SACPA, he or she still could choose, on the advice of counsel, to enter SACPA or to accept normal processing, which was usually jail or prison. Some offenders preferred to “do the time,”

particularly when the time in jail would be shorter than the time spent in treatment. Once in SACPA, clients could choose whether to follow the judge's order to show up at the assessment center (in SACPA generally, 15% did not do so⁵⁷). Similarly, after assessment, there was the choice of whether to be admitted to treatment. Although there were consequences for not showing up at assessment or at treatment, those consequences were not certain nor, under the SACPA law, were they severe until the third violation of SACPA-related conditions of probation. Presumably, in situations where the consequences of not participating in treatment would be more severe and certain than in SACPA, ratings of perceived coercion would be higher. In other words, the level of perceived coercion within a specific population of substance-abusing offenders needs to be considered within the context of the objective circumstances of legal pressure to enter treatment.

With regard to motivation, SACPA clients scored relatively low on Recognition and Ambivalence regarding their drug use but relatively high on Taking Steps to address their drug problem. Because the clients included in this analysis were under legal pressure to enter treatment and because some of them may not have had a serious drug problem (since eligibility for SACPA was based on a drug-related crime or violation, not necessarily a drug abuse diagnosis), low rankings on Recognition and Ambivalence regarding their drug use are understandable. On the other hand, since the clients had accepted a SACPA referral and had shown up for assessment, a relatively high ranking on Taking Steps might be expected because they had been doing something about their drug problem. As with perceived coercion, a client's internal motivation is influenced by the circumstances of treatment referral and entry.

With regard to the second research question about the relationship between perceived coercion and motivation, we hypothesized that they are separate constructs, as indicated by a small correlation between the measures. Clients who expressed a high level of perceived coercion tended to score lower on the motivation subscales of the SOCRATES. By contrast, clients who felt that they were under low coercion to enter treatment (that is, had a greater sense of choice and autonomy) tended to score higher on the SOCRATES subscales. Among clients who perceive that they have been coerced into treatment, there is a range of levels of motivation for treatment.

The third question was: Are perceived coercion and motivation independent predictors of (1) completion of SACPA treatment and (2) arrest over 12 months after entry to treatment? Overall, the odds ratios for the perceived coercion PCS and the motivation scores were small and most were not significant. Perceived coercion did not predict treatment completion or arrest. None of the motivation subscales predicted treatment completion, but Recognition predicted "any arrest" and both Ambivalence and Taking Steps predicted "any drug arrest." Those clients who recognized that they had a drug problem were slightly more likely to be arrested than those with lower problem recognition. Similarly, clients who were ambivalent or uncertain about their drug problem (as opposed to denying that they had a problem) had a somewhat higher likelihood of being arrested for a drug crime. Clients who indicated that they were actively engaged in activities to address their drug problem were less likely to have a drug arrest.

Although it may seem counterintuitive that clients who score high in Recognition and Ambivalence, which reflects a greater readiness for treatment, are more likely to be arrested, the relationship may be understandable if high Recognition and high Ambivalence are regarded as proxies for drug use severity, which is a risk factor for arrest. It is likely that persons who recognize that they have a drug problem and the need to do something about it would only do so if, in fact, their drug use has reached a problematic level. Indeed, the correlations between the scores on the Recognition subscale and the ASI drug composite score is 0.33 ($p<0.01$).

A number of background variables were associated with outcomes. Consistent with previous studies,⁵⁹ men had a higher likelihood of being arrested than did women. Age was a significant predictor of each of the outcome variables, with older age being associated with treatment completion and younger age with arrest. SACPA clients who were African American or Native American were much more likely to have been arrested than were clients who were White, a common finding in the criminological literature. There was no consistent pattern in primary drug problem as a predictor of treatment completion or arrest. It is not surprising that clients whose primary drug was heroin had low completion rates because primary heroin users in SACPA were referred to outpatient drug-free (non-methadone) programs much more often than to the more appropriate methadone maintenance programs.^{43,60} It may have been that heroin users were likely to drop out of treatment programs that they felt or knew from experience did not meet their needs. Finally, as might be expected, SACPA clients with a greater number of lifetime arrests were more likely to be arrested over the 12 months after treatment entry.

Limitations

The findings and conclusions of this analysis need to be considered in light of several limitations. First, data on background characteristics and on perceived coercion and motivation are self-reported, but this should not be a major problem for standard background variables nor should it be a problem for ratings of perceived coercion and motivation because they are intended to be measures of self-perception. The outcome data are based on administrative records, which may be considered more objective than self-report but are nonetheless subject to the errors that can be present in data obtained from agencies. Second, for this study, the items on the PCS were reworded somewhat; for instance, from “It was my idea to come to the hospital” to “Is it your idea to enter treatment?” It is unlikely, however, that this relatively minor modification in wording would affect the reliability and validity of the PCS as an overall rating of perceived coercion. Third, although the sample used in this analysis appears to be representative of the general SACPA treatment population, it is not necessarily representative of all offenders in California or elsewhere who enter treatment under some form of criminal justice pressure. As noted above, the policies and procedures of SACPA may have influenced the findings of this analysis.

Implications for Addiction Health Services

As has been noted in several discussions of coerced treatment,^{19,28} the terminology to describe the concept and the activity is not consistent: “coerced,” “compulsory,” “mandated,” “involuntary,” “legal or external pressure,” and “criminal justice referral” can all be found in the literature. But “coercion” is not a single, well-defined concept nor can it be regarded as a simple dichotomous variable of “coerced” and “not coerced.” “Coercion” is used by different authors to refer to various types of legal pressure: being involved with the criminal justice system, a probation officer’s recommendation to enter treatment, a drug court judge’s offer of a choice between treatment or jail, a judge’s requirement that the offender enter treatment as a condition of probation, or a correctional policy of assigning inmates to a prison treatment program where noncompliance means additional time incarcerated. Thus, discussions of this subject should include a clear definition of “coercion” or similar terms.

In this study, perceived coercion was not associated with either treatment completion or arrest. The instrument used to measure perceived coercion, the McArthur Perceived Coercion Scale, was originally developed for mental health patients, and it has not been validated on a sample of substance-abusing offenders. The recently developed Perceived Coercion Questionnaire (PCQ)⁶¹ is intended for substance abuse clients and assesses perceptions of coercion from a

variety of sources. Use of such a population-specific instrument might be better suited to assessing perceived coercion in research studies or as part of a clinical assessment protocol.

Since perceived coercion and motivation appear to be separate constructs, clients need to be assessed for both. Furthermore, clinicians should not assume that clients who enter treatment under legal pressure necessarily perceive that they have been coerced nor should they assume that such clients lack motivation. Some clients referred to treatment from a criminal justice agency would have entered treatment on their own, or at least they recognize their need for treatment. Thus, both external and internal motivation play important roles in the treatment process. Internal motivation may have less bearing on treatment retention and outcome when external pressure from the criminal justice system or other sources is strong enough to hold users in treatment. Alternatively, the combined effects of internal motivation and external pressure may lead to better outcomes than either by itself.^{29,62} Failure to address both types of motivation is likely to result in inferior treatment participation and less favorable outcomes than if these motivational sources are treated as complementary. For instance, while little change may be expected of a coerced client early in treatment, the threat of sanctions may keep the person in treatment long enough to recognize his or her problem and to become engaged in the treatment program. External pressure and internal motivation may jointly affect treatment success when external pressure is internalized or transformed by the client into an internal motive (e.g., “Someone has forced me to see that I have a problem and placed me in a situation where I may be able to do something about it, even if I didn't want to be here in the first place”).

As Leukefeld and Tims⁶³ note regarding coerced treatment, “A stable recovery cannot be maintained by external (legal) pressures only; motivation and commitment must come from internal pressure. The role of external pressure from this point of view is to influence a person to enter treatment” (p. 243). In this sense, external forces may be able to make people comply with treatment requirements but cannot by themselves make people change. Coercion can place people in a situation where the tools and supports for change are available, but taking advantage of that opportunity requires that external pressure be transformed into an internal desire for change and a willingness to take steps toward change. Assessing both perceived coercion and motivation before treatment can aid programs in promoting this transformation process. In addition, findings in this study for any arrest and any drug arrest suggest that even if motivation does not affect treatment completion, treatment providers would be doing clients a service if they helped them to reduce their ambivalence about addressing their drug problem and if they worked with them to move beyond recognition to action. Providers can also take advantage of clients' perceptions that they have been taking steps to further their engagement in treatment. Treatment providers may use a variety of tools designed to promote the process of internalization and thereby improve treatment participation and outcomes. These tools include motivational interviewing,⁶⁴ cognitive enhancement interventions,^{65,66} and contingency management.⁶⁷

In conclusion, as noted in Longshore et al.,⁴ both criminal justice agencies and treatment programs may be able to improve outcomes for criminal justice clients by recognizing that clients' responses to treatment are subject to multiple influences—their perception of the fairness of the referral process, the degree to which they believe that they had a choice in entering treatment, and their readiness to participate in treatment. Each of these influences provides separate opportunities for specific procedures or interventions that are designed to increase the likelihood that substance-abusing offenders, even if coerced, enter and complete treatment.

Acknowledgments

Our thanks to Elizabeth Evans for responding to multiple requests for information on the TSI study, to Kris Langabeer for editorial review of the manuscript, to Jordana Hemberg for preparing the tables, and to four anonymous reviewers for their helpful suggestions.

References

1. Craddock SG, Rounds-Bryant JL, Flynn PM, et al. Characteristics and pretreatment behaviors of clients entering drug abuse treatment: 1969 to 1993. *American Journal of Drug and Alcohol Abuse* 1997;23:43–59. [PubMed: 9048146]
2. Maxwell, JC. Substance Abuse Trends in Texas, December 1995 (Texas Commission on Alcohol and Drug Abuse [TCADA] Research Briefs). Austin, TX: TCADA; 1996.
3. Price, RH.; D'Aunno, T. NIDA III Respondent Report Drug Abuse Treatment System Survey: A National Study of the Outpatient Drug-Free and Methadone Treatment System, 1988-1990 Results. Ann Arbor, MI: University of Michigan, Institute for Social Research; 1992.
4. Longshore, D.; Prendergast, ML.; Farabee, D. Coerced treatment for drug-using criminal offenders. In: Bean, P.; Nemitz, T., editors. *Drug Treatment: What Works?*. New York: Routledge; 2004. p. 109-121.
5. Anglin MD, Perrochet B. Drug use and crime: a historical review of research conducted by the UCLA Drug Abuse Research Center. *Substance Use and Misuse* 1998;33(9):1871–1914. [PubMed: 9718183]
6. Chaiken, JM.; Chaiken, MR. Drugs and predatory crime. In: Tonry, M.; Wilson, JQ., editors. *Crime and Justice, A Review of Research, Vol 13 Drugs and Crime*. Chicago: University of Chicago Press; 1990. p. 203-239.
7. Fagan, J. Intoxication and aggression. In: Tonry, M.; Wilson, JQ., editors. *Crime and Justice, A Review of Research, Vol 13, Drugs and Crime*. Chicago: University of Chicago Press; 1990. p. 241-320.
8. McBride DC, McCoy CB. The drugs-crime relationship: an analytic framework. *Prison Journal* 1993;73(3–4):257–278.
9. Nurco, DN.; Kinlock, TW.; Hanlon, TE. The drugs-crime connection. In: Inciardi, JA., editor. *Handbook of Drug Control in the United States*. New York: Greenwood; 1990. p. 71-90.
10. Parker R, Auerhahn K. Alcohol, drugs, and violence. *Annual Review of Sociology* 1998;24:291–311.
11. White, HR.; Gorman, DM. Dynamics of the drug-crime relationship. In: Jefferis, E.; Munsterman, E., editors. *Crime and Justice 2000, Vol 1 The Nature of Crime: Continuity and Change*. Washington, DC: National Institute of Justice, US Department of Justice; 2000. p. 151-218.
12. Allen LC, MacKenzie DL, Hickman LJ. The effectiveness of cognitive behavioral treatment for adult offenders: a methodological, quality-based review. *International Journal of Offender Therapy and Comparative Criminology* 2001;45(4):498–514.
13. Dowden C, Blanchette K. An evaluation of the effectiveness of substance abuse programming for female offenders. *International Journal of Offender Therapy and Comparative Criminology* 2002;46(2):220–230. [PubMed: 12113164]
14. Marlowe, DB.; Glass, DJ.; Merikle, EP., et al. Efficacy of coercion in substance abuse treatment. In: Tims, FM.; Leukefeld, CG., editors. *Relapse and Recovery in Addictions*. New Haven, CT: Yale University Press; 2001. p. 208-227.
15. Pearson FS, Lipton DS. A meta-analytic review of the effectiveness of corrections-based treatments for drug abuse. *Prison Journal* 1999;79(4):384–410.
16. Pearson FS, Lipton DS, Cleland CM, et al. The effects of behavioral/cognitive-behavioral programs on recidivism. *Crime and Delinquency* 2002;48(3):476–497.
17. Sia TL, Dansereau DF, Czuchry ML. Treatment readiness training and probationers' evaluation of substance abuse treatment in a criminal justice setting. *Journal of Substance Abuse Treatment* 2000;19(4):459–467. [PubMed: 11166510]
18. Wild TC, Roberts AB, Cooper EL. Compulsory substance abuse treatment: an overview of recent findings and issues. *European Addiction Research* 2002;8:84–93. [PubMed: 11979011]
19. Farabee D, Prendergast M, Anglin D. The effectiveness of coerced treatment for drug-abusing offenders. *Federal Probation* 1998;62(1):3–10.

20. Farabee, D. Substance Use among Male Inmates Entering the Texas Department of Criminal Justice - Institutional Division, 1993. Austin, TX: Texas Commission of Alcohol and Drug Abuse; 1995.
21. Wild TC, Newton-Taylor B, Alletto R. Perceived coercion among clients entering substance abuse treatment: structural and psychological determinants. *Addictive Behaviors* 1998;23(1):81–95. [PubMed: 9468745]
22. Gilboy J, Schmidt J. “Voluntary” hospitalization of the mentally ill. *Northwestern University Law Review* 1971;66:429–453.
23. Lidz CW, Hoge SK, Gardner W, et al. Perceived coercion in mental hospital admission. Pressures and process. *Archives of General Psychiatry* 1995;52(12):1034–1039. [PubMed: 7492255]
24. Nicholson RA, Ekenstam C, Norwood S. Coercion and the outcome of hospitalization. *International Journal of Law and Psychiatry* 1996;19:201–217. [PubMed: 8725657]
25. Knight K, Hiller ML, Broome KM, et al. Legal pressure, treatment readiness, and engagement in long-term residential programs. *Journal of Offender Rehabilitation* 2000;31:101–115.
26. Shearer RA, Ogan GD. Voluntary participation and treatment resistance in substance abuse treatment programs. *Journal of Offender Rehabilitation* 2002;34(3):31–45.
27. De Leon, G.; Melnick, G.; Tims, FM. The role of motivation and readiness in treatment and recovery. In: Tims, FM.; Leukefeld, CG.; Platt, JJ., editors. *Relapse and Recovery in Addictions*. New Haven, CT: Yale University Press; 2001. p. 143–171.
28. Klag S, O’Callaghan F, Creed P. The role and importance of motivation in the treatment of substance abuse. *Therapeutic Communities: International Journal for Therapeutic and Supportive Organizations* 2004;25(4):291–317.
29. Simpson DD, Joe GW. Motivation as a predictor of early dropout from drug abuse treatment. *Psychotherapy* 1993;30(2):357–368.
30. De Leon G, Jainchill N. Circumstance, motivation, readiness, and suitability as correlates of treatment tenure. *Journal of Psychoactive Drugs* 1986;18(3):203–208. [PubMed: 3772644]
31. Simpson DD, Joe GW, Rowan-Szal GA. Drug abuse treatment retention and process effects on follow-up outcomes. *Drug and Alcohol Dependence* 1997;47:227–235. [PubMed: 9306048]
32. Cosden M, Basch JE, Campos E, et al. Effects of motivation and problem severity on court-based drug treatment. *Crime and Delinquency* 2006;52(4):599–618.
33. Shen W, McLellan AT, Merrill JC. Client’s perceived need for treatment and its impact on outcome. *Substance Abuse* 2000;21(3):179–192. [PubMed: 12466658]
34. Hiller ML, Narevic E, Webster M, et al. Problem severity and motivation for treatment in incarcerated substance abusers. *Substance Use and Misuse*. 2008 in press.
35. Prochaska JO, DiClemente CC. Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology* 1983;51(3):390–395. [PubMed: 6863699]
36. Prochaska, JO.; DiClemente, CC. Toward a comprehensive model of change. In: Miller, WR.; Heather, N., editors. *Treating Addictive Behaviors: Process of Change*. New York: Plenum; 1986. p. 3–27.
37. Prochaska JO, DiClemente CC, Norcross JC. In search of how people change: applications to addictive behavior. *American Psychologist* 1992;47(9):1102–1114. [PubMed: 1329589]
38. Miller WR. Motivation for treatment: a review with special emphasis on alcoholism. *Psychological Bulletin* 1985;98(1):84–107. [PubMed: 3898175]
39. Smith MB, Hoffmann NG, Nederhoed R. The development and reliability of the Recovery Attitude and Treatment Evaluator-Questionnaire I (RAATE-QI). *International Journal of the Addictions* 1995;30(2):147–160. [PubMed: 7759169]
40. Rollnick S, Heather N, Gold R, et al. Development of a short “Readiness to Change” questionnaire for use in brief opportunistic interventions. *British Journal of Addictions* 1992;87:743–754.
41. McConaughy EA, Prochaska JO, Velicer WF. Stages of change in psychotherapy: Measurement and sample profiles. *Psychotherapy: Theory, Research, and Practice* 1983;20:368–375.
42. Miller WR, Tonigan JS. Assessing drinkers’ motivation for change: The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES). *Psychology of Addictive Behaviors* 1996;10:81–89.

43. Urada, D.; Longshore, D.; Conner, B. Treatment In: Evaluation of the Substance Abuse and Crime Prevention Act: Final Report Prepared for the Department of Alcohol and Drug Programs. Los Angeles: UCLA Integrated Substance Abuse Programs; 2007. p. 33-56.
44. Farabee D, Hser YI, Anglin MD, et al. Recidivism among an early cohort of California's Proposition 36 offenders. *Criminology & Public Policy* 2004;3(4):501-522.
45. Hardy M, Teruya C, Longshore D, et al. Initial implementation of California's Substance Abuse and Crime Prevention Act: findings from focus groups in 10 counties. *Evaluation and Program Planning* 2005;28:221-232.
46. Hser YI, Teruya C, Evans EA, et al. Treating drug-abusing offenders: Initial findings from a five-county study on the impact of California's Proposition 36 on the treatment system and patient outcomes. *Evaluation Review* 2003;27:479-505. [PubMed: 14531316]
47. Klein D, Miller RE, Noble A, et al. Incorporating a public health approach in drug law: Lessons from local expansion of treatment capacity and access under California's Proposition 36. *Milbank Quarterly* 2004;82(2):723-757. [PubMed: 15595948]
48. Longshore, D.; Urada, D.; Evans, E., et al. Evaluation of the Substance Abuse and Crime Prevention Act: 2003 Report Prepared for the California Department of Alcohol and Drug Programs. Los Angeles: UCLA Integrated Substance Abuse Programs; 2004.
49. Bovasso GB, Alterman AI, Cacciola JS, et al. Predictive validity of the Addiction Severity Index's composite scores in the assessment of 2-year outcomes in a methadone maintenance population. *Psychology of Addictive Behaviors* 2001;15:171-176. [PubMed: 11563793]
50. Kosten TR, Rounsaville BJ, Kleber HD. Concurrent validity of the Addiction Severity Index. *Journal of Nervous and Mental Disease* 1983;171:606-610. [PubMed: 6619823]
51. McLellan AT, Kushner H, Metzger D, et al. Addiction Severity Index. *Journal of Substance Abuse Treatment* (fifth) 1992;9:199-213. [PubMed: 1334156]
52. Gardner W, Hoge SK, Bennett N, et al. Two scales for measuring patients' perceptions of coercion during mental hospital admission. *Behavioral Sciences and the Law* 1993;11:307-321. [PubMed: 10150233]
53. Monahan J, Hoge SK, Lidz C, et al. Coercion and commitment: understanding involuntary mental hospital admission. *International Journal of Law and Psychiatry* 1995;18(3):249-263. [PubMed: 7591396]
54. Farabee D, Hser YH, Anglin MD, et al. Recidivism among an early cohort of California's Proposition 36 offenders. *Criminology and Public Policy* 2004;3(4):563-583.
55. Hepburn JR, Harvey AN. The effect of the threat of legal sanction on program retention and completion: Is that why they stay in drug court? *Crime & Delinquency* 2007;53(2):255-280.
56. Longshore D, Teruya C. Treatment motivation in drug users: a theory-based analysis. *Drug and Alcohol Dependence* 2006;81:179-188. [PubMed: 16051447]
57. Urada, D.; Longshore, D. SACPA offenders In: Evaluation of the Substance Abuse and Crime Prevention Act: Final Report Prepared for the Department of Alcohol and Drug Programs. Los Angeles: UCLA Integrated Substance Abuse Programs; 2007. p. 12-32.
58. Cohen J. A power primer. *Psychological Bulletin* 1992;112(1):155-159. [PubMed: 19565683]
59. Stolzenbert L, D'Alessio SJ. Sex differences in the likelihood of arrest. *Journal of Criminal Justice* 2004;32:443-454.
60. National Institutes of Health Consensus Conference. Effective medical treatment for opiate addiction. *Journal of the American Medical Association* 1998;280:1936-1943. [PubMed: 9851480]
61. Klag S, Creed P, O'Callaghan F. Development and initial validation of an instrument to measure perceived coercion to enter treatment for substance abuse. *Psychology of Addictive Behaviors* 2006;20(4):463-470. [PubMed: 17176181]
62. De Leon G, Melnick G, Kressel D, et al. Circumstances, motivation, readiness, and suitability (the CMRS scales): predicting retention in therapeutic community treatment. *American Journal of Drug and Alcohol Abuse* 1994;20(4):495-515. [PubMed: 7832182]
63. Leukefeld, CG.; Tims, FM. Compulsory treatment: a review of findings. In: Leukefeld, CG.; Tims, FM., editors. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice* (NIDA Research Monograph 86). Washington, DC: US Government Printing Office; 1988. p. 236-249.

64. Miller, WR.; Rollnick, S. *Motivational Interviewing: Preparing People to Change Addictive Behavior*. New York: Guilford; 1991.
65. Czuchry M, Dansereau DF. Using motivational activities to facilitate treatment involvement and reduce risk. *Journal of Psychoactive Drugs* 2005;37(1):7–13. [PubMed: 15916247]
66. Blankenship J, Dansereau DF, Simpson DD. Cognitive enhancements of readiness for corrections-based treatment for drug abuse. *Prison Journal* 1999;79(4):431–445.
67. Higgins, ST.; Silverman, K., editors. *Motivating behavior change among illicit drug abusers: Research on contingency management interventions*. Vol. 1st. Washington, DC: American Psychological Association; 1999.

Table 1Participant characteristics at treatment entry ($N=1,708$)

	Mean (SD) or Percent
Gender (Male)	71.0
Age	36.2 (9.9)
Ethnicity	
White	52.2
African American	11.7
Hispanic	30.8
Asian	1.3
Native American	0.2
Other	0.2
Education (Years)	11.4 (1.8)
Full-time employment (past 30 days)	21.0
Primary Drug	
Methamphetamine	57.0
Marijuana	14.6
Cocaine/Crack	8.3
Alcohol	7.8
Heroin	6.7
Other	3.9
None	1.7
Times in drug treatment (lifetime)	1.3 (2.0)
Lifetime arrests	7.1 (8.7)
Lifetime incarceration (months)	25.8 (40.1)

Table 2Perceived coercion and motivation: Ratings and correlations at treatment entry ($N=1,708$)

	Mean (SD)	Decile ranking % (Motivation)	Correlation ^a
Perceived coercion (range, 0–5)	1.6 (1.6)	N/A	1.00
Motivation			
Recognition (range, 7–35)	29.2 (6.5)	30	–0.17
Ambivalence (range, 4–20)	12.6 (4.8)	30	–0.13
Taking Steps (range, 8–40)	35.6 (5.2)	60	–0.20
Total (range, 19–95)	77.3 (12.5)	N/A	–0.22

^a All correlations are significant at $p<0.0001$

Table 3
Logistic regressions models for predictors of treatment completion (odds ratios and 95% confidence intervals)

Predictors	Model 1			Model 2			Model 3			Model 4		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
Demographics												
Ethnicity (ref=white)												
Asian	2.33	0.80	6.81	2.35	0.80	6.88	2.33	0.80	6.83	2.35	0.80	6.89
African American	0.81	0.50	1.33	0.81	0.50	1.32	0.81	0.50	1.32	0.81	0.49	1.32
Latino	0.98	0.73	1.32	0.97	0.72	1.31	0.98	0.73	1.32	0.98	0.72	1.31
Native American	0.98	0.39	2.43	0.97	0.39	2.42	0.98	0.40	2.43	0.97	0.39	2.42
Other ethnicity	1.16	0.49	2.73	1.16	0.49	2.75	1.16	0.49	2.75	1.17	0.50	2.77
Male	1.09	0.82	1.45	1.09	0.82	1.45	1.09	0.82	1.44	1.08	0.82	1.44
Age	1.02	1.01	1.04**	1.02	1.01	1.04**	1.02	1.01	1.04**	1.02	1.01	1.04**
Socioeconomic position												
Education	1.03	0.96	1.10	1.03	0.96	1.10	1.03	0.96	1.10	1.03	0.96	1.10
Employment (ref= employed)	1.12	0.85	1.46	1.12	0.86	1.47	1.12	0.85	1.47	1.12	0.86	1.47
Crime and drug measures												
Number of arrests (lifetime)	0.98	0.97	1.00	0.98	0.97	1.00	0.99	0.97	1.00	0.99	0.97	1.00
Number of prior drug treatments	1.06	0.98	1.16	1.06	0.97	1.16	1.07	0.98	1.16	1.07	0.98	1.16
Primary drug (ref=none reported)												
Alcohol	1.09	0.36	3.31	1.09	0.36	3.31	1.10	0.36	3.37	1.11	0.36	3.39
Cocaine	1.19	0.40	3.57	1.20	0.40	3.59	1.20	0.40	3.61	1.21	0.40	3.65
Heroin	0.70	0.22	2.27	0.70	0.22	2.27	0.71	0.22	2.29	0.71	0.22	2.31
Marijuana	0.98	0.33	2.90	0.98	0.33	2.91	1.00	0.34	2.96	1.00	0.34	2.98
Methamphetamine	1.40	0.49	3.98	1.40	0.49	3.98	1.41	0.49	4.05	1.42	0.49	4.07
Other drug	0.83	0.24	2.92	0.83	0.24	2.93	0.83	0.24	2.93	0.84	0.24	2.95
Perceived coercion and motivation												
Perceived coercion				0.98	0.91	1.07				0.98	0.90	1.07
SOCRATES recognition							1.00	0.98	1.03	1.00	0.98	1.03
SOCRATES ambivalence							1.01	0.98	1.04	1.01	0.98	1.04
SOCRATES taking steps							1.00	0.97	1.02	0.99	0.97	1.02

Predictors	Model 1				Model 2				Model 3				Model 4			
	OR	LCI	UCI		OR	LCI	UCI		OR	LCI	UCI		OR	LCI	UCI	
LR χ^2 , df, p	30.06	17	0.026		30.21	18	0.035		30.65	20	0.060		30.80	21	0.077	
Max. rescaled R^2	0.033				0.034				0.034				0.034			

* $p<0.05$
** $p<0.01$
*** $p<0.001$

Table 4
Logistic regressions models for predictors of any arrest (Odds ratios and 95% confidence intervals)

Predictors	Model 1			Model 2			Model 3			Model 4		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
Demographics												
Ethnicity (ref=white)												
Asian	0.45	0.18	1.12	0.45	0.18	1.12	0.47	0.19	1.17	0.47	0.19	1.16
African American	1.89	1.29	2.79**	1.90	1.29	2.79**	1.93	1.31	2.85***	1.94	1.32	2.86***
Latino	0.97	0.76	1.23	0.97	0.76	1.24	0.98	0.77	1.25	0.98	0.77	1.25
Native American	2.08	0.91	4.72	2.08	0.92	4.73	2.10	0.92	4.77	2.11	0.92	4.80
Other ethnicity	1.04	0.49	2.19	1.04	0.49	2.18	1.07	0.51	2.25	1.06	0.50	2.23
Male	1.50	1.19	1.88***	1.50	1.19	1.88***	1.49	1.19	1.88***	1.49	1.19	1.88***
Age	0.97	0.96	0.98***	0.97	0.96	0.98***	0.97	0.96	0.98***	0.97	0.96	0.98***
Socioeconomic position												
Education	0.98	0.93	1.04	0.98	0.93	1.04	0.98	0.93	1.04	0.98	0.93	1.04
Employment (ref=employed)	1.18	0.94	1.48	1.18	0.94	1.47	1.21	0.96	1.51	1.20	0.96	1.51
Crime and drug measures												
Number of arrests (lifetime)	1.03	1.01	1.05***	1.03	1.01	1.05***	1.03	1.01	1.04***	1.03	1.01	1.04***
Number of prior drug treatments	0.99	0.92	1.06	0.99	0.92	1.06	0.98	0.91	1.05	0.98	0.91	1.05
Primary drug (ref=none reported)												
Alcohol	2.15	0.88	5.29	2.15	0.88	5.29	2.07	0.84	5.13	2.07	0.83	5.12
Cocaine	2.87	1.18	7.00*	2.87	1.18	7.00*	2.74	1.11	6.73*	2.72	1.11	6.69*
Heroin	3.45	1.37	8.71**	3.45	1.37	8.71**	3.23	1.27	8.20*	3.21	1.26	8.17*
Marijuana	2.20	0.92	5.23	2.20	0.92	5.23	2.20	0.92	5.27	2.18	0.91	5.24
Methamphetamine	3.07	1.32	7.16**	3.08	1.32	7.16**	2.92	1.24	6.87*	2.91	1.24	6.85*
Other drug	3.72	1.40	9.88**	3.72	1.40	9.87**	3.67	1.38	9.79*	3.64	1.37	9.73**
Perceived coercion and motivation												
Perceived coercion				1.01	0.94	1.08				1.02	0.95	1.09
SOCRATES recognition							1.02	1.00	1.04*	1.02	1.00	1.04*

Predictors	Model 1				Model 2				Model 3				Model 4			
	OR	LCI	UCI		OR	LCI	UCI		OR	LCI	UCI		OR	LCI	UCI	
SOCRATES ambivalence									1.01	0.99	1.03		1.01	0.99	1.03	
SOCRATES taking steps									0.99	0.97	1.01		0.99	0.97	1.01	
LR χ^2 , <i>df</i> , <i>p</i>	78.79	17	<0.001		78.84	18	<0.001		84.25	20	<0.001		84.47	21	<0.001	
Max. rescaled R^2	0.064				0.064				0.068				0.069			

* $p<0.05$
** $p<0.01$
*** $p<0.001$

Table 5
Logistic regressions models for predictors of any drug arrest (odds ratios and 95% confidence intervals)

Predictors	Model 1				Model 2				Model 3				Model 4			
	OR	LCI	UCI		OR	LCI	UCI		OR	LCI	UCI		OR	LCI	UCI	
Demographics																
Ethnicity (ref=white)																
Asian	0.57	0.22	1.50		0.57	0.22	1.51		0.57	0.22	1.52		0.57	0.22	1.52	
African American	1.75	1.21	2.53**		1.75	1.20	2.53**		1.76	1.21	2.57**		1.77	1.21	2.57**	
Latino	0.92	0.72	1.17		0.92	0.72	1.17		0.91	0.71	1.16		0.91	0.71	1.16	
Native American	2.71	1.24	5.94*		2.71	1.24	5.93*		2.67	1.21	5.89*		2.67	1.21	5.89*	
Other ethnicity	0.77	0.36	1.67		0.78	0.36	1.68		0.79	0.36	1.72		0.79	0.36	1.72	
Male	1.38	1.09	1.74**		1.38	1.09	1.74**		1.34	1.06	1.70*		1.34	1.06	1.70*	
Age	0.98	0.97	0.99***		0.98	0.97	0.99***		0.98	0.97	0.99***		0.98	0.97	0.99***	
Socioeconomic position																
Education	0.98	0.92	1.04		0.98	0.92	1.04		0.98	0.93	1.04		0.98	0.93	1.04	
Employment (ref=employed)	1.11	0.89	1.38		1.11	0.89	1.39		1.14	0.91	1.42		1.14	0.91	1.42	
Crime and drug measures																
Number of arrests (lifetime)	1.03	1.01	1.04***		1.03	1.01	1.04***		1.03	1.02	1.04***		1.03	1.02	1.04***	
Number of prior drug treatments	0.95	0.88	1.02		0.95	0.88	1.02		0.95	0.88	1.03		0.95	0.88	1.03	
Primary drug (ref=none reported)																
Alcohol	1.23	0.49	3.11		1.23	0.49	3.12		1.27	0.50	3.24		1.27	0.50	3.24	
Cocaine	2.32	0.94	5.77		2.33	0.94	5.78		2.31	0.92	5.77		2.31	0.92	5.77	
Heroin	2.54	0.99	6.51		2.54	0.99	6.51		2.47	0.96	6.37		2.47	0.95	6.37	
Marijuana	1.75	0.72	4.26		1.76	0.72	4.27		1.91	0.78	4.66		1.91	0.78	4.67	
Methamphetamine	2.11	0.89	5.03		2.11	0.89	5.03		2.16	0.90	5.19		2.16	0.90	5.19	
Other drug	2.58	0.97	6.92		2.59	0.97	6.94		2.62	0.97	7.05		2.62	0.97	7.05	
Perceived coercion and motivation																
Perceived coercion					0.99	0.93	1.06						1.00	0.93	1.07	
SOCRATES recognition									1.01	0.99	1.03		1.01	0.99	1.03	
SOCRATES ambivalence									1.05	1.03	1.07***		1.05	1.03	1.07***	

Predictors	Model 1				Model 2				Model 3				Model 4			
	OR	LCI	UCI		OR	LCI	UCI		OR	LCI	UCI		OR	LCI	UCI	
SOCRATES taking steps																
LR χ^2 , df, p	68.97	17	<0.001		69.03	18	<0.001		92.19	20	<0.001		92.19	21	<0.001	
Max. rescaled R^2	0.056				0.056				0.075				0.075			
* $p<0.05$																
** $p<0.01$																
*** $p<0.001$																