

# RISK FACTORS THAT PREDICT DROPOUT FROM CORRECTIONS-BASED TREATMENT FOR DRUG ABUSE

MATTHEW L. HILLER  
KEVIN KNIGHT  
D. DWAYNE SIMPSON  
*Texas Christian University*

*Early dropout or failure to engage in drug abuse treatment is a common problem in correctional settings. This study presents findings from 339 felony probationers mandated to a 6-month modified therapeutic community (TC) in lieu of imprisonment. Early dropout was related to cocaine dependence, having a history of psychiatric treatment, being unemployed before adjudication to treatment, and to higher levels of depression, anxiety, and hostility. Dropout rates also were higher for probationers with deviant peer networks and lower ratings of self-efficacy. However, multivariate analyses showed that scoring high on a criminality risk index was the strongest predictor of leaving treatment early and appears to represent a good composite risk measure. These findings can help identify who needs residential treatment, and who is at greatest risk for not completing it.*

Research has shown that intensive rehabilitation services provided to serious offenders in correctional settings can reduce criminality and drug use following incarceration (Andrews et al., 1990; Gendreau, 1996). Particularly within prisons, long-term residential treatment programs (such as therapeutic

---

This project was funded by Grant No. 98-RTVXK00496-IJ-CX-0024 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. Points of view in this document are those of the authors and do not necessarily represent the official position or policies of the U.S. Department of Justice. Special appreciation is extended to Julien Devereux, Barbara Jiles-Smith, and the clinical staff at the Dallas County Judicial Treatment Center who assisted in conducting this study. Some of these results were presented at the 36th Annual Conference of the Academy of Criminal Justice Sciences at Orlando in March 1999. Correspondence should be addressed to the Institute of Behavioral Research, Texas Christian University, TCU Box 298740, Fort Worth, TX, 76129; e-mail: [ibr@tcu.edu](mailto:ibr@tcu.edu). More information (including data collection instruments that can be downloaded) is available on the Internet at [www.ibr.tcu.edu](http://www.ibr.tcu.edu).



tic communities [TCs]) have been found to reduce postincarceration involvement in illicit drugs and crime (Lipton, 1995). These findings are highlighted in numerous studies (Field, 1989; Inciardi, Martin, Butzin, Hopper [AUTHOR: HOOPER IN REFERENCES], & Harrison, 1997; Knight, Simpson, Chatham, & Camacho, 1997; Wexler, De Leon, Thomas, Kressel, & Peters, 1999; Wexler, Falkin, & Lipton, 1990), in a congressionally mandated review completed by the University of Maryland (MacKenzie, 1997), and in the National Institute on Drug Abuse (NIDA)-funded Correctional Drug Abuse Treatment Effectiveness (CDATE) meta-analysis (Lipton, Pearson, Cleland, & Yee, 1998). However, relatively little is known about the treatment processes—that is, the metaphorical black box—within correctional TCs that lead to improved outcomes.

Impact evaluations conducted on noncorrectional TCs frequently use length-of-stay (or retention) as a therapeutic progress indicator. This, in fact, is the strongest and most reliable predictor of outcomes from this treatment modality (De Leon, 1984, 1991; De Leon & Schwartz, 1984; Gerstein & Harwood, 1990; Hubbard et al., 1989; Shwartz, Mulvey, Woods, Brannigan, & Plough, 1997; Simpson, 1979, 1981). Simpson, Joe, and Brown (1997), for example, showed that clients who stayed in long-term residential programs at least 90 days had significantly larger reductions in illicit drug and alcohol use in the 12 months after treatment than those with shorter stays. Similarly, longer retention is associated with reduced criminal involvement following treatment (De Leon, Holland, & Rosenthal, 1972; Simpson, Joe, & Brown, 1997; Sirotnik & Roffe, 1977). Holland (1978) found that early dropouts were arrested as frequently during a 1-year follow-up as they were in the year preceding treatment. Late dropouts and completers, however, realized significantly reduced posttreatment arrest rates.

Two studies have examined the relationship between time spent in an in-prison therapeutic community (ITC) and postrelease outcomes. Like community-based evaluations, these studies show a generally positive effect for longer treatment stays. For example, offenders who remained in the Stay'n Out ITC between 9 and 12 months had significantly better parole discharge outcomes and more time elapsed between release and rearrest than for those who remained fewer than 9 or more than 12 months (Wexler, Falkin, Lipton, & Rosenblum, 1992). Field (1992) found that prisoners who graduated from the Cornerstone ITC had significantly lower rearrest and reconviction rates 3 years after treatment than those who did not complete the program. Offenders with the least exposure to treatment had the worst outcomes. Furthermore, a recent evaluation of a therapeutic community for probationers showed that those who completed treatment had significantly lower

recidivism rates than dropouts (Hiller, Knight, Devereux, & Hathcoat, 1996; Knight & Hiller, 1997).

Identifying the factors associated with dropping out of treatment before completing the planned length-of-stay is a strategy that should help both program directors and correctional administrators improve program outcomes. Intensive treatment beds are scarce both in correctional and community settings (Bureau of Justice Statistics, 1999), and offender attributes related to early dropout need to be identified and therapeutically addressed. Early dropouts lead to an inefficient use of limited program resources because costs incurred during intake processing and initial therapeutic sessions realize no benefits through reduced recidivism rates (Hiller, Knight, Broome, & Simpson, 1998). In addition, community-based corrections agencies (i.e., probation and parole) frequently use residential programming to enhance supervision of serious offenders because treatment is provided within a restricted environment, and early dropouts (absconders) potentially place the public at risk, especially when they have not received the entire intended therapeutic intervention.

Whereas little is known about who is most likely to drop out prematurely from correctional TC programs, a rich body of literature focuses on pre-treatment characteristics that are related to engagement and retention in community-based facilities. These predictors generally can be classified as either fixed (immutable) or dynamic (Condelli & De Leon, 1993). Fixed attributes include social history indicators like gender (Pompi & Resnick, 1987), ethnicity (Wexler & De Leon, 1977), marital status (Sirotnik & Roffe, 1977), age (Collins & Allison, 1983; Sansone, 1980), and education level (Condelli & Dunteman, 1993; Wexler & De Leon, 1977). The relative importance of each of these static variables as well as the strength and direction of their association with retention differ from study to study, and questions remain about their practical value as predictors of time spent in drug abuse treatment (Condelli, 1994). Dynamic characteristic like substance abuse (Aron & Daily, 1976; Simpson, Joe, Broome, et al., 1997), mental health problems (De Leon, 1986; Ravndal & Vaglum, 1991), and legal involvement (Condelli & De Leon, 1993; Hiller et al., 1998) are of greater interest to clinicians and researchers because they are amenable to change. Furthermore, personal motivation and pressure from legal authorities to enter treatment have been shown to be robust predictors of longer stays in community programs (De Leon, 1988; De Leon, Melnick, Kressel, & Jainchill, 1994; Hiller et al., 1998; Joe, Simpson, & Broome, 1998). For example, in the Drug Abuse Treatment Outcome Studies (DATOS), treatment readiness and legal pressure each were found to exert independent and significant influences on

the likelihood of a client remaining at least 90 days in long-term residential programs (Knight, Hiller, Broome, & Simpson, in press).

Findings from samples in community-based TCs can inform similar investigations with criminal justice populations, but the impact of the criminal background of those under correctional supervision warrants special attention. Classification instruments that assess the seriousness of an offender's criminal involvement include the Level of Supervision Inventory-Revised (LSI-R) (Andrews & Bonta, 1994), the Salient Factor Score (SFS) (Hoffman, 1983), and the Lifestyle Criminality Screening Form (LCSF) (Walters, White, & Denney, 1991). These risk assessments often are used by correctional decision-makers to assign levels of custody and service because they have been shown to be reliable predictors of in-prison disciplinary infractions (Gendreau, Goggin, & Law, 1996; Walters, 1991) as well as post-release recidivism (Gendreau, Little, & Goggin, 1996; Hoffman & Beck, 1985; Walters & McDonough, 1998). Relatively little research, however, has been conducted to determine the prognostic value of these criminal classification indices for community corrections (Gendreau, Goggin, & Paparozzi, 1996) or for treatment retention in corrections-based TCs.

This study, therefore, focused on the description and prediction of early dropouts in a sample of felony probationers who were court-mandated to treatment in a corrections-based TC. Special attention was placed on extending findings from the community-based drug treatment literature to this correctional setting. Furthermore, it tested the application of a criminal risk classification measure for predicting early dropout from intensive therapeutic programming for offenders. It was expected that offender characteristics (especially dynamic attributes) would be associated with leaving treatment early, thus empirically identifying a set of factors that should be considered during treatment assignments and planning.

## METHOD

### PROGRAM DESCRIPTION

The Dallas County Judicial Treatment Center (DCJTC) in Wilmer, Texas was founded in 1991 by a council of 15 local judges in response to Texas House Bill #2335, which authorized the development of residential correctional treatment centers for the diversion of drug-involved felony offenders from long-term incarceration. Essentially, it represents the final and most restrictive sanction that these judges use before imposing state prison sentences in Texas. Currently, no systematic screening procedures are used by

court officers during presentencing investigations to establish a standardized information base as a guide in helping judges make decisions on committing an offender to treatment.

The DCJTC is a 6-month intensive stand-alone substance abuse treatment facility with a 228-bed capacity, including four 35-bed units for males and three 20-bed cottages for females. It is managed by Cornell Corrections, Inc., under contract from the Dallas County Community Supervision and Corrections Department. Like many corrections-based treatment programs (see Knight et al., 1997), the DCJTC is modeled after the traditional community-based TC and is provided in three major phases, including (a) orientation, (b) main treatment, and (c) reentry. Treatment includes group and individual counseling, behavior modification, peer-to-peer therapy, life skills training, vocational and educational instruction, and regular meetings with an on-site probation officer. In addition, it emphasizes 12-step recovery, criminal thinking patterns, and relapse prevention. Residents advance through a hierarchical recovery sequence, whereby they receive progressively more responsibilities and privileges as they become more senior members of their treatment family. Traditional TC techniques are used, including confrontation groups, pull-ups, and morning and evening meetings. However, there are no special interventions directed at facilitating treatment engagement and retention.

Counselors facilitate therapeutic contacts and serve as role models. All are state-certified to conduct drug and alcohol abuse treatment, and most have postgraduate degrees and additional counseling certifications (Barthwell et al., 1995). Part-time medical and psychiatric staffs provide additional diagnostic and specialized services, such as mental and physical health screening and the prescription of psychotropic medication for residents with depression and anxiety problems.

#### **SAMPLE**

Data were collected from 339 felony probationers admitted to the DCJTC between March and December 1997. Social history indicators showed that they were predominantly male (72%), African American (42%) or White (48%), and had never been married (46%). About two thirds (61%) had a high school diploma or its equivalent and many were unemployed (47%) prior to the arrest leading to their mandated treatment at the DCJTC.

Almost all residents had used alcohol and marijuana during their lifetime (96% and 95%, respectively). Most had a history of cocaine use (86%), and many had used heroin or other opiates (32%). A total of 56% met clinical dependence criteria for alcohol, 66% for cocaine, 37% for marijuana, and

16% for opiates. Drug use during the preceding 6 months paralleled lifetime patterns; 81% reported having used alcohol, 58% marijuana, 68% cocaine, and 20% opioids.

#### PROCEDURE

During their first week of treatment, residents completed a comprehensive assessment battery developed at Texas Christian University (TCU) as part of a community-based treatment evaluation project entitled "Improving Drug Abuse Treatment, Assessment, and Research" (DATAR) (Simpson, Dansereau, & Joe, 1997). This included the (a) Initial Assessment, (b) Self-Rating Form (SRF), and (c) Intake questionnaires (Simpson, Knight, & Hiller, 1997). The Initial Assessment was a brief, structured counselor-led interview that recorded sociodemographic background information and drug use history. Following this, residents also completed the SRF, a 95-item self-report instrument designed to assess psychosocial functioning and treatment motivation at intake. This instrument has been used with a variety of community- and institution-based samples, including prisoners, probationers, and parolees, as well as clients in outpatient methadone treatment. Knight, Holcom, and Simpson (1994) provide a detailed summary of its development as well as an extensive assessment of its psychometric properties (instrument reliability data for this sample are summarized below). Finally, a counselor administered the Intake interview approximately 5 days after the Initial Assessment, after residents had time to become acquainted with the program and staff. It included detailed questions on the resident's social background, family and peer relations, health and psychological status, criminal involvement and history, and drug use problems.

#### MEASURES

*Sociodemographic background.* Social history indicators from the Initial Assessment and Intake interviews were examined to determine if these static factors (i.e., gender, ethnicity, age, marital status, and education level) were associated with dropping out of corrections-based TC treatment.

*Drug abuse history.* Clinically problematic alcohol, cocaine, opioid, and cannabis use classifications, based on the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* (American Psychiatric Association, 1994) criteria, were made during the Initial Assessment. These drug categories represented the four most commonly used substances in this sample.

*Criminal history.* Criminal involvement was gauged through data collected during the Intake interview and included arrests incurred before age 18, as well as lifetime arrests and incarcerations. Residents also were asked to indicate their agreement with the statement, "You have legal problems that require you to be in treatment," using a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

*Criminal classification index.* A composite measure for classifying risk for recidivism among the probationers, modeled after the LCSF (Walters et al., 1991), was constructed from information collected in the TCU Initial Assessment, Intake, and SRF. The original LCSF represents a chart audit usually scored using information in an offender's pre-sentence investigation report (Walters, 1998). Conceptually, it emphasizes four behavioral dimensions related to a criminal lifestyle, including irresponsibility, self-indulgence, interpersonal intrusiveness, and social rule-breaking (Walters, 1990, 1998). It has good reliability and related psychometric properties (Walters, 1997), and Walters (1998) recommends clinical interpretations based on a total composite score to define high (values of 10 and above), moderate (7 to 9), and low (6 and below) risk categories. In our adaptation of this assessment model, at least two items from each LCSF behavioral dimension were represented in the criminal classification index.<sup>1</sup> These items focused on marital and family relations, education, employment history, substance abuse, and criminal history (especially serious offenses). As summarized in Table 1, scores based on the TCU forms ranged from 0 to 15 points ( $M = 8$ ). Of the sample for this study, 30% were classified as high risk, 40% moderate, and 30% low.

*Peer group functioning.* A series of questions during the TCU Intake interview asked probationers to rate their peers on a Likert scale ranging from 0 (*never*) to 4 (*always*). Based on previous work with other treatment samples (see Simpson & Joe, 1993), five composite indices were constructed, including prosocial behavior (coefficient alpha = .93) using items such as "Your friends work regularly on a job" and "Your friends spend time with their families." Deviance and criminality (coefficient alpha = .88) included items like "Your friends trade, sell, or deal drugs" and "Your friends do other things against the law." The level of respect a resident's peer group showed for them was reflected in the leadership (coefficient alpha = .79) measure, which was composed of statements like "Your friends look to you as leader" and "Your friends ask for your advice about their problems." Another variable, problem peers (coefficient alpha = .77), described the probationers' perceptions that

**TABLE 1: Mean Scores and Item Frequencies for the Criminality Classification Index**

<i>Subscale/Item</i>	<i>Total Sample (N = 339)</i>		
	<i>%</i>	<i>M</i>	<i>SD</i>
Irresponsibility		1.04	0.93
School dropout (1)	61		
Longest job held			
< 6 months (2)	10		
≥ 6 months but < 24 months (1)	22		
≥ 24 months (0)	68		
Self-indulgence		2.37	0.61
Drug abuse history (2)	97		
Marital background			
Divorced or never married, with children (1)	44		
Never divorced or never married, no children (0)	56		
Interpersonal intrusiveness		1.53	1.49
Any prior intrusive offense <sup>a</sup> (1)	56		
Number of intrusive offenses			
Three or more (2)	15		
One or two (1)	41		
None (0)	44		
Ever used weapons in an offense (1)	28		
Social rule breaking		3.11	1.14
Arrest history <sup>b</sup>			
Five or more (2)	65		
Two to four (1)	33		
One or none (0)	2		
Age at first arrest			
≤ 14 years (2)	12		
> 14 years but < 19 years (1)	46		
≥ 19 years (0)	42		
School disciplinary problems (1)	78		
Composite criminality classification index <sup>c</sup>		8.05	2.56
High risk (scored 10 and above)	30		
Moderate risk (scored between 7 and 9)	40		
Low risk (scored less than 7)	30		

SOURCE: Based on the Lifestyle Criminality Screening Form (Walters, White, & Denney, 1991).

NOTE: The numbers in the parentheses reflect the value assigned for a criteria with a positive answer on an item. Percentages were rounded to the nearest whole number.

a. Intrusive offenses included burglary, robbery, violence against others (e.g., aggravated assault), arson, and sex offenses (e.g., rape).

b. Arrest history excludes traffic violations.

c. Composite cutoff scores recommended by Walters (1998).

their relationships had generated trouble for them, including ratings for “Your friends cause problems for you” and “Your friends take risks or chances.” Finally, support for recovery (coefficient alpha = .76) assessed the

level of peer group encouragement a resident might receive for quitting drugs (e.g., “Your friends believe drug use causes problems” and “Your friends think drug treatment can be helpful”).

*Psychosocial and treatment motivation.* Psychological functioning was assessed through the SRF and included scales for depression and anxiety (coefficient alphas of .69 and .71, respectively), and ratings of self-esteem and decision-making confidence (coefficient alphas of .74 and .70, respectively). Social functioning indicators were composed of scales for hostility, risk-taking, and childhood problems (coefficient alphas ranged from .74 to .76). Finally, motivation for treatment was based on the problem recognition, desire for help, and treatment readiness scales (coefficient alphas = .82, .65, and .73, respectively; see also Joe, Knezek, Watson, & Simpson, 1991; Simpson & Joe, 1993). The SRF also included the Pearlin Mastery Scale (Pearlin & Schooler, 1978) to assess general feelings of self-efficacy (coefficient alpha = .73).

*Treatment dropout.* The outcome criterion was a dichotomously scored measure (0 = completer, 1 = dropout) based on treatment discharge information that was abstracted from facility records. Reasons for premature removal from the program included leaving against staff advice (ASA), expulsion for violating program rules, being arrested during treatment, and having a serious medical problem or an active, severe psychological disturbance. The majority of probationers completed treatment (77%), but 12% left ASA, 7% were expelled, and 4% left for other reasons (i.e., arrested for outstanding warrants from another county, referred to other community-based resources because they had medical or psychiatric problems not addressed by the program). Because this last group was small and represented a set of offenders “not appropriate” for treatment at the DCJTC, it was excluded from later analyses. Comparisons, therefore, were made between those who had the opportunity to and completed treatment ( $n = 261$ ) and those who dropped out early ( $n = 65$ ).

#### ANALYTIC STRATEGY

First, we examined simple relationships between treatment discharge status (i.e., dropout or completer) and a set of variables comprising sociodemographic background, drug abuse history, criminal history, the criminality classification index, peer group functioning, mental health history, and psychosocial and treatment motivation ratings with a series of exploratory Pear-

son correlations. Second, factors found to be significantly related to treatment dropout in the initial analytic phase were loaded into a multivariate model using a stepwise logistic regression procedure (for a detailed description of a similar model building strategy, see Hosmer & Lemeshow, 1989).<sup>2</sup> This allowed us to determine which variables represented the best set of predictors for residents dropping out of treatment early.

## RESULTS

### UNIVARIATE COMPARISONS<sup>3</sup>

*Sociodemographic background.* Relatively few social history indicators distinguished treatment completers from dropouts (see Table 2), but treatment dropout was related to being unemployed in the 30 days preceding adjudication to treatment ( $r = .14, p < .05$ ).

*Drug abuse history.* Treatment completers and dropouts had similar rates of clinically problematic alcohol, opioid, and marijuana use, but a classification of cocaine dependence was associated significantly with leaving treatment early ( $r = .13, p < .05$ ).

*Criminal history.* Both treatment discharge groups had severe, statistically equivalent lifetime profiles of criminal involvement. The majority had been previously arrested and incarcerated six or more times, and many had been arrested as minors.

*Criminal classification index.* Although our index was not an exact reproduction of the LCSF, it also discriminated well between treatment dropouts and completers. Findings showed that dropout was related to higher scores on the criminal classification index ( $r = .24, p < .001$ ). Leaving treatment prematurely also was significantly associated with all subscales: irresponsibility ( $r = .14, p < .05$ ), self-indulgence ( $r = .12, p < .05$ ), interpersonal intrusiveness ( $r = .17, p < .01$ ), and social rule breaking ( $r = .13, p < .05$ ).

*Peer group functioning.* Analysis of the resident perceptions of their pre-treatment reference group revealed that treatment dropout was associated with having peers who engaged in relatively lower levels of prosocial behavior ( $r = -.16, p < .05$ ). Both groups were statistically similar in ratings of deviancy, trouble making, and support for treatment by their friends.

TABLE 2: Comparison of Treatment Discharge Groups

Characteristic	Discharge Group								
	Dropout (n = 65)			Completer (n = 261)			Total (N = 326)		
	%	M	SD	%	M	SD	%	M	SD
Sociodemographic background									
Male	66			74			72		
Race/ethnicity									
African American	45			41			42		
Caucasian	40			50			48		
Hispanic	14			7			9		
Other	1			2			1		
Age 32 or older	55			51			52		
Marital status									
Never married	45			46			45		
Married	22			23			23		
Divorced/separated/widowed	33			31			32		
High school graduate or GED	55			62			61		
Unemployed prior 30 days*	60			43			46		
Drug abuse history <sup>a</sup>									
Alcohol dependent	48			59			57		
Cocaine dependent*	78			64			67		
Marijuana dependent	35			37			37		
Opioid dependent	9			18			16		
Criminal history									
Arrested before 18 years old	49			41			43		
6 or more lifetime arrests	69			57			60		
6 or more lifetime incarcerations	62			52			54		
Perceived legal pressure for treatment <sup>b</sup>		5.6	1.9		5.9	1.7		5.9	1.8
Criminality classification index									
Total score***		9.3	2.5		7.7	2.5		8.0	2.6
High risk***	48			25			29		
Low risk**	15			33			30		
Peer group functioning <sup>c</sup>									
Prosocial behavior*		1.9	1.5		2.4	1.2		2.3	1.3
Deviance and criminality		1.6	1.3		1.4	1.0		1.5	1.1
Leadership		2.2	1.0		2.4	0.9		2.3	1.0
Problem peers		1.8	1.1		1.7	0.9		1.7	1.0
Support for recovery		1.9	1.3		2.0	1.1		2.0	1.2
Mental health history									
Serious depression	58			49			51		
Severe anxiety	52			46			48		
Hallucinations	8			10			10		
Trouble concentrating/ remembering*	66			52			55		
Trouble controlling violent behavior	28			20			22		

(continued)

TABLE 2 Continued

Characteristic	Discharge Group								
	Dropout (n = 65)			Completer (n = 261)			Total (N = 326)		
	%	M	SD	%	M	SD	%	M	SD
Serious thoughts of suicide	15			18			18		
Attempts at suicide	9			10			10		
Mental health treatment*	38			26			29		
Psychosocial and treatment motivation ratings <sup>b</sup>									
Psychological functioning									
Self-esteem		4.0	1.3		4.0	1.3		4.0	1.3
Depression*		3.8	1.1		3.4	1.2		3.5	1.2
Anxiety**		4.2	1.2		3.7	1.2		3.8	1.2
Decision-making confidence		4.9	0.9		4.9	0.9		4.9	0.9
Self-efficacy**		4.9	1.3		5.4	1.0		5.3	1.1
Social functioning									
Childhood problems		4.0	1.5		3.7	1.3		3.8	1.3
Risk taking		3.9	1.3		4.0	1.2		4.0	1.2
Hostility		3.2	1.3		2.9	1.2		3.0	1.2
Treatment motivation									
Problem recognition		5.5	1.3		5.6	1.1		5.6	1.2
Desire for help		6.0	0.9		6.1	0.8		6.1	0.8
Treatment readiness		5.5	1.1		5.7	0.9		5.7	1.0

NOTE: GED = general equivalency diploma.

a. Classification based on *DSM-IV* criteria (APA, 1994).

b. Responses were made on a Likert scale ranging from 1 (*disagree strongly*) to 7 (*agree strongly*).

c. Responses were made on a Likert scale ranging from 0 (*never*) to 4 (*almost always*).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

*Mental health history.* Treatment attrition also was associated with reports of having cognitive problems (concentrating and remembering,  $r = .11$ ,  $p < .05$ ) and treatment for mental health problems ( $r = .11$ ,  $p < .05$ ).

*Psychosocial and treatment motivation ratings.* Interpersonal distress at treatment entry was related to early dropout, including scores on the SRF depression ( $r = .12$ ,  $p < .05$ ) and anxiety ( $r = .14$ ,  $p < .01$ ) scales, and appraisals of self-efficacy ( $r = -.19$ ,  $p < .01$ ).

#### MULTIVARIATE MODEL

A stepwise logistic model for determining which factors were the best set of predictors of treatment dropout used all independent variables found to be

**TABLE 3: Summary of Stepwise Logistic Regression Model Predicting Treatment Dropout**

Predictor	b	SE	$\chi^2$	Odds Ratio
Intercept	-3.36	0.49		
Unemployed prior 30 days*	0.73	0.30	6.06	2.1
High risk <sup>a**</sup>	0.96	0.30	10.32	2.6
Low self-efficacy**	0.42	0.14	9.73	1.5

NOTE:  $-2 \text{ Log L } \chi^2(3, 325) = 28.83, p < .001$ .

a. Based on the criminality classification index.

\* $p < .05$ . \*\* $p < .01$ .

statistically significant in the first analytic step (see Table 3). Included were employment in the previous 30 days, drug use (cocaine dependence classification), criminal classification score (high and low risk), psychological history (cognitive difficulties and mental health treatment episode), peer ratings (prosocial scale), and psychosocial ratings (i.e., depression, anxiety, and self-efficacy). Because of their strong associations with treatment retention in community-based TCs, perceptions of legal pressure and treatment readiness also were included in this model. The final results indicated that scoring high on the criminality risk index ( $b = .96$ , odds ratio = 2.6), being unemployed ( $b = .73$ , odds ratio = 2.1), and giving lower ratings of self-efficacy ( $b = .42$ , odds ratio = 1.5) were associated with a higher probability of dropping out early.

## DISCUSSION

Several resident attributes were found to be associated with dropping out of treatment early. For example, being unemployed and having elevated levels of depression and anxiety were related to an increased probability of leaving treatment prematurely. Dropouts also had lower ratings of self-efficacy. Fortunately, most of the factors associated with leaving treatment early were dynamic rather than fixed, and possibly could be addressed therapeutically to help improve program retention and outcomes.

In addition, offenders who had friends that showed lower levels of social conformity also had higher dropout rates from the treatment program. This is important because building positive peer relationships is a hallmark of therapeutic community treatment (De Leon, 1995, 1996). Pretreatment social networks for most clients were less than ideal, and most probably would benefit from a specialized intervention directed at building positive, productive peer

groups (see Bartholomew, Hiller, Knight, Nucatola, & Simpson, in press). Because affiliation with criminal associates is strongly associated with recidivism (Broome, Knight, Knight, Hiller, & Simpson, 1997; Gendreau, Little, et al., 1996), instruction in relationship skills and the development of a positive support networks during TC treatment might be expected to help reduce postrelease criminal involvement. However, further study of the effects of posttreatment alumni group participation and 12-step affiliation on recidivism and relapse is needed.

Psychiatric status indicators, including a history of cognitive processing difficulties and prior mental health treatment episodes, were found to be related to shorter treatment stays. Psychiatric problems are more highly prevalent in correctional settings than in community samples (Abram & Teplin, 1991; Teplin, 1994), and they also increase risks for recidivism following correctional treatment (Hiller, Knight, Broome, & Simpson, 1996). Offenders with comorbid mental health and substance abuse problems obviously require greater resource expenditures, which may further strain tight budgets. Better linkages of corrections with community mental health treatment systems would be one option for providing additional services for the dually diagnosed offender. Alternatively, model TC programs for individuals with concurrent mental health and substance abuse disorders have been developed and currently are being evaluated (French, Sacks, De Leon, Staines, & McKendrick, 1999; Sacks, Sacks, & De Leon, 1999).

Although treatment readiness and legal pressure have been found to be robust predictors of remaining in community-based TCs, these measures emerged as being only marginally significant in this study. Previous work has indicated that many probationers enter mandated treatment with relatively low levels of personal commitment to the program or for confronting their drug abuse problems (Farabee, Simpson, Dansereau, & Knight, 1995). Therefore, a set of interventions have been designed to enhance early treatment engagement, including a set of pedagogical games during which offenders encounter various consequences of their behavior. Initial findings have been encouraging and additional work on these materials is in progress (Blankenship, Dansereau, & Simpson, 1999 [this issue]; Dees, Dansereau, & Simpson, 1999). Similarly, application of the Senior Professor model (De Leon, Jainchill, & Hawke, 1996) could be made, by which program staff could conduct initial treatment induction sessions to help motivate offenders to finish the program.

Criminal classification level (especially high risk) was the strongest predictor of early treatment attrition, probably representing an efficient way of integrating several relevant factors into a single indicator. This finding extends previous work showing these types of indices to be robust correlates

of recidivism and poor in-prison behavioral adjustment (see Gendreau, Goggin, & Law, 1996; Gendreau, Little, et al., 1996). Although correctional treatment programs typically address procriminal attitudes and thinking patterns during the standard treatment regimen (e.g., through behavioral modification and confrontation), it appears that even more directed attention should be focused on crucial criminogenic factors and substance abuse. However, the domains assessed by the criminal classification index are relatively static, and research is needed on examining dynamic characteristics like procriminal attitudes in relation to treatment outcomes.

Treatment completion rates are used commonly as indices of correctional programming effectiveness, and determining which pretreatment factors are associated with early dropout should contribute to improving treatment efficiency and impact. Results from the stepwise logistic regression suggest that special attention should be focused on the offenders' drug abuse classification, recent employment history, criminal involvement, and feelings of self-efficacy. These findings begin to provide administrators with an empirical basis for making practical decisions about whom to refer to treatment, which problem areas need to be addressed therapeutically, and what types of interventions may be required. This, in turn, should help to reduce up-front costs associated with premature dropouts, and reserve expensive and limited bed space for those likely to benefit from intensive services. Those not yet ready for treatment may need exposure to induction strategies prior to admission to intensive services.

As prison populations continue to increase in size, community corrections likely will be required to treat increasingly serious offenders diverted by the courts from lengthy incarceration (Petersilia, 1995). Residential facilities like the DCJTC allow the local probation department to supervise felony offenders more intensively while providing treatment targeted at reducing drug use and criminal behavior. The placement of serious offenders in residential treatment obviously reduces opportunities for criminal involvement and improves public safety while the offender is at the facility, but questions remain about the effectiveness of this program for reducing criminal behavior after return to the community. Future studies are being planned to examine the relative impact of the DCJTC on recidivism by comparing those treated at this program to a matched comparison group who did not get treatment.

Knowing which offender attributes need to be assessed and therapeutically addressed to reduce dropout rates is important, but it is only a prelude to research on what occurs during the metaphorical black box of treatment. Completion and dropout rates are only imprecise proxies for the treatment process, and dynamic variables that can be addressed during a resident's ten-

ure in a program (to improve postdischarge outcomes) clearly exist. Promising areas of study include (a) satisfaction with the therapeutic process (Hiller, Knight, & Simpson, 1999), (b) treatment expectations (McCorkel, Harrison, & Inciardi, 1998), (c) peer environment and support within the TC (Broome, Knight, Hiller, & Simpson, 1996; Hiller et al., 1999), (d) resident-counselor relationships (Broome et al., 1996, 1997), and (e) procriminal thinking and attitudes (Walters, 1996; Walters & Elliott, 1999). Improved outcomes likely will be realized only through continued efforts to understand the processes underlying treatment and therapeutic progress.

### NOTES

1. A more detailed description of how the criminality composite index differed from the Lifestyle Criminality Screening Form (LCSF) is available from the author.

2. Hosmer and Lemeshow (1989) suggest using variables that have an associated  $p < .25$  significance level, but we chose to use a more conservative cutoff of  $p < .05$  to help protect against experiment-wise error possible with such a large set of univariate comparisons.

3. A separate set of analyses (not reported) was conducted using three groups based on treatment discharge status (i.e., completers, against staff advice [ASA], and rules violators). Findings indicated that ASA and disciplinary cases were similar to each other, but both were different from completers. For simplicity, only the analyses comparing completers and a combined drop-out group are reported.

### REFERENCES

- Abram, K. M., & Teplin, L. A. (1991). Co-occurring disorders among mentally ill jail detainees. *American Psychologist, 46*, 1036-1045.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Andrews, D. A., & Bonta, J. (1994). *LSI-R: The Level of Service Inventory-Revised*. Toronto, Canada: Multi-Health Systems.
- Andrews, D. A., Zinger, I., Hoge, R. D., Bonta, J., Gendreau, P., & Cullen, F. T. (1990). Does correctional treatment work? A clinically relevant and psychologically informed meta-analysis. *Criminology, 28*, 369-404.
- Aron, W. S., & Daily, D. W. (1976). Graduates and splitees from therapeutic community drug treatment programs: A comparison. *International Journal of the Addictions, 11*, 1-18.
- Bartholomew, N. G., Hiller, M. L., Knight, K., Nucatola, D. C., & Simpson, D. D. (in press). Effectiveness of communication and relationship skills training for men in substance abuse treatment. *Journal of Substance Abuse Treatment*.
- Barthwell, A. G., Bokos, P., Bailey, J., Haser, N., Nisenbaum, M., Devereux, J., & Senay, E. C. (1995). Interventions/Wilmer: A continuum of care for substance abusers in the criminal justice system. *Journal of Psychoactive Drugs, 27*(1), 39-47.
- Blankenship, J., Dansereau, D. F., & Simpson, D. D. (1999). Cognitive enhancements of readiness for corrections-based treatment for drug abuse. *The Prison Journal, 79*(4), 000-000.

- Broome, K. M., Knight, D. K., Knight, K., Hiller, M. L., & Simpson, D. D. (1997). Peer, family, and motivational influences on drug treatment process and recidivism for probationers. *Journal of Clinical Psychology, 53*(4), 387-397.
- Broome, K. M., Knight, K., Hiller, M. L., & Simpson, D. D. (1996). Drug treatment process indicators for probationers and prediction of recidivism. *Journal of Substance Abuse Treatment, 13*, 487-491.
- Bureau of Justice Statistics. (1999, January). *Substance abuse and treatment, state and federal prisoners, 1997* (Bureau of Justice Statistics Special Report). Washington, DC: Author.
- Collins, J. J., & Allison, M. (1983). Legal coercion and retention in drug abuse treatment. *Hospital and Community Psychiatry, 34*, 1145-1149.
- Condelli, W. S. (1994). Domains of variables for understanding and improving retention in therapeutic communities. *International Journal of the Addictions, 29*, 593-607.
- Condelli, W. S., & De Leon, G. (1993). Fixed and dynamic predictors of client retention in therapeutic communities. *Journal of Substance Abuse Treatment, 10*, 11-16.
- Condelli, W. S., & Duntzman, G. H. (1993). Issues to consider when predicting retention in therapeutic communities. *Journal of Psychoactive Drugs, 25*, 239-244.
- Dees, S. M., Dansereau, D. F., & Simpson, D. D. (1999). *Implementing a readiness program for mandated substance abuse treatment*. Manuscript submitted for publication.
- De Leon, G. (1984). *The therapeutic community: Study of effectiveness* (NIDA Research Monograph Series, DHHS Publication No. ADM 84-1286). Rockville, MD: National Institute on Drug Abuse.
- De Leon, G. (1986). Psychopathology and substance abuse: What is being learned from research in therapeutic communities. *Journal of Psychoactive Drugs, 21*, 177-188.
- De Leon, G. (1988). Legal pressure in therapeutic communities. *Journal of Drug Issues, 18*, 625-640.
- De Leon, G. (1991). Retention in drug-free therapeutic communities. In R. W. Pickens, C. G. Leukefeld, & C. R. Schuster (Eds.), *Improving drug abuse treatment* (NIDA Research Monograph 106, DHHS Publication No. ADM 91-1754). Rockville, MD: National Institute on Drug Abuse.
- De Leon, G. (1995). Therapeutic communities for addictions: A theoretical framework. *International Journal of the Addictions, 30*, 1603-1645.
- De Leon, G. (1996). Integrative recovery: A stage paradigm. *Substance Abuse, 17*, 51-63.
- De Leon, G., Holland, S., & Rosenthal, M. (1972). Phoenix House: Criminal activity of dropouts. *Journal of American Medical Association, 222*, 686-689.
- De Leon, G., Jainchill, N., & Hawke, J. N. (1996, August). *Enhancing short-term retention in therapeutic communities*. Paper presented at the Annual Meeting of the American Sociological Association, New York.
- De Leon, G., Melnick, G., Kressel, D., & Jainchill, N. (1994). Circumstances, motivation, readiness, and suitability (the CMRS scales): Predicting retention in therapeutic community treatment. *American Journal of Drug and Alcohol Abuse, 20*, 495-515.
- De Leon, G., & Schwartz, S. (1984). Therapeutic communities: What are the retention rates. *American Journal of Drug and Alcohol Abuse, 10*, 267-284.
- Farabee, D. J., Simpson, D. D., Dansereau, D. F., & Knight, K. (1995). Cognitive inductions into treatment among drug users on probation. *Journal of Drug Issues, 25*, 669-682.
- Field, G. (1989). The effects of intensive treatment on reducing the criminal recidivism of addicted offenders. *Federal Probation, 53*(10), 51-56.
- Field, G. (1992). Oregon prison drug treatment programs. In C. G. Leukefeld & F. M. Tims (Eds.), *Drug abuse treatment in prisons and jails* (NIDA Research Monograph 118, DHHS Publication No. ADM 92-1884). Rockville, MD: National Institute on Drug Abuse.

- French, M. T., Sacks, S., De Leon, G., Staines, G., & McKendrick, K. (1999). Modified therapeutic community for mentally ill chemical abusers: Outcomes and costs. *Evaluation and the Health Profession, 22*(1), 60-85.
- Gendreau, P. (1996). Offender rehabilitation: What we know and what needs to be done. *Criminal Justice and Behavior, 23*, 144-161.
- Gendreau, P., Goggin, C., & Law, M. A. (1996). Predicting prison misconducts. *Criminal Justice and Behavior, 24*, 414-431.
- Gendreau, P., Goggin, C., & Paparozzi, M. (1996). Principles of effective assessment for community corrections. *Federal Probation, 60*, 64-70.
- Gendreau, P., Little, T., & Goggin, C. (1996). A meta-analysis of the predictors of adult offender recidivism: What works! *Criminology, 34*, 575-607.
- Gerstein, D. R., & Harwood, H. J. (Eds.). (1990). *Treating drug problems: Vol. 1. A study of the evolution, effectiveness, and financing of public and private drug treatment systems* (Committee for the Substance Abuse Coverage Study Division of Health Care Services, Institute of Medicine). Washington, DC: National Academy Press.
- Hiller, M. L., Knight, K., Broome, K. M., & Simpson, D. D. (1996). Compulsory community-based substance abuse treatment and the mentally ill criminal offender. *The Prison Journal, 76*, 180-191.
- Hiller, M. L., Knight, K., Broome, K. M., & Simpson, D. D. (1998). Legal pressure and treatment retention in a national sample of long-term residential programs. *Criminal Justice and Behavior, 25*(4), 463-481.
- Hiller, M. L., Knight, K., Devereux, J., & Hathcoat, M. (1996). Posttreatment outcomes for substance-abusing probationers mandated to residential treatment. *Journal of Psychoactive Drugs, 28*(3), 291-296.
- Hiller, M. L., Knight, K., & Simpson, D. D. (1999). Prison-based substance abuse treatment, residential aftercare, and recidivism. *Addiction, 94*(6), 833-842.
- Hoffman, P. B. (1983). Screening for risk: A revised Salient Factor Score (SFS 81). *Journal of Criminal Justice, 11*, 539-547.
- Hoffman, P. B., & Beck, J. L. (1985). Recidivism among released federal prisoners: Salient Factor Score and five-year follow-up. *Criminal Justice and Behavior, 12*, 501-507.
- Holland, S. (1978). Gateway houses: Effectiveness of treatment on criminal behavior. *International Journal of the Addictions, 13*, 369-381.
- Hosmer, D. W., & Lemeshow, S. (1989). *Applied logistic regression*. New York: John Wiley.
- Hubbard, R. L., Marsden, M. E., Rachal, J. V., Harwood, H. J., Cavanaugh, E. R., & Ginzburg, H. M. (1989). *Drug abuse treatment: A national study of effectiveness*. Chapel Hill: University of North Carolina Press.
- Inciardi, J. A., Martin, S. S., Butzin, C. A., Hooper, R. M., & Harrison, L. D. (1997). An effective model of prison-based treatment for drug-involved offenders. *Journal of Drug Issues, 27*(2), 261-278.
- Joe, G. W., Knezek, L. D., Watson, D. D., & Simpson, D. D. (1991). Depression and decision-making among intravenous drug users. *Psychological Reports, 68*, 339-347.
- Joe, G. W., Simpson, D. D., & Broome, K. M. (1998). Effects of readiness for drug abuse treatment on client retention and assessment of process. *Addiction, 93*, 1177-1190.
- Knight, K., & Hiller, M. L. (1997). Community-based substance abuse treatment for probationers: 1-year outcome evaluation of the Dallas County Judicial Treatment Center. *Federal Probation, 61*(2), 61-68.
- Knight, K., Hiller, M. L., Broome, K. M., & Simpson, D. D. (in press). Legal pressure, treatment readiness, and engagement in long-term residential programs. *Journal of Offender Rehabilitation*.

- Knight, K., Holcom, M. L., & Simpson, D. D. (1994). *Psychosocial functioning and motivation scales manual*. Fort Worth: Texas Christian University, Institute of Behavioral Research. Available online at [www.ibr.tcu.edu](http://www.ibr.tcu.edu)
- Knight, K., Simpson, D. D., Chatham, L. R., & Camacho, L. M. (1997). An assessment of prison-based drug treatment: Texas' in-prison therapeutic community program. *Journal of Offender Rehabilitation, 24*(3/4), 75-100.
- Lipton, D. S. (1995). *The effectiveness of treatment for drug abusers under criminal justice supervision* (National Institute of Justice Research Report). Washington, DC: U.S. Department of Justice, Office of Justice Programs.
- Lipton, D. S., Pearson, F. S., Cleland, C., & Yee, D. (1998, February). *Synthesizing correctional treatment outcomes: Preliminary findings from CDATE*. Paper presented at the Office of Justice Programs/Corrections Program Office National Workshop on Assessing the Effectiveness of Corrections Programs, Chicago.
- MacKenzie, D. L. (1997). Criminal justice and crime prevention. In L. W. Sherman, D. Gottfredson, D. MacKenzie, J. Eck, P. Reuter, & S. Bushway (Eds.), *Preventing crime: What works, what doesn't, what's promising* ([AU: PAGE RANGE?]). College Park: University of Maryland.
- McCorkel, J., Harrison, L. D., & Inciardi, J. A. (1998). How treatment is constructed among graduates and dropouts in a prison therapeutic community for women. *Journal of Offender Rehabilitation, 27*, 37-59.
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19*, 2-21.
- Petersilia, J. (1995). A crime control rationale for reinvesting in community corrections. *Prison Journal, 75*, 479-496.
- Pompi, K. F., & Resnick, J. (1987). Retention in court-referred adolescents and young adults in the therapeutic community. *International Journal of the Addictions, 13*, 309-325.
- Ravndal, E., & Vaglum, P. (1991). Psychopathology and substance abuse as predictors of program completion in a therapeutic communities for drug abusers: A prospective study. *Acta Psychiatrica Scandinavica, 83*, 217-222.
- Sacks, S., Sacks, J. Y., & De Leon, G. (1999). Treatment for MICAs: Design and implementation of the modified TC. *Journal of Psychoactive Drugs, 31*(1), 19-30.
- Sansone, J. (1980). Retention patterns in a therapeutic community for the treatment of drug abuse. *International Journal of the Addictions, 15*, 711-736.
- Shwartz, M., Mulvey, K. P., Woods, D., Brannigan, P., & Plough, A. (1997). Length of stay as an outcome in an era of managed care: An empirical example. *Journal of Substance Abuse Treatment, 14*, 11-18.
- Simpson, D. D. (1979). The relation of time spent in drug abuse treatment to posttreatment outcome. *American Journal of Psychiatry, 136*, 1449-1453.
- Simpson, D. D. (1981). Treatment for drug abuse: Follow-up outcomes and length of time spent. *Archives of General Psychiatry, 38*, 875-880.
- Simpson, D. D., Dansereau, D. F., & Joe, G. W. (1997). The DATAR project: Cognitive and behavioral enhancements to community-based treatments. In F. M. Tims, J. A. Inciardi, B. W. Fletcher, & A. M. Horton, Jr. (Eds.), *The effectiveness of innovative approaches in the treatment of drug abuse* (pp. 182-203). Westport, CT: Greenwood.
- Simpson, D. D., & Joe, G. W. (1993). Motivation as a predictor of early dropout from drug abuse treatment. *Psychotherapy, 30*, 357-368.
- Simpson, D. D., Joe, G. W., Broome, K. M., Hiller, M. L., Knight, K., & Rowan-Szal, G. A. (1997). Program diversity and treatment retention rates in the Drug Abuse Treatment Outcome Study (DATOS). *Psychology of Addictive Behaviors, 11*, 279-293.

- Simpson, D. D., Joe, G. W., & Brown, B. S. (1997). Treatment retention and follow-up outcomes in the Drug Abuse Treatment Outcome Study (DATOS). *Psychology of Addictive Behaviors, 11*, 294-307.
- Simpson, D. D., Knight, K., & Hiller, M. L. (1997, January). *TCU/DCJTC forms manual: Intake and during-treatment assessments*. Fort Worth: Texas Christian University, Institute of Behavioral Research. Available online at [www.ibr.tcu.edu](http://www.ibr.tcu.edu)
- Sirotnik, K. A., & Roffe, M. W. (1977). An investigation of the feasibility of predicting outcome indices in the treatment of heroin addiction. *International Journal of the Addictions, 12*, 755-775.
- Teplin, L. A. (1994). Psychiatric and substance abuse disorders among male urban jail detainees: Comparison with the epidemiologic catchment area program. *American Journal of Public Health, 80*, 663-669.
- Walters, G. D. (1990). *The criminal lifestyle: Patterns of serious criminal conduct*. Newbury Park, CA: Sage.
- Walters, G. D. (1991). Predicting the disciplinary adjustment of maximum and minimum security prison inmates using the Lifestyle Criminality Screening Form. *International Journal of Offender Therapy and Comparative Criminology, 35*, 63-71.
- Walters, G. D. (1996). The Psychological Inventory of Criminal Thinking Styles: Part III. Predictive validity. *International Journal of Offender Therapy and Comparative Criminology, 40*, 105-112.
- Walters, G. D. (1997). A confirmatory factor analysis of the Lifestyle Criminality Screening Form. *Criminal Justice and Behavior, 24*, 294-308.
- Walters, G. D. (1998). The Lifestyle Criminality Screening Form: Psychometric properties and practical utility. *Journal of Offender Rehabilitation, 27*, 9-23.
- Walters, G. D., & Elliott, W. N. (1999). Predicting release and disciplinary outcome with the Psychological Inventory of Criminal Thinking Styles: Female data. *Legal and Criminological Psychology, 4*(1), 15-21.
- Walters, G. D., & McDonough, J. R. (1998). The Lifestyle Criminality Screening Form as a predictor of federal parole/probation/supervised release outcome: A 3-year follow-up. *Legal and Criminological Psychology, 3*, 173-181.
- Walters, G. D., White, T. W., & Denney, D. (1991). The Lifestyle Criminality Screening Form: Preliminary data. *Criminal Justice and Behavior, 18*, 406-418.
- Wexler, H. K., & De Leon, G. (1977). The therapeutic community: Multivariate prediction of retention. *American Journal of Drug and Alcohol Abuse, 4*, 145-151.
- Wexler, H. K., De Leon, G., Thomas, G., Kressel, D., & Peters, J. (1999). The Amity prison TC evaluation: Reincarceration outcomes. *Criminal Justice and Behavior, 26*(2), 147-167.
- Wexler, H. K., Falkin, G. P., & Lipton, D. S. (1990). Outcome evaluation of a prison therapeutic community for substance abuse treatment. *Criminal Justice and Behavior, 17*, 71-92.
- Wexler, H. K., Falkin, G. P., Lipton, D. S., & Rosenblum, A. B. (1992). Outcome evaluation of a prison therapeutic community for substance abuse treatment. In C. G. Leukefeld & F. M. Tims (Eds.), *Drug abuse treatment in prisons and jails* (NIDA Research Monograph 118, DHHS Publication No. ADM 92-1884). Rockville, MD: National Institute on Drug Abuse.