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Staying in Treatment: How Much Difference is There From Prison to Prison?

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Abstract

This is the first study which examines the effects of individual and program level characteristics on treatment attrition within a prison-based setting. The sample of 1,446 men and women were from19 programs. Differences were found in both individual and program level predictors of disciplinary discharges and drop outs. Drop outs were more likely to be women and enter treatment with lower levels of motivation. Individuals who were disciplinary discharges from treatment were more likely to be young, have a history of violence and have a diagnosis of antisocial personality. Only one program factor – an emphasis on disciplinary discharge for violation of program rules – was associated with disciplinary discharge. The clinical implications of these findings are discussed.

Staying in Treatment: How Much Difference is There From Prison to Prison?

The interest in treatment retention within drug treatment programs has been influenced by the finding that length of stay in treatment is the single strongest predictor of post-program success. Previous research conducted in the "free world" shows that treatment retention is associated with more favorable post-treatment outcomes: lower drug and alcohol use, reduced criminal activity, and increased employment (Condelli & Hubbard, 1994; Gossop, Marsden, Stewart, & Rolfe, 1999; Grella, Hser, Joshi, & Anglin, 1999; Hubbard et al., 1989; Joshi, Grella, Hser, & Anglin, 1999; Simpson, Joe, & Brown, 1997; Simpson, Joe, Fletcher, Hubbard, & Anglin, 1999).[1] Very little, though, is known about the predictors of treatment retention within prison settings. Only one study of treatment retention has been conducted in a prison setting, and that study considered only a single site (De Leon, Melnick, Thomas, Kressel, & Wexler, 2000). The purpose of this study is to identify individual as well as program characteristics which predict treatment retention within a multi-site prison-based program context. In so doing, we present an alternative conceptualization of treatment retention which fits treatment delivery patterns within prison-based settings and which improves our understanding of clinical issues in prison settings.

Measures of Program Tenure

The most common measure of retention in the free world is either a continuous measure of the number of days in treatment (Monras & Gual, 2000; Roberts & Nishimoto, 1996) or a categorical measure indicating whether the subject remained in the program beyond a specific threshold. The thresholds vary by modality and are as high as 365 days for long-term residential treatment. In a prison setting, though, residential drug treatment programs generally have a predetermined length set by program administrators, and individuals are not considered as

having completed the program unless they complete all components (Field, 1992; Knight, Simpson, & Hiller, 1999; Martin, Butzin, Saum, & Inciardi, 1999; Wexler, Melnick, Lowe, & Peters, 1999). Because of these clear expectations, status at discharge is a more appropriate measure of treatment retention in a prison setting than time in treatment.

Our measure of treatment retention includes three categories: treatment completers, those who voluntarily dropped out of treatment, and those who were discharged for disciplinary infractions. Intuitively, the processes leading to voluntary termination and discharge for a disciplinary infraction are dissimilar, so we modeled the responses separately. We excluded 171 individuals who did not complete the residential drug treatment program due to circumstances beyond their control: they were released to a halfway house or from custody before they could complete the program.

Predictors of Treatment Retention

Many studies of drug treatment retention in the free world focus on client-level predictors, more notably "fixed" (e.g., immutable) social history characteristics such as age, race, gender, education, and criminal history (Agosti, Nunes, & Ocepeck-Welikson, 1996; Fishman & Reynolds, 1999; Hiller, Knight, Broome, & Simpson, 1998; Hubbard et al., 1989; Knight, Logan, & Simpson, 2001; Rowan-Szal, Joe, & Simpson, 2000; Sansone, 1980; Veach, Remley, Kippers, & Sorg, 2000). For the most part, research has failed to demonstrate large effects of fixed client variables on retention across treatment modalities (Condelli & DeLeon, 1993; De Leon et al., 2000). As a result, research attention has shifted to dynamic client-level factors.

Motivation is the most commonly examined dynamic characteristic, and the findings across studies are consistent, despite differences in measures used. Higher levels of motivation

are associated with a greater likelihood of retention in treatment in community-based studies and in the one prison-based study (De Leon & Jainchill, 1986; De Leon et al., 2000; Prochaska, 1984; Ryan, Plant, & O'Malley, 1996; Simpson & Joe, 1993; Simpson, Joe, & Rowan-Szal, 1997).

Recently, increasing attention has been given to characteristics of the programs themselves and how these characteristics affect treatment retention. Drug treatment programs are recognized as diverse with respect to factors such as staff education and experience, therapeutic approaches employed, client populations served, and sources of funding (Anglin & Hser, 1990; Hser et al., 1998; Hubbard et al., 1989). Research incorporating program characteristics consistently finds that variation in treatment retention is partially explained by these types of factors (Brown, Joe & Thompson, 1986; Chou, Hser & Anglin, 1998; Hser et al., 1998; Orwin & Ellis, 2000; Simpson et al., 1997).

Purpose of Study

Because little is known about treatment retention in prison settings and because there are no studies of program differences in prison-based settings, this study examines retention within the context of a multi-site evaluation of prison-based drug treatment programs. We first assess whether there are individual predictors of voluntary termination and involuntary discharge for disciplinary infractions. Both groups of non-completers are compared to treatment completers. We then assess whether there are differences in the program sites examined here in the two types of treatment non-completion, and if such variation exists, we try to determine which program factors are associated with treatment non-completion.

Methods

Sample

Individuals included in this study were participants in a multi-site evaluation of Federal prison-based residential drug treatment programs (for more details about the sample and drug treatment programs see Pelissier et al., 2001; Rhodes et al., 2001). Treatment subjects were drawn from 20 prisons, 16 prisons for men and 4 for women, and included subjects admitted between 1991 and 1995. The prisons included minimum-, low-, and medium-security levels. Analyses were limited to 19 of the 20 programs because data were not available from one program. The sample size for each program ranged from a low of 17 to a high of 157. The variation in sample size by program site was due to the fact that at the outset of program implementation there were only seven programs. Thus, programs implemented at later points in time had fewer subjects. The total sample size consisted of 1,446 individuals, 1,175 men and 271 women.[2] As noted above, 171 individuals were dropped from the analysis because they left prison before completing the treatment program.

Exogenous Measures

Individual and program level predictors were selected from among those used in previous studies. The individual level predictors were obtained from automated databases and from confidential interviews and surveys administered to the research subjects using written informed consent procedures. Research staff administered the interviews and surveys within several weeks of admission to the drug treatment program. Background characteristics used as individual level predictors in our models included race (African-American, white, other), ethnicity (Hispanic or not), age at time of admission to treatment, educational level (highest grade completed), ever legally married (yes/no), prior commitments in the Bureau of Prisons (yes/no), history of a conviction for a violent offense (yes/no),[3] gender,[4] and employment status in the month before incarceration (employed, unemployed, not in work force). The individual level predictors related

to drug use included a series of dummy variables indicative of type of daily drug use in the year before arrest and history of previous drug treatment. Psychological predictors consisted of measures of DSM-III-R diagnoses of antisocial personality and depression (American Psychiatric Association, 1987). The diagnoses were obtained using the Diagnostic Interview Schedule (DIS) which has been found to be reliable and valid in both institutionalized and non-institutionalized populations (Helzer, et al., 1985; Robins, Helzer, Croughan, & Ratcliff,1981; Robins, Helzer, Ratcliff & Seyfried, 1982). Lastly, we included two measures of motivation, indicators of both internal and external motivation (e.g., incentives). The measure of internal motivation was the total score for the Change Assessment Survey (Prochaska & DiClememte, 1986). A measure of external motivation classified individuals according to whether or not the individual was admitted to treatment at a time when it was possible to receive up to a one year reduction in their sentence for successful completion of treatment.[5] We used dummy coding for all categorical predictors as indicated in Table 1.

Missing data for level-1 covariates were estimated using the SAS multiple imputation (MI) procedure. The Markov Chain Monte Carlo (MCMC) algorithm provides maximum likelihood estimates for missing data (Allison, 2002; Little & Rubin, 1987; Schafer,1997). Using five complete data sets with independent imputations of the missing data, the statistical analyses (described below) were conducted five times. The results report coefficients and other model statistics which represent the average across the five analyses (Little & Rubin, 1987; Schafer, 1997).[6]

Program level variables were obtained from annual surveys administered to all drug treatment staff at the 19 programs in 1992, 1993, and 1994. Since data were collected over several years, it was important to ensure that the measures represented stable environmental

factors for each program. Therefore, items selected for the analyses were limited to those items which had very similar mean ratings within a particular program across two or more years for which data was available *and* which simultaneously varied across programs.

The program factors represent three different topical areas: staff experience, therapeutic involvement and support of program participants, and pressure to adhere to program rules and progress in treatment. The average number of years of previous counseling experience was used as the indicator of staff experience. There were four indicators of therapeutic involvement and support of program participants: the level of inmate involvement in the development of the treatment plan, the frequency of individual counseling (most of the treatment was delivered in a group context), the degree of program emphasis on supportive individual sessions, and the extent to which the program's initial orientation emphasized the development of trust, self-confidence and understanding without attempting to focus on previous behaviors and attitudes. The pressure for adherence to program rules was measured by the following four items: the degree to which staff felt that the program required inmates to conform to the program goals and rules, the degree to which peer pressure was used to induce inmates to conform to program rules and goals, the extent to which violation of program rules was an important reason for program expulsion, and the extent to which lack of progress in the program was an important reason for program discharge.

Analytic Methods

If service delivery and program philosophies and goals vary across programs, it is likely that there is correlation in treatment completion among individuals from the same program. Thus, we cannot assume independence across individuals, as is required by general linear

models. Multi-level or hierarchical linear modeling (HLM) techniques correct for the nesting of individuals within specific groupings, in this case inmates nested within different treatment programs. HLM models also allow for the simultaneous assessment of client- and program-level characteristics on outcomes of interest (Goldstein, 1995; Raudenbush & Bryk, 2002). The complete HLM equation can be separated into representations of the two levels (of client and program attributes) even though both levels are estimated simultaneously in practice. The models described below were estimated with the multinomial HGLM procedure in HLM (Raudenbush, Bryk, Cheong, & Congdon, 2000).

At level-1, the HLM equation looks very much like a specification of the logistic regression model with important exceptions. First, the intercept for each treatment program, represented by π_{0j}, is a random variable. Also, there is an error term built into the model although that is not directly obvious in the level-1 equation. The error term, represented by u_{0j} in the level-2 equation, is associated with the clustering unit, in this case the different treatment programs. The u_{0j} terms are the average effects of the respective *j* treatment programs in lowering or raising the probability (transformed by the logit) of terminating treatment. The *i* subscript references the *i* individuals within the *j* treatment programs. The probabilities modeled in separate equations were those of voluntary non-completion and non-completion because of disciplinary discharge.

Level 1: $$\log\left[\frac{prob(Y_{ij} = 1)}{1 - prob(Y_{ij} = 1)}\right] = \pi_{0j} + \sum \pi X_{ij}$$

The second level equation demonstrates how the level-1 random coefficient was modeled. The only level-1 random coefficient considered here is the intercept. The intercepts at

each institution are a combination of the overall intercept (β_{00}), the sum of the effects of the level-2 variables ($\Sigma\beta W$), and the unique contribution of each treatment program (u_{0j}).

Level 2: $$\pi 0_j = \beta 00 + \sum \beta W + u_{0j}$$

In this study of program retention, the HLM models were used to address two questions. First, was there program variation in treatment non-completion after controlling for individual characteristics? Second, if there was such variation, which, if any, of the specific program attributes measured explain these variations? To address these questions, the analysis proceeded in two steps. In the first analysis, we entered only level-1, that is, client predictors. The model provided the base from which we assessed whether there was statistically significant variation around the overall intercept created by systematic differences at the treatment sites. In the second step, we also entered level-2 predictors into the models to see if we could explain this variance.

Results

Treatment retention was quite high in our sample. Excluding those who did not complete treatment for reasons beyond their control, we found that 84 percent completed treatment. A greater percentage of non-completers were discharged for disciplinary reasons (10 percent) than voluntarily dropped out of treatment (6 percent). Almost half (45 percent) of those who were disciplinary discharges were removed from the program within the first 5 months of entering treatment, and some were discharged in the last few months of treatment. In contrast, those who dropped out did so sooner: more than half dropped out within the first 3 months of treatment. Treatment retention varied considerably across programs, with the percent completing treatment ranging from 56 to 97 percent. Disciplinary discharge rates across programs ranged between 0 and 24 percent and dropout rates ranged between 0 and 30 percent.

Descriptive statistics for the independent variables used at level-1 of the models are presented in Table 1. We present the statistics for the level-1 predictor variables as they are coded in the HLM analyses.[7] As can be seen in Table 1, there was considerable variability for the predictors included in the models. Table 1 also provides descriptive statistics for the program (level-2) variables. Staff experience was rated on a five-point scale ranging from no experience to 4 or more years of experience. The mean of 3.19 indicated that on average, staff had 1 to 2 years of previous counseling experience. The scales for the program support variables were measured with 3- and 5-point scales. The mean of 2.8 for frequency of individual counseling (scale of 1 to 5) indicated that on average, programs provided individual treatment more than once per month but less than once per week. As for the involvement of program participants in treatment planning, the mean of 2.9 on a 3-point scale of 2 (*some extent*) to 4 (*very great extent*) indicated that programs on average involved participants to a great extent. On average, programs reported a moderate emphasis on supportive individual counseling ($\bar{x}$=3.3) and programs emphasized the development of trust and self-confidence slightly less than to a great extent ($\bar{x}$=2.8).

The indicators of rule conformity were all measured on a 4-point scale ranging from 1 (*not at all*) to 4 (*to a very great extent*). The two items with the lowest means ($\bar{x}$=2.3) were the extent to which peer pressure was used to induce conformity and the emphasis on removal for lack of progress. Greater emphasis was placed on program removal for violation of program rules as evidenced by a mean of 2.7 across the 19 programs. The highest mean ($\bar{x}$=3.4) occurred for the degree of emphasis placed on obeying program rules and adhering to rules.

Level 1 Only Models

As can be seen in Table 2, there was significant variation in intercepts of the models for voluntary discharge and disciplinary discharge after controlling for the level-1 covariates. For both outcomes, the variance associated with a random specification of the respective intercepts was significant at $p < 0.000$ (see the variance terms). Nonetheless, the reliabilities of the deviations from the intercepts, 0.513 for disciplinary discharges and 0.524 for voluntary discharges, were not high enough that the treatment sites could be confidently ranked on their contributions to raising or lowering voluntary and disciplinary discharge.

Complete Models

Because of the limitations created by the low number of degrees of freedom -- there were only 19 program sites available for analysis – not all of the level-2 variables were entered into one model simultaneously. Instead, different models were run with different subsets of level-2 variables as based upon substantive groupings of the variables. From these preliminary models, in what can only be described as an exploratory analysis, the plan was to develop a final model with only those level-2 variables identified in the preliminary runs. As discussed below, it was not necessary to combine variables from the different subsets of level-2 covariates.

Three models with subsets of level-2 covariates were considered, models with variables for (1) program support, (2) adherence to rules, and (3) staff experience. None of the four variables considered for program support (frequency of individual counseling, the degree to which program orientation emphasized the development of trust, self-confidence, and understanding, the degree of emphasis upon supportive individual sessions, and the extent the individual was involved in treatment planning) were statistically significant for either the model of disciplinary discharge or voluntary discharge. For the rule conformity variables, only one variable was significant, level of support for removing inmates from treatment for program

violations, and it was significant only in predicting disciplinary discharge. The other three variables that were conceptually related to rules had no significant effect, the degree to which staff felt that the program required inmates to conform to program goals and rules, the emphasis for removal upon lack of progress, and peer pressure used to ensure conformity. Finally, the models of disciplinary and voluntary discharge where staff experience was entered as a level-2 covariate did not show a significant effect. Given these results, only the model containing the rules conformity variables at level-2 are presented in Table 3.

The only changes to the substantive interpretation of the level-1 covariates created by introducing the program-level covariates were noted for the effect of gender and use of one hard drug upon disciplinary discharges. Unlike the model with only level-1 covariates, being female had no statistically significant impact upon increasing the likelihood of being discharged for a disciplinary infraction once the rules variables were controlled for at level-2. Being female did increase the probability of voluntarily terminating treatment. In contrast, unlike the model with only level-1 covariates, a prior history of daily substance use of only one hard drug increased the likelihood of receiving a disciplinary discharge. We note, however, that this variable was near significance in the model with only level 1 covariates.

Age at treatment was negatively related to disciplinary discharge. Younger inmates were more likely to receive a disciplinary discharge. Age, however, was not significant in the model comparing treatment completers and voluntary discharges. Past violence had the expected relationship upon disciplinary discharge. Having a history of past violence increased the likelihood of receiving a disciplinary discharge. This relationship was not observed for predicting voluntary discharge.

For the attitudinal and mental health measures, the results were as expected for predicting disciplinary and voluntary discharge for those variables found to have a statistically significant effect. Having a diagnosis of antisocial personality or diagnoses of both depression and antisocial personality were positively related to having a disciplinary discharge. However, neither of these variables predicted voluntary discharge in comparison to treatment completion. For voluntary discharge, our measure of internal motivation for change – the Change Assessment Survey – was negatively related to voluntary discharge. A higher motivation score was associated with a lower likelihood of voluntary discharge.

Discussion

Although treatment retention in prison-settings can be high, as was the case in our study of Federal residential drug treatment programs, the results of this multi-site study of treatment retention showed that there were both individual level and program level predictors of treatment non-completion. Not only were there factors predictive of treatment non-completion, we were able to identify individual and program level factors predictive of treatment non-completion due to disciplinary discharge which are distinct from those predictive of non-completion due to voluntary dropping out of treatment. Individual level factors such as age and motivation which have previously been found to be predictive of treatment tenure were found to be predictive of only one type of treatment non-completion. The different predictors for each of the two types of treatment non-completion point to programmatic procedures which could be adopted to enhance treatment retention within prison-based settings. Such clinical implications would have been masked if we had not differentiated between the two types of program non-completion.

At the individual level, disciplinary discharge was associated with various indicators of "acting-out" behavior: age, history of violence and having a lifetime diagnosis of antisocial

personality. Younger individuals, those with a history of violence and those with a diagnosis of antisocial personality were more likely to be discharged for disciplinary reasons. These individuals are likely to respond to stress in an impulsive and aggressive manner. The results point to the need for clinicians to pay special attention to both men and women at risk of acting out and focus on teaching them how to control their behavior. Disciplinary discharges occurred at various times throughout treatment, indicating that this focus should start as early as possible and continue throughout treatment.

Motivation for change and gender were predictive of dropping out of treatment. Individuals with higher levels of motivation for change recognized that they had a problem and were willing to take action to resolve the problem by remaining in treatment. In contrast, women were more likely to drop out of treatment. Efforts at increasing motivation should occur early in the treatment process since more than half of those who dropped out did so in the first three months. The emerging literature on motivational interviewing provides some suggestions regarding increasing client motivation through client-center techniques which elicit motivation to change from within the client (Miller & Rollnick, 1991; Stotts, Schmitz, Rhoades, & Grabowski, 2001) rather than through direct confrontation of an individual's denial of a substance abuse.

Motivational interviewing techniques have been shown to increase attendance at treatment sessions and increase the likelihood of treatment completion among individuals who had lower initial motivation (Martino, Carroll, O'Malley, & Rousaville, 2000; Stotts et al., 2001). Where treatment resources are limited, screening tools could be used to deny acceptance into treatment until an individual meets a minimal threshold score. Those who have scores below the

threshold level can be diverted to a program which uses motivational interviewing techniques and thus better prepares the individual for treatment tenure.

While limited previous research indicates that both external and internal motivation are associated with treatment retention (Ryan et al., 1996), we found that once an individual enters treatment, internal motivation seems to be most important. One of our previous studies which examined factors predictive of treatment entry as well as treatment entry *and* completion showed that, among men, external motivation was a significant predictor of both (Pelissier, 2002). Thus, external motivation may be more important for enticing individuals to enter treatment.

As for our finding of women having a greater likelihood of dropping out of treatment, further research is needed. Because we could not simultaneously examine gender as an individual level factor and program level factor, the results may represent program differences and not individual differences. Anecdotal information indicated that some of the women's programs had more rigorous requirements than men's programs; this may have discouraged women.

Consistent with previous multi-site research, we found that after controlling for individual characteristics, program characteristics were associated with treatment retention. Despite the standardized content of the Federal prison treatment programs, our results highlight the importance of program implementation. There were differences across programs in philosophy and program procedure. For example, programs differed in the level of experience of staff, the level of therapeutic involvement and support of program participants, and the extent to which adherence to rules was emphasized. That there was variation across programs in treatment non-completion – for both types of non-completion – after controlling for individual level

characteristics points to the importance of program implementation, above and beyond program content.

Although we were able to identify only one program factor predictive of disciplinary discharge and no program factor predictive of dropping-out of treatment, our staff survey likely did not measure all theoretically relevant program implementation factors. Furthermore, some of our measures may not have been sufficiently sensitive to detect variation across programs. For some measures, there was considerable variation within a site from year to year precluding their use. Since programs change over time, identifying similar program conditions can be a challenging task. We also note that program perceptions provided by program participants or observers would also be required to further validate our findings.

As noted by Hser et al (1998), there is virtually no research on the association between program philosophy and client outcomes. Therefore, we conclude by encouraging research which will develop a theoretical perspective identifying program factors predictive of treatment retention in both the free world and prison-based treatment programs.

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Footnotes

[1] "Free world" simply refers to individuals who are not incarcerated for a criminal offense.

[2] 90 percent of inmates approached as study participants agreed. Additional analyses did not find any background characteristics associated with refusal.

[3] Adjudicated convictions for violent acts were counted whether they were from a formal sentence of the court (other than current sentence), a parole violation, or a disciplinary hearing within a state or federal prison.

[4] One reviewer suggested conducting separate analyses for men and women since men and women were segregated in separate treatment programs. This would have been a viable approach if there were sufficient female program sites for analysis. Since there were not, we included the female sites with the male sites to keep from losing the information on females. Keeping males and females in the same analysis may be appropriate as male and female BOP drug treatment programs were designed to be as similar as possible.

[5] In 1994, during the data collection phase, an incentive for program participation was established with passage of the 1994 Violent Crime Control and Law Enforcement Act (VCCLEA). This law provided the opportunity for offenders without a history of violence to receive up to 12 months of sentence reduction for successful completion of treatment.

[6] Three of the six level-1 predictor variables had more than 10 cases with missing data. The percent missing data ranged from 3 percent for employment (n=41), seven percent for the diagnoses of depression and antisocial personality (n=97) and 29 percent for one of the subscales of the Change Assessment Survey (n=415). With up to 30 percent missing data, 5 imputations provides a relative efficiency of .94 (Rubin, 1987).

[7] Means for dummy variables are equivalent to proportions.

Table 1. Descriptive Statistics for Individual and Program Level Covariates

Variable	Mean	S. D.
LEVEL-1 (INDIVIDUAL) COVARIATES (n=1,446)		
EDUCATIONAL LEVEL	11.996	2.254
AFRICAN-AMERICAN (White:Referent)	0.331	0.471
OTHER RACE (White:Referent)	0.035	0.185
FEMALE (1=Female)	0.187	0.390
HISPANIC (1=Hispanic)	0.120	0.325
PRIOR COMMITMENT (1=Yes)	0.613	0.487
PREVIOUS DRUG TREATMENT (1=Yes)	0.342	0.474
EVER LEGALLY MARRIED (1=Yes)	0.391	0.488
AGE AT TIME OF ADMISSION TO TREATMENT	35.511	8.562
CHANGE ASSESSMENT SURVEY SCORE	9.526	1.757
EMPLOYED AT INCARCERATION (Unemp. & Not Looking: Rererent)	0.535	0.499
NOT IN WORK FORCE (Unemp. & Not Looking:Referent)	0.044	0.204
UNEMPLOYED/LOOKING FOR WORK (Unemp. & Not Looking:Referent)	0.086	0.280
AVAILABILITY OF YEAR OFF PROVISION (1=Yes)	0.141	0.348
MARIJUANA USE ONLY (No Daily Use:Referent)	0.126	0.332
USE OF ONE HARD DRUG ONLY (No Daily Use: Referent)	0.247	0.431
USE OF TWO + HARD DRUGS (No Daily Use: Referent)	0.102	0.302
DIAGNOSIS OF DEPRESSION ONLY (No Diagnosis: Referent)	0.104	0.305
DIAGNOSIS OF ASP ONLY (No Diagnosis:Referent)	0.248	0.432
DIAGNOSIS OF ASP & DEPRESSION (No Diagnosis: Referent)	0.082	0.275
HISTORY OF PAST VIOLENCE (1=Yes)	0.395	0.489

Table 1. Descriptive Statistics for Individual and Program Level Covariates - Continued

Variable	Mean	S. D.
LEVEL-2 (INSTITUTIONAL) COVARIATES (n=19)		
REQUIRED TO OBEY PROGRAM RULES	3.405	0.359
EMPHASIS ON PROGRAM REMOVAL: PROGRAM VIOLATION	2.739	0.510
EMPHASIS ON PROGRAM REMOVAL: LACK PROGRESS	2.308	0.466
PEER PRESSURE USED TO INDUCE CONFORMITY	2.351	0.337
DRUG COUNSELING EXPERIENCE (IN YEARS)	3.197	0.582
PARTICIPANT INVOLVEMENT IN TREATMENT PLAN	2.937	0.442
EMPHASIS ON SUPPORTIVE INDIVIDUAL COUNSELING	3.303	0.435
FREQUENCY OF INDIVIDUAL COUNSELING	2.760	0.571
EMPHASIS ON DEVELOPMENT OF TRUST/SELF-ESTEEM	2.799	0.358

Note. Level-1 variables without an indication of coding or a referent category are continuous measures. Means for the level-1 dummy variables are equivalent to proportions.

Table 2. HLM Base Model Predicting Treatment Non-Completion From Individual Level Predictors

	Disciplinary Discharge			Drop-Out		
	Coeff.		SE	Coeff.		SE
INTERCEPT	-2.672		0.202	-3.065		0.255
LEVEL OF EDUCATION	-0.035		0.046	-0.012		0.054
AFRICAN-AMERICAN	0.193		0.214	-0.029		0.278
OTHER RACE	0.194		0.528	0.806		0.513
FEMALE	0.845	*	0.390	1.611	*	0.487
HISPANIC	0.398		0.300	-0.155		0.395
PRIOR COMMITMENT	0.381		0.228	0.085		0.271
PREVIOUS DRUG TREATMENT	0.219		0.202	0.020		0.262
EVER LEGALLY MARRIED	0.214		0.211	0.327		0.267
CHANGE ASSESSMENT SURVEY SCORE	-0.019		0.058	-0.178	*	0.068
EMPLOYED AT INCARCERATION	-0.065		0.210	-0.123		0.272
NOT IN WORK FORCE AT INCARCERATION	0.406		0.442	0.785		0.477
UNEMPLOYED AT INCARCERATION	-0.052		0.349	0.020		0.450
AVAILABILITY OF YEAR OFF PROVISION	-0.139		0.305	0.585		0.338
AGE AT TIME OF ADMISSION TO TX.	-0.055	*	0.015	-0.008		0.016
DAILY MARIJUANA USE ONLY	0.308		0.297	-0.559		0.453
DAILY USE OF ONE HARD DRUG ONLY	0.413		0.229	0.012		0.299
DAILY USE OF TWO + HARD DRUGS	0.051		0.334	0.210		0.390
DIAGNOSIS OF DEPRESSION ONLY	0.073		0.370	0.534		0.342
DIAGNOSIS OF ASP ONLY	0.470	*	0.223	-0.209		0.320
DIAGNOSIS OF ASP & DEPRESSION	1.038	*	0.290	0.091		0.440
HISTORY OF PAST VIOLENCE	0.596	*	0.221	0.361		0.289
* p<=.05						
Reliability:	0.513			0.524		
Variance	0.220	χ^2=83.18		0.383	χ^2=83.21	
	18 df			18 df		

Table 3. HLM Model Predicting Treatment Non-Completion From Individual & Program Level Predictors

	Disciplinary Discharge		Drop-Out	
	Coeff.	SE	Coeff.	SE
Level-2 (Institutional) Covariates				
INTERCEPT	-3.600	0.356	-3.533	0.454
REQUIRED TO OBEY PROGRAM RULES	-0.512	0.487	-1.469	0.861
EMPHASIS ON PGM. REMOVAL: RULE VIOLATION	1.357*	0.470	0.685	0.697
EMPHASIS ON PGM. REMOVAL: LACK PROGRESS	0.150	0.356	0.745	0.630
PEER PRESSURE USED TO INDUCE CONFORMITY	0.570	0.429	0.401	0.774
Level-1 (Individual) Covariates				
EDUCATIONAL LEVEL	-0.030	0.046	-0.019	0.055
AFRICAN-AMERICAN	0.149	0.215	-0.018	0.281
OTHER RACE	0.193	0.533	0.811	0.521
FEMALE	0.233	0.393	1.170 *	0.568
HISPANIC	0.410	0.302	-0.178	0.399
PRIOR COMMITMENT	0.394	0.229	0.066	0.273
PREVIOUS DRUG TREATMENT	0.201	0.203	0.001	0.263
EVER LEGALLY MARRIED	0.233	0.213	0.330	0.268
CHANGE ASSESSMENT SURVEY SCORE	-0.031	0.058	-0.174 *	0.069
EMPLOYED AT INCARCERATION	-0.118	0.210	-0.103	0.273
NOT IN WORK FORCE AT INCARCERATION	0.392	0.443	0.826	0.481
UNEMPLOYED AT INCARCERATION	-0.082	0.351	0.048	0.452
AVAILABILITY OF YEAR OFF PROVISION	-0.201	0.304	0.518	0.350
AGE AT TIME OF ADMISSION TO TREATMENT	-0.055*	0.015	-0.008	0.016
DAILY MARIJUANA USE ONLY	0.318	0.300	-0.564	0.454
DAILY USE OF ONE HARD DRUG ONLY	0.469*	0.229	0.050	0.298
DAILY USE OF TWO + HARD DRUGS	0.089	0.334	0.213	0.392
DIAGNOSIS OF DEPRESSION ONLY	0.044	0.377	0.495	0.345
DIAGNOSIS OF ASP ONLY	0.458*	0.225	-0.266	0.323
DIAGNOSIS OF ASP & DEPRESSION	1.069*	0.291	0.079	0.438
HISTORY OF PAST VIOLENCE	0.532*	0.224	0.335	0.292
*p<=.05				
Reliability	.309		.532	
Variance	0.087	χ^2=285.00	0.431	χ^2=113.76
	14 df		14 df	

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