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Race/Ethnic Disparities in the Utilization of Treatment for Drug Dependent Inmates in U.S. State Correctional Facilities

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Abstract

This study examines race/ethnic disparities in treatment for drug dependent inmates in state correctional facilities. The data come from the 2004 Survey of Inmates in State Correctional Facilities. Fixed effects logistic regression is used to analyze treatment outcomes for 5,180 inmates housed within 286 prisons. The analysis accounts for differences in background characteristics (i.e., age, gender, marital status, foreign born status, veteran status), socioeconomic characteristics (i.e., education, employment prior to incarceration), mental health (i.e., diagnosis with a serious mental illness), and incarceration experiences (i.e., current conviction, previous incarceration episodes, time served, additional sentencing requirements, external social support, disciplinary violations). The findings identify a remarkable unmet need among drug dependent inmates in that less than one-half of drug dependent inmates had received any type of treatment in prison at the time of the interview with the most common treatment type being self-help groups. Compared to whites, drug dependent Latino inmates have significantly lower odds of utilizing treatment, yet there are no significant black-white disparities found. Implications for drug treatment within prisons are discussed.

Keywords

Drug Dependence; Treatment; Race Disparities; Prison; Prisoners

Contributors
The author was responsible for the design, analysis, interpretation and writing of this manuscript.

Conflict of Interest
The author declares no conflict of interest.

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1. Introduction

The U.S. state and federal prison population has grown from fewer than 200,000 inmates in 1972 to 1,537,415 inmates at midyear 2011 (Carson & Sabol, 2012). The United States now has the highest rate of imprisonment (756 per 100,000) of any country in the world (International Centre for Prison Studies, 2008). Mass incarceration of Americans began in earnest in the 1980s, attributed largely to the War on Drugs. Because an estimated 65 percent of state inmates have a substance use disorder (James & Glaze, 2006), U.S. inmates comprise a vulnerable group with a substantial need for substance use treatment services (Rounds-Bryant and Baker 2007). Belenko and Peugh (2005) analyzed treatment needs among state prison inmates based on the American Society of Addiction Medicine patient placement framework (Mee-Lee, Shulman, Fishman, Gastfriend, & Griffith, 2001) and found that 31.5 percent of male and 52.3 percent of female state prison inmates need long-term residential treatment and an additional 18.7 percent of males and 16.2 percent of females need outpatient treatment.

Importantly, research has documented racial and ethnic disparities in utilization, access, continuity, and quality of care for psychiatric disorders including treatment for substance use disorders among those with similar need in the general community (Jacobson, Robinson, & Bluthenthal, 2007; Wells, Klap, Koike, & Sherbourne, 2001). For example, in an evaluation of managed behavioral care by state Medicaid agencies, Daley (2005) found that although managed care had a beneficial impact on the quality of treatment for black and Latino clients, the percent of Medicaid-eligible clients of color who accessed treatment and the percent who achieved continuity of care remained lower than for whites in every year of the study.

Currently, the extent of racial and ethnic disparities in treatment within U.S. prisons is unknown. Recent research on diversion programs and alternatives to incarceration reveal racial and ethnic disparities in sentencing practices with low-income substance abusers disadvantaged compared to defendants with economic and social resources given the general shortage of public treatment programs available (Maur, 2010). For example, the State of California enacted Proposition 36 in 2001 that mandates first and second time non-violent drug offenders to drug treatment instead of prison. Nicosia, MacDonald, and Arkes (2013) found that even though Proposition 36 decreased disparities, whites are still more likely to be sentenced to treatment compared to blacks and Latinos. For those inmates sentenced to jail or prison terms, research has shown that the treatment offered in correctional settings is often variable, inconsistent, and challenging (Chandler et al., 2004; Teplin, Abram, & McClelland, 1997).

Previous research has demonstrated substantial racial/ethnic bias at every stage of contact with the criminal legal system leading up to incarceration (Alexander, 2010; Drucker, 2011). The current study is concerned with racial/ethnic bias in treatment once adults begin their sentence in state correctional facilities. This study examines race/ethnic disparities in the utilization of treatment for inmates sentenced to state correctional facilities who met the DSM-IV criteria for drug dependence disorder in the year prior to their incarceration. In order to understand the impact of race/ethnicity in the utilization of treatment, the analysis

controls for the effect of a number of important inmate-level variables. These variables include background characteristics (i.e., age, sex, marital status, foreign born status, and veteran status), socioeconomic characteristics (i.e., high school/GED and employment prior to incarceration), mental health (i.e., serious mental illness), and incarceration experiences (i.e., previous convictions, years served, current offense, sentence enhancements, and rule violations) including social support while incarcerated (i.e., telephone calls and or visits from friends and family, furlough days, and work programs). Previous research has identified these factors as contributing to inmate behavior while incarcerated (e.g., Irwin & Cressey, 1962; Jiang & Fisher-Giorlando, 2002; Lahm, 2008; Steiner & Wooldredge, 2008). Logistic regression with prison fixed effects is used to control for variation between prison environments.

2. Methods

The data for this study are from the 2004 Survey of Inmates in State Correctional Facilities (SISCF) which provides a nationally representative sample of persons incarcerated in state prisons. The sample design employed a stratified, two-stage selection. The prison sample was selected from a universe of 1,585 state prisons. Overall, 301 prisons were randomly selected for inclusion in the study. A total of 287 prisons participated. In the second stage, inmates were randomly selected for participation. A total of 14,499 inmates participated for an overall response rate of 89.1%. The interview was conducted using computer assisted personal interviewing (CAPI) and participation was voluntary.

The population for the current study includes all inmates sentenced to and currently incarcerated in state correctional facilities who are 18 years or older and who met the DSM-IV criteria for having drug dependence disorder in the year prior to their incarceration. Persons with alcohol dependence are not included since specific substances are addressed as a separate use disorder even though they are diagnosed based on the same overarching criteria. The final sample derived from the SISCF includes 5,180 inmates housed within 286 correctional facilities (average of 17 inmates per prison). One facility was dropped from the sample since none of the inmates housed there met the criteria for drug dependence. Thirty-six percent of the total sample met the criteria for drug dependence disorder during the 12-months prior to their incarceration. There are significant race/ethnic differences in the symptom profiles for drug dependence disorder. Among those who met the DSM-IV criteria for drug dependence, whites endorsed an average of 5.9 symptoms, blacks endorsed an average of 5.5 symptoms, and Latinos endorsed an average of 5.7 symptoms ($F = 40.3$, $p < 0.001$). However, this may not have clinical relevance. The Institutional Review Board at the University of Colorado Boulder reviewed the study protocols.

2.1 Measures

The dependent variable is a binary variable coded 1 if the drug dependent inmate has received treatment for drug use during their current incarceration. Treatment includes detox, inpatient care, outpatient care, self-help groups (e.g., AA, NA), maintenance drugs (e.g., methadone), and or any other program. Race/ethnic disparities are examined for three mutually exclusive groups based on self-reported race/ethnicity: whites, blacks, and Latinos. The study controls for background characteristics including age (continuous), gender

(female referent), marital status (never married = 1, all other categories = 0), foreign born (native born referent), and veteran status (0 no, 1 yes). Socioeconomic characteristics include whether the inmate has a high school diploma or GED compared to less than high school and whether the inmate was employed prior to incarceration (0 no, 1 yes). An inmate's mental health status is assessed through the self-report of diagnosis with at least one serious mental illness. Inmates were asked if they have ever been diagnosed with a serious mental illness (i.e., depression, anxiety, PTSD, bipolar disorder, etc.). The presence of at least one is coded positively.

The incarceration experience is characterized by the number of previous incarceration episodes (continuous), type of offense for which the inmate is currently incarcerated (0 drug offense, 1 violent offense, 2 property offense, 3 public order offense), and the number of years served to date (continuous) during the current incarceration episode. Respondents were also asked if their sentence included mental health counseling (0 no, 1 yes) or substance use treatment (0 no, 1 yes) while incarcerated. External social support while incarcerated is indicated by a series of dummy variables including whether the inmate has received telephone calls or visits from family/friends and if the inmate has been granted any furlough days or participated in any job/vocational training program. Whether the inmate has received a violation (0 no, 1 yes) while incarcerated for drug/alcohol use or physical assault on staff/inmate are proxies for substance use and violent behavior, respectively.

2.2 Analysis

The analysis uses fixed effects (conditional likelihood) logistic regression. Since the study is concerned with individual-level race/ethnic differences within prisons, a fixed effects approach will examine the determinants of within prison variability by controlling for between prison differences so that each prison acts as its own control (Allison, 2009). A baseline model using random effects indicates that there is low variability in drug treatment between prisons ($\rho = 0.159$). A series of models are estimated with sets of control variables added in a step-wise fashion. The full model (Model 3) is then reestimated for only those inmates who were not sentenced to treatment (Model 4) and for only those inmates who were sentenced to treatment (Model 5). Model fit for each model is assessed using likelihood ratio tests. Weights are used to account for the complex sampling design of the study. All analyses are conducted using Stata 12.

3. Results

Table 1 reports descriptive and bivariate analyses. There are significant racial and ethnic disparities in the proportion of drug dependent inmates utilizing substance use treatment. Forty-six percent of whites report having received some kind of treatment compared to 43 percent of blacks and 33 percent of Latinos ($p < 0.001$). Of those who received treatment, self-help groups are the most commonly reported with 83 percent receiving that form of treatment (not shown). Detox (27%) and drug maintenance programs (35%) are the least reported. Racial and ethnic differences are also present for each of the background and socioeconomic variables. Specifically, whites are less likely to be male, are less likely to have never been married, and are more likely to be a veteran than blacks and Latinos. On average, blacks are one year younger than their counterparts. Latinos comprise the majority

of foreign born individuals with 20 percent being non-native. Finally, whites are most likely to have a high school education and to have been employed prior to being incarcerated. Whites are also significantly more likely to report having been diagnosed with a serious mental illness compared to blacks and Latinos.

There are no race/ethnic differences in the number of past incarceration episodes and the years served to date. Blacks are most likely to be incarcerated for a drug offense and are the least likely to be incarcerated for a property offense. However, whites are most likely to have mental health counseling and substance use treatment as part of their sentence. Whites are most likely to maintain external social bonds including telephone calls, visits, and furlough days. However, there are no race/ethnic differences in participating in vocational training programs. Finally, blacks are most likely to be written up for a drug violation while Latinos are most likely to be written up for a physical assault.

Table 2 presents the findings from the fixed effects logistic regression. Model 1 assesses whether there are significant race/ethnic disparities in the utilization of treatment during incarceration for drug dependent inmates. Ten prisons (83 inmates) are dropped because there is no variation (positive or negative) in the treatment outcome variable within those prisons. The findings show that Latinos have lower odds of using treatment by 31 percent compared to whites (Odds Ratio (OR) = 0.69, $p < 0.001$). There are no statistically significant differences between blacks and whites. Model 1 was re-estimated with Latinos as the reference group (not shown). The model estimates show that both whites (OR = 1.46, $p < 0.001$) and blacks (OR = 1.30, $p < 0.05$) have higher odds of using treatment relative to Latinos.

Model 2 introduces three groups of inmate-level characteristics: background, socioeconomic, and mental health characteristics. Since men and women are housed within different prisons and there is no within prison gender variation, the gender variable is dropped from the analysis. Latinos have 23 percent lower odds of utilizing treatment relative to whites (OR = 0.77, $p < 0.01$). Including these controls account for an 8 percent improvement in the odds for Latinos relative to whites. The background characteristics reveal that a one year increase in age is associated with a 2 percent increase in the odds of utilizing treatment (OR = 1.02, $p < 0.001$). Those with a high school education (OR = 1.33, $p<0.001$) also have higher odds of utilizing treatment while incarcerated. Mental health status is not significantly associated with drug treatment utilization.

Model 3 introduces the inmate-level incarceration experience controls. Latinos still have lower odds of utilizing treatment compared to whites (OR = 0.79, $p<0.05$). The findings further show that for every year an inmate is incarcerated, their odds of utilizing treatment increase by 6 percent (OR = 1.06, $p < 0.001$). Those sentenced to substance use treatment have 89 percent higher odds of utilizing treatment compared to their counterparts (OR = 1.89, $p<0.001$). Similarly, those sentenced to mental health treatment while incarcerated also have higher odds of utilizing drug treatment (OR = 1.39, $p < 0.05$). Inmates convicted of a violent offense (OR = 0.74, $p<0.01$) or property offense (OR = 0.82, $p<0.05$) have lower odds of utilizing treatment while incarcerated compared to inmates convicted of a drug offense. Indicators of external social bonds and social support that appear to be significant

for treatment include visits from family/friends (OR = 1.27, $p < 0.05$) and participating in a vocational/job training program (OR = 1.31, $p<0.01$). Finally, being written up for a substance use infraction while incarcerated significantly increases the odds that a drug dependent inmate will use treatment (OR = 1.34, $p < 0.05$). Due to the significance of the observed control variables, moderating effects of race/ethnicity on significant predictors (i.e., high school education, years served, offense, visits, job training, substance use violation) was examined but did not yield any significant associations at the $p < 0.05$ level (not shown).

Since being sentenced to treatment is important for treatment utilization and there are race/ethnic differences in receiving this sentence enhancement, ancillary analyses were conducted separately among inmates who were and were not sentenced to treatment. Model 4 (not shown) included all study variables similar to Model 3, yet only inmates who did not receive mandatory treatment as part of their sentence are included (N = 2,991). In this group, Latinos have lower odds of utilizing treatment compared to whites (OR = 0.74, $p < 0.05$). Education, years incarcerated, offense type, job training, and substance use violations are similarly associated with utilizing drug treatment. Model 5 (not shown) included only those inmates sentenced to treatment (N = 825). Among these inmates, the Latino-white disparity is no longer statistically significant and only years incarcerated is associated with utilizing treatment. This suggests no race/ethnic differences in compliance when treatment is mandatory.

4. Discussion

The findings uncover significant disparities among drug dependent inmates in the utilization of treatment services while incarcerated. Compared to whites, drug dependent Latino inmates have significantly lower rates of utilizing treatment while incarcerated in state correctional facilities and the addition of statistical controls partially explains this disparity. The odds ratio for Latinos compared to whites is improved from 0.69 ($p < 0.001$) to 0.79 ($p < 0.05$). When examining only those inmates sentenced to treatment during incarceration, the Latino-white disparity in utilization is no longer statistically significant. There are no significant black-white disparities found. This is contrary to previous research in jails that found that treatment participation does not vary by race (Meyer, Tangney, Stuewig, & Moore, 2013). Differences in findings may be because prisons and jails are unique social contexts. The study's findings are even more concerning given that, among drug dependent inmates, Latinos are more likely to be convicted of a drug offense yet are less likely to be sentenced to substance use treatment while in prison compared to their white counterparts. The findings suggest that differences in sentencing may contribute to Latino-white disparities in treatment while incarcerated. Additional research is needed to identify the remaining factors that contribute to Latino-white disparities in treatment among drug dependent inmates. It is possible that language barriers and other indicators of acculturation account for this disparity especially considering that one in five Latinos in prison are foreign born. This hypothesis is bolstered by the fact that no black-white disparities were found.

Another noteworthy finding is the importance of increasing the accessibility of social support for inmates while incarcerated. Research in community settings has found that social

support is strongly related to patient adherence to medical regimens (DiMatteo, 2004). In prison contexts, social support (e.g., visits and phone calls) is related to inmate behavior, adjustment to prison life, and recidivism (Jiang, Fisher-Giorlando, & Mo, 2005; Jiang & Winfree, 2006; Mears, Cochran, Siennick, & Bales, 2012). The current study shows that whites, compared to blacks and Latinos, are the most likely to maintain extra-prison social bonds including telephone calls from family and friends, visits from family and friends, and being granted furlough days (see Table 1). These race/ethnic differences are important since visits significantly increase the odds that a drug dependent inmate will utilize drug treatment while incarcerated (OR = 1.27, $p < 0.10$). Differences in family socioeconomic status may account for the race/ethnic differences found in social support while incarcerated. A major barrier to maintaining extra prison support is the geographic location of prisons (La Vigne, Davies, Palmer, & Halberstadt, 2008). Visits by family and friends can come as a great cost in terms of both money and time. Additionally, telephone calls place a huge financial burden on the family of inmates (Media Justice Fund, 2009). Increasing the accessibility of social support while incarcerated is one possible place for intervention to increase treatment usage among inmates in need.

An important limitation to consider is that this study focuses only on the utilization of treatment. As previously noted, research in the community context has found racial and ethnic disparities in not only utilization but access, quality, and continuity of care. These important factors are not assessed in the current study. This is particularly important to consider given that types of treatment and screening in prisons vary between states as well as units within states. For example, a survey of state and federal prison medical directors found that only 48 percent use methadone, predominately for pregnant inmates or for short-term detoxification (Rich et al., 2005). Additionally, Henderson and Taxman (2009) found that prison administrator attitudes towards drug treatment is associated with the extent to which evidence-based substance abuse treatment is implemented. This study is also limited since it relies on non-clinical retrospective assessments of drug dependence. This may affect the validity of the study findings. Future research should attempt to replicate the study findings using diagnostic intake data. Finally, the data are limited since there is no way to introduce objective prison-level and state-level controls. Future research should consider how the prison context influences treatment and healthcare utilization independent of inmate characteristics.

In sum, the current study identifies a remarkable unmet need among drug dependent inmates in U.S. state correctional facilities in that less than one-half of drug dependent inmates had received any type of treatment in prison at the time of the interview with the most common treatment types being self-help groups. Previous research has documented that although about two-thirds of state prison inmates with a history of drug use received any type of treatment prior to incarceration (Mumola & Karberg, 2006), only 33 percent of inmates report receiving any type of drug treatment since admission (Steven Belenko, Houser, & Welsh, 2012). In fact, national data suggests that existing treatment programs have the capacity to serve only about 10 percent of offenders (Taxman, Perdoni, & Caudy, 2013). The current study further shows that race/ethnicity is important to consider when examining utilization of prison services. Providing drug treatment in prisons has been found to be cost effective (Daley et al., 2004) and to provide societal gains (Zarkin et al., 2012), yet prison

treatment capacities are often inadequate to meet needs at all stages and level of care (Steven Belenko & Peugh, 2005; Taxman, Perdoni, & Harrison, 2007). The current study suggests that treatment for drug dependent inmates needs to be expanded to include clinically or medically based treatment since drug dependence is a severe disorder requiring long-term intensive treatment and the failure to address addictions in the criminal legal system has been identified as the single most significant reason for rearrest and recidivism once released (Drucker, 2011). Care delivery models need to also consider the unique patterns of treatment usage among white, black, and Latino inmates in order to develop effective targeted intervention strategies.

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Highlights

- There are race/ethnic disparities in drug treatment in the general community
- This study examines disparities in treatment for drug dependent inmates
- Findings identify a remarkable unmet need for treatment
- Significant Latino-white disparities are documented, but no black-white disparities
- Increasing access to social support while incarcerated may increase treatment usage

Table 1

Descriptive Statistics for Drug Dependent Inmates in State Correctional Facilities Stratified by Race/Ethnicity

	White		Black		Latino		
	n	%/mean	n	%/mean	n	%/mean	p[a]
Outcome							
Received Treatment	1089	45.9	795	43.0	319	33.3	***
Background							
Age		34.5		33.7		34.9	***
Male	1617	89.1	1387	92.6	667	92.4	***
Never Married	1074	50.0	1193	67.3	501	58.7	***
Foreign Born	25	1.0	10	0.6	156	19.9	***
Veteran	202	10.7	125	8.4	24	3.2	***
Socioeconomic							
High School/GED	1784	78.8	1064	60.6	470	55.6	***
Employment	1502	68.8	1050	60.4	532	64.6	***
Mental Illness							
Serious Mental Illness	1033	41.9	491	24.5	254	25.5	***
Incarceration							
Past Incarcerations		2.2		2.2		2.1	
Years Served		4.4		3.8		4.3	
Current Conviction							
Drug Offense	532	22.2	459	27.4	222	26.3	**
Violent Offense	771	40.6	728	45.4	315	42.8	
Property Offense	708	33.1	428	23.8	230	26.2	***
Public Order Offense	98	4.1	62	3.4	38	4.7	
Sentence							
Counseling	181	7.5	111	5.7	56	5.2	+
Substance Treatment	610	25.2	409	22.0	220	23.1	*
Social Support							
Telephone Calls from Family/Friends	1557	65.7	1060	58.5	568	63.7	***
Visits from Family/Friends	779	32.1	420	23.6	236	26.5	***

	White		Black		Latino		
	n	%/mean	n	%/mean	n	%/mean	p[a]
Furlough Days	65	3.0	44	2.2	7	0.6	**
Job Training Program	612	27.1	555	30.5	239	28.3	
Violations							
Drug Use	161	7.6	152	9.5	52	6.1	*
Violent Behavior	295	14.4	295	16.6	166	19.5	***

[a]Test of significance across race/ethnic groups.

*p<0.05,

**p<0.01,

***p<0.001

Table 2

Odds Ratios from Fixed-Effects Logistic Regression: Race/Ethnic Disparities in Substance Use Treatment among Drug Dependent Inmates in State Correctional Facilities

	Model 1		Model 2		Model 3	
	p	**OR**	**p**	**OR**	**p**	**OR**	**p**
Background Characteristics						
Race (White)						
Black		0.89		0.90		0.85	
Latino		0.69	***	0.77	**	0.79	*
Age				1.02	***	1.01	*
Never Married				1.02		0.99	
Foreign Born				1.00		1.06	
Veteran				1.05		1.10	
Socioeconomic Characteristics						
High School/GED				1.33	***	1.27	**
Employment				1.07		1.08	
Mental Illness						
Serious Mental Illness				1.05		1.03	
Incarceration Experience						
Past Incarcerations						1.01	
Years Served						1.06	***
Current Conviction (Drug Offense)							
Violent Offense						0.74	**
Property Offense						0.82	*
Public Order Offense						0.76	
Sentence							
Counseling						1.39	*
Substance Treatment						1.89	***
Social Support							
Telephone Calls from Family/Friends						0.95	
Visits from Family/Friends						1.27	**

	Model 1		Model 2		Model 3	
	OR	**p**	**OR**	**p**	**OR**	**p**
Furlough Days					1.60	
Job Training Program					1.31	**
Violations						
Substance Use					1.34	*
Violent Behavior					1.09	
Model Statistics						
Log Likelihood	−2455.4		−2383.9		−1901.4	
Sample Size	4853		4770		4081	

* p<0.05,

** p<0.01,

*** p<0.001