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Gender-Specific Factors Associated With Community Substance Abuse Treatment Utilization Among Incarcerated Substance Users

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Abstract

This article describes the independent correlates of preincarceration community substance abuse treatment utilization for male and female offenders currently participating in prison-based treatment. As part of the National Institute on Drug Abuse–funded Criminal Justice Drug Abuse Treatment Studies cooperative agreement, this protocol was implemented by four collaborating research centers. Males with a history of treatment utilization were more likely to be older, to have used crack, and to have had a greater number of arrests, and they were less likely to be arrested for a violent charge. Females with previous treatment were more likely to have been hospitalized for a health condition and were significantly more likely to have lived with someone else before prison rather than in their own home. These findings suggest that factors associated with preincarceration treatment utilization differ by gender, which may have important implications for correctional-based treatment assessment, reentry planning, and transitional case management.

Keywords

gender; treatment utilization; offenders; substance use

Drug use is a growing problem among incarcerated males and females in the United States, as evidenced by national surveys that found that 83% of state prisoners reported past drug and alcohol use and that 56% reported using drugs and alcohol in the month before their offense (Mumola & Karberg, 2006). This survey also found that more than half of state

inmates (53%) met *DSM-IV* criteria (*Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., American Psychiatric Association, 1994) for drug dependence or abuse (Mumola & Karberg, 2006). In addition, arrestee data from the Arrestee Drug Abuse Monitoring system indicated that more than a third (37%) of male arrestees and female arrestees (36%) in major U.S. urban cities reported frequent use of illicit drugs during the 30 days before their arrest (Zhang, 2003). Despite the growing number of incarcerated individuals with substance abuse problems, there are a limited number of drug abuse treatment programs for individuals in the U.S. criminal justice system. Although more than 80% of offenders are substance users, fewer than half (40%) reported participating in any type of drug or alcohol treatment or related program when they were incarcerated (Mumola & Karberg, 2006).

Thus, with the increased number of offenders with substance abuse problems and the limitations of correctional service opportunities, there is increasing concern to understand ways to improve treatment opportunities for offenders in institutional settings and during the transition to the community. An important step in this process is to understand factors associated with offender community treatment utilization before being incarcerated. These factors are important to consider in a prison sample because the utilization of community substance abuse treatment is likely an important indicator of the severity of a substance abuse problem and the need for treatment, as considered in correctional treatment assessment and intake. These factors are also important to consider by gender because a number of studies have highlighted the unique treatment needs and experiences among males and female offenders (e.g., Staton-Tindall, Garner, et al., 2007). In response to this need, this study proposes to describe differences in demographics, substance use, mental health and health, and criminality factors between male and female offenders with prior community substance abuse treatment and those with no treatment history and to examine the independent correlates of prior substance abuse treatment utilization by gender in a multivariate model.

Literature Review

Research on the effectiveness of substance abuse treatment for offenders has consistently shown reductions in new arrests and recidivism following prison release. For example, graduates from a prison-based program in Texas were less likely than dropouts to be rearrested at 6 months (Knight, Simpson, Chatham, & Camacho, 1997). These trends were also observed in a Delaware program and so support the idea that not only is recidivism reduced in a treatment group, but prison-based treatment followed by community aftercare yields findings that are even more positive (Inciardi, Martin, Butzin, Hooper, & Harrison, 1997). Although the research is fairly convincing on the effectiveness of prison-based programs—particularly, therapeutic communities—research is limited on the characteristics of clients who enter corrections-based treatment programs, including their previous treatment experiences in the community. Because substance abuse treatment utilization in the community before incarceration may be related to increased problem severity and need for treatment at prison intake, it is important to examine factors associated with prior service utilization and to understand how those factors may be differentially related between male and female offenders.

Gender differences have been observed in community substance abuse treatment samples. For example, studies have shown that women who enter community-based substance abuse treatment programs are less likely to be employed; less likely to have criminal records; and more likely to be dealing with past experiences related to emotional, physical, and sexual abuse, when compared to men in treatment (e.g., Acharyya & Zhang, 2003; Bartholomew, Rowan-Szal, Chatham, Nucatola, & Simpson, 2002; Hser, Huang, Teruya, & Anglin, 2004; Pelissier & Jones, 2005; Robinson, Brower, & Gomberg, 2001; Westermeyer & Boedicker, 2000). In addition, women in community treatment programs are more likely to have child care responsibilities, more likely to be divorced, and more likely to have a low income (Chatham, Hiller, Rowan-Szal, Joe, & Simpson, 1999; Robinson et al., 2001; Rowan-Szal, Chatham, Joe, & Simpson, 2000).

Gender differences on drug use and abuse and related problems observed in community treatment samples have been consistently shown among samples of incarcerated substance users. Similar to studies of community samples, these studies suggest that when compared to incarcerated men, incarcerated women are more likely to use and abuse multiple substances, more likely to report a history of crack and cocaine use, more likely to have experienced sexual and/or physical abuse, and more likely to have co-occurring mental health issues (Acharyya & Zhang, 2003; Blitz, Wolff, Pan, & Pogorzelski, 2005; Langan & Pelissier, 2001; Messina, Burdon, Hagopian, & Prendergast, 2006; Pelissier, Camp, Gaes, Saylor, & Rhodes, 2003; Pelissier & Jones, 2005; Peters, Strozier, Murrin, & Kearns, 1997; Sacks, 2004). By comparison, incarcerated men are more likely to report problem alcohol use, have antisocial personality characteristics, and be more involved with the criminal justice system (Acharyya & Zhang, 2003; Blitz et al., 2005; Messina et al., 2006; Pelissier et al., 2003; Pelissier & Jones, 2005).

These studies indicate that there are differences between males and females who utilize substance abuse treatment in community and correctional samples—differences in demographic characteristics, patterns and intensity of drug use, mental health problems, and criminal justice involvement. Although a number of studies have been conducted to examine differences between males and females in treatment on characteristics associated with treatment entry and treatment outcomes, research has not examined gender-specific factors that may be differentially correlated with receiving community substance abuse treatment among offenders. This gap in the literature is the focus of the present article. These differentiating factors are important to consider in a prison sample because utilizing community substance abuse treatment is likely an important indicator of how severe a substance abuse problem is and what degree of treatment is needed, both of which need to be considered in correctional treatment assessment and intake.

One of the most consistently studied factors associated with substance use among female offenders involves their having a co-occurring mental health issue. Studies have shown that substance-abusing women report increased mental health issues—especially, depression and anxiety—when compared to men (Brady, Grice, Dustan, & Randall, 1993; Gray & Saum, 2005; Rowan-Szal et al., 2000; Sacks, 2004). In addition, female community treatment participants report higher rates of mood disorders, phobias, panic disorder, and obsessive-compulsive disorder, when compared to men (Compton et al., 2000). Findings about the

prevalence of mental health issues among substance-using women have been consistently noted for female substance users across treatment modalities, including inpatient and outpatient substance abuse treatment (McCance-Katz, Carroll, & Rounsaville, 1999), therapeutic communities (Jainchill, Hawke, & Yagelka, 2000), methadone treatment (Chatham et al., 1999; Rowan-Szal et al., 2000), and multiple community treatment modalities (Compton et al., 2000). Co-occurring disorders of substance abuse and mental health also are common and consistently noted among females in the criminal justice system (Messina et al., 2006; Pelissier et al., 2003; Peters et al., 1997; Sacks, 2004; Sheridan, 1996). Considering these studies, we expected that a strong correlation between mental health issues and community treatment utilization among female participants in the current study.

By contrast, one of the factors consistently associated with treatment utilization for male offenders is that of having a history of criminal justice involvement. Findings from a recent meta-analysis of gender differences among substance users found that males consistently report having more involved criminal histories, when compared to females (Pelissier & Jones, 2005). Specifically, findings reveal that males report more self-perceived legal problems, more arrests, and more serious types of crimes, when compared to females. Interestingly, not only are these factors more consistently correlated with treatment entry, but criminality factors such as severity of the current offense, serving a longer sentence, and having a history of violence are associated with not completing treatment (Pelissier, 2004). Therefore, in the current study, we expected a strong correlation between criminal justice involvement and community treatment utilization among male participants.

In summary, research has consistently shown that there are gender differences in demographic characteristics, drug use patterns, mental health issues, and criminal involvement between males and females in community and correction-based treatment samples. However, the question of whether these factors independently correlate with having a history of substance abuse treatment within groups of male and female offenders has not been examined. This article takes a unique approach to examining traditional descriptive gender differences by analyzing the independent correlates of community substance abuse treatment history (before incarceration) for male and female offenders currently participating in prison-based treatment. This study examined factors correlated with treatment history within gender groups, thereby making it possible to tailor implications for gender-specific treatment assessment and treatment planning.

This study had two objectives: first, to describe differences in demographic, substance use, mental health and health, and criminality factors between male and female offenders with prior community substance abuse treatment history and to compare them to those of offenders with no treatment history; second, to examine the independent correlates of prior substance abuse treatment utilization by gender in a multivariate model. Given the literature, we expected that previous treatment utilization for males would be independently correlated with demographic measures, including employment and education, alcohol use, and criminal justice involvement. Furthermore, we expected that previous treatment utilization for women would be independently correlated with lack of employment and education, crack and cocaine use, and mental health problems.

Method

Participants

As part of the Transitional Case Management Study (Prendergast, Cartier, & Hall, 2005) in the National Institute on Drug Abuse-funded Criminal Justice Drug Abuse Treatment Studies cooperative agreement, participants were recruited from prison-based treatment by four collaborating research centers, including the University of California, Los Angeles; the University of Kentucky; the National Development and Research Institutes; and the University of Connecticut. Participants included a total sample of 714 male offenders ($n = 545$, 76.3%) and female offenders ($n = 169$, 23.6%). All participants were enrolled in prison-based treatment at the time of baseline data collection, and all were nearing the end of their sentence, as defined by the time frame of 3 months before seeing the parole board. Study inclusion criteria included being over the age of 18, having a referral to community-based substance abuse treatment upon release into the community, and paroling to a metro area where transitional case management would be available. Potential participants were excluded from the study for being a registered sex offender (due to parole restrictions that may prohibit ongoing study participation in the community) or for receiving other formal case management services in the community.

Measures

Measures from this study were derived from the core intake instrument of the Criminal Justice Drug Abuse Treatment Studies (2005), which was developed by the cooperative for use across the study protocols. Independent variables include demographics (race, age, living situation before incarceration, marital status, employment status, and having a high school degree), substance use (lifetime use of alcohol, lifetime use of 14 types of drugs, and lifetime injection drug use), mental health and health (lifetime depression, anxiety, suicide attempts, and prior hospitalizations), and criminality (number of lifetime arrests, age at first arrest, total lifetime months incarcerated, and having ever been charged with drug-related offenses, sex crimes, property crimes, and violent crimes).

The primary dependent variable of interest was that of having a history of substance abuse treatment utilization (*yes/no*) before current incarceration. Data were partitioned by treatment history group for males (treatment history: $n = 366$, 67.2%; no treatment history: $n = 179$, 32.8%) and females (treatment history: $n = 113$, 66.9%; no treatment history: $n = 56$, 33.1%); as such, they show no gender differences in those reporting a treatment history.

Procedures

Potential participants for the study were identified and recruited from two sources: prison-based treatment programs that provide referrals to community treatment and other treatment programs located in confined (locked) residential settings, such as work release. Before recruitment, research staff contacted the target correctional institution to inform its administration of the eligibility criteria for the study and to establish procedures for identifying eligible inmates and scheduling interviews. Trained research staff from the participating research centers then contacted potential respondents, met with them individually in a private room, confirmed their identity and eligibility, described the study

and informed consent procedures, assured them that deciding to decline would have no effect on their treatment or criminal justice status, and answered any of their questions. The interviewer also informed the potential study participants that the information that they provided was protected from being released under subpoena or other legal process through a federal Certificate of Confidentiality. If the inmate agreed to participate in the study, he or she signed the informed consent form. The baseline interview was then scheduled within 1 week.

Analytic Plan

To examine the associations of substance abuse treatment utilization stratified by gender, the chi-square statistic, *t* tests, and the Wilcoxon rank-sum test were utilized, where appropriate. To explore the independent correlates of treatment utilization by gender, separate analyses were conducted using multivariable logistic regression. A manual stepwise backward-elimination process was utilized whereby variables significantly associated with treatment utilization ($p < .05$) from the bivariate analyses were added one at a time until the most parsimonious model was obtained; that is, variables were retained in the models if the *p* value was less than or equal to .05. To account for any potential differences by site and in the opportunity to receive treatment in the community, the final models were adjusted for site and the total number of months incarcerated, respectively. STATA 8.0 (College Station, Texas) was utilized for all analyses.

Results

Demographic Characteristics

As seen in Table 1, the majority of participants were male (76.4%) and White (48.8%), and the median age was 34 (interquartile range: 27.1–41.4). Fewer than a third of participants had a high school diploma or GED, and most were living in a home that was not their own (49.2%). The majority of participants were single (55.2%), and almost half had been employed before incarceration (48.1%).

Drug Use Characteristics

Most of the participants reported lifetime use of alcohol (98.5%), marijuana (96.0%), cocaine (73.2%), crack (58.6%), methamphetamine (56.3%), and hallucinogens (55.4%). Less prevalent was use of other opiates (i.e., prescription opiates other than methadone; 34.9%), heroin (27.6%), Librium (27.2%), amphetamines (18.8%), inhalants (17.2%), sedatives (13.1%) and methadone (12.6%). Less than 10% of participants reported using GHB and/or ketamine, and one third of participants indicated they had injected drugs in their lifetime.

Criminal History

All but 15 of the 714 participants reported committing at least one drug-related crime. Driving while intoxicated was highly prevalent in this population, with 83.9% of respondents reporting committing this crime at least once in their lives. Participation in sex work, however, was reported by only 14.5% of the participants. More than two thirds of

inmates reported committing a property crime, but only 29.4% indicated they had ever committed a violent crime.

Treatment Utilization by Gender

Among males, there were a number of differences between those who had utilized treatment and those who had not (see Table 2). Older men had a significantly greater history of treatment utilization. Those with a high school degree or GED were also significantly more likely to have utilized substance abuse treatment in their lifetime, as were those with a history of crack, cocaine, heroin, and/or injection drug use. Those who had a greater number of arrests were also significantly more likely to have utilized substance abuse treatment before their incarceration. Male participants who reported committing a violent crime were less likely to have received treatment.

A comparison was also examined of women who had a history of treatment utilization versus those who had not. Women who were living in homes that were not their own and who had been hospitalized for psychiatric or health reasons were significantly more likely to have utilized substance abuse treatment (see Table 2). A lifetime history of crack, heroin, and/or sedative use was also associated with treatment utilization among females. Finally, women who were arrested at a younger age were more likely to have utilized substance abuse treatment in their lifetime.

Independent Correlates of Substance Treatment Utilization

Tables 3 and 4 show findings of the multivariate logistic regression analyses. For males (Table 3), the model was adjusted for total jail time in months, age, site, and all other variables in the model. Male participants who had a high school diploma or GED were 1.5 times more likely to have a history of receiving substance abuse treatment than were those with less than a high school education (adjusted odds ratio [AOR]: 1.55, 95% confidence interval [CI]: 1.00, 2.40). Also, males reporting lifetime crack use were almost twice as likely as those not reporting crack use to have utilized substance abuse treatment in their lifetime (AOR: 1.81, 95% CI: 1.19, 2.74). Participants who reported committing a violent crime were 49% less likely than were those who had not committed a violent crime to have a history of substance abuse treatment (AOR: 0.51, 95% CI: 0.34, 0.77), and the number of lifetime arrests was also independently associated with receiving substance abuse treatment. The median number of arrests for males was 15, and for each additional arrest, males were 1% more likely to have received substance abuse treatment (AOR: 1.01, 95% CI: 1.00, 1.01).

Among the female participants (Table 4), living in a home that was not their own was independently associated with substance abuse treatment utilization as compared with those living in their own home (AOR: 3.65, 95% CI: 1.56, 8.53) after adjustment for total jail time, age at first arrest, site, and the other variables in the model. Finally, women who had a history of hospitalization for health issues were almost 3.5 times more likely than were those without to have a lifetime history of substance abuse treatment utilization (AOR: 3.43, 95% CI: 1.58, 7.47). None of the drug use categories were independently associated with a history of substance abuse treatment utilization.

Discussion

This study examined differences among demographic, substance use, mental health and health, and criminality factors as related to substance abuse treatment history for male and female prison-based treatment participants. In addition, study analyses explored the independent correlates of treatment utilization by gender using a multivariate approach. This study filled a gap in the existing literature given that research has consistently shown that there are gender differences in these factors, yet the question of whether these factors are correlated with community treatment history had not been examined in an offender sample. Addressing this gap in the literature has important implications for gender-specific assessment and treatment approaches for substance using offenders.

About two thirds (67%) of male and female participants reported a history of community substance abuse treatment before their current incarceration. This percentage is slightly less than the Hser et al. study (2004) of community drug users in treatment, which found that 73% of males and females reported a previous treatment episode. The data were stratified to examine differences between treatment groups for males and females. Significant differences were noted for males and females with previous treatment history and no previous treatment history at the bivariate level. However, a number of these differences related to demographics, substance use, mental health, and criminality were not significant when examined in the stratified multivariate models.

Given the literature, we expected that previous treatment utilization for males would be independently correlated with demographic measures including employment and education, alcohol use, and more criminal justice involvement. This hypothesis was partially supported in that findings indicate that the independent correlates of previous community substance abuse treatment utilization for males included criminal justice involvement and having a high school diploma or GED. Measures of employment were not significant, which may be related to limited variance in consistent employment patterns across groups in this sample of incarcerated substance users. As evidenced by about one third of the overall sample reporting full-time employment during the time before incarceration, the lack of significant findings may be related to incarcerated substance users' having more inconsistent employment histories when compared to those of males in community treatment. Therefore, having a history of community treatment may not be related to employment for this sample of incarcerated men.

Significant indicators of criminal involvement in the male multivariate model included increased number of arrests and not being arrested for a violent crime. This finding is consistent with other research that found that males in treatment are more likely to have a history of involvement in the criminal justice system (Pelissier, 2004; Pelissier & Jones, 2005). Although this finding has emerged in a number of studies, this relationship has not been thoroughly investigated to better understand why it is a more consistent finding for males than for females. One possible explanation is that that males may be more likely than females to have antisocial personality traits and report increased criminal thinking patterns (Compton et al., 2000; Staton-Tindall, Garner, et al., 2007), which may explain increased involvement in criminal activities. The association between criminal involvement and

treatment utilization for males should be a focus of future research to examine the possibility that the relationship is explained by treatment associated with or provided by the criminal justice system.

We also hypothesized that previous treatment utilization for women would be independently correlated with lack of employment and education, crack and cocaine use, and more mental health problems. This hypothesis was not supported. Crack and cocaine use and psychiatric hospitalizations were significant at the bivariate level. However, the multivariate model revealed that a significant correlate of previous treatment utilization for females was that of lifetime hospitalizations for physical problems. Research has shown that incarcerated women with substance abuse problems report a high number of physical health problems and service utilization (Ross & Lawrence, 1998; Staton, Leukefeld, & Webster, 2003; Staton-Tindall, Duvall, Leukefeld, & Oser, 2007; Young, 1998). The reason for hospitalizations is not available in this data set, which limits our ability to understand whether the relationship between hospitalizations and substance abuse treatment is somehow related to physical health complications associated with substance abuse. This finding should be examined in future research and considered in gender-specific assessments for prison-based treatment programs.

In addition, this study found that females who were not living in their own home were more likely to utilize substance abuse treatment. This finding was not expected; perhaps, it is explained by the possibility that women who are living at home are in a more chaotic environment that does not foster motivation for treatment. The finding that females who reported living with someone else (particularly, a partner) were more likely to have utilized substance abuse treatment has been shown in other studies (Acharyya & Zhang, 2003). Living with a partner or family member is common for a number of women before incarceration, and a number of those partners and family members use and abuse drugs (Bureau of Justice Statistics, 2000). It is therefore possible that this type of living arrangement may lead to increased and problematic substance use, thus facilitating the need for substance abuse treatment. Though beyond the scope of the present study, this finding may suggest that a woman's living situation is an important factor to consider in gender-specific assessments for treatment.

Given earlier studies, we expected alcohol use to be a correlate of treatment utilization for males (Pelissier & Jones, 2005) and crack/cocaine to be a correlate of treatment utilization for females (Acharyya & Zhang, 2003; Tortu et al., 1998). At the bivariate level, alcohol use was not significant for males or females, but significant differences were noted for lifetime crack use for males and females. However, findings were significant only for males and crack use in the multivariate model. The lack of significant differences in crack use and alcohol use may be specific to the sample of incarcerated substance users. The majority of the sample reported alcohol use (99% males and 96% females), so there may be little variance to detect differences in problem drinkers using the lifetime measure of alcohol use. In addition, given the associations between crack use and criminal activity, it is possible that the male crack users in this sample may have been more likely than males in community samples to enter treatment (perhaps because of their involvement in the criminal justice system).

This study has limitations. First, participants were not randomly selected but included those enrolled in one of the targeted drug treatment programs who met study eligibility criteria. Thus, generalizability to the larger population of male and female substance abusers in prison-based treatment programs may be limited. Another limitation is that data were self-reported, and participants' honesty in responding to the questions is a possible concern. However, several studies have found that when compared with urinalysis, self-reported drug use tends to be reliable (Del Boca & Noll, 2000; Rutherford et al., 2000). Additionally, the measure of treatment history used in this study is limited in understanding variation in treatment modalities and treatment intensity. Furthermore, measures to better understand reasons for treatment entry and severity of substance use were not available and may thus limit interpretations of findings. Also, the small sample size among female offenders may have limited our ability to detect significant differences in prior treatment utilization. Finally, the cross-sectional nature of this study limited the opportunity to examine the temporal relationships and the ability of the selected independent variables to predict changes in substance abuse service utilization over time. This limitation will be addressed in forthcoming articles, when follow-up data are collected across participating centers.

Despite these limitations, this study has implications for correctional and community treatment providers working with male and female offenders. Research has shown that attention to the unique differences between males and females, particularly with regard to their responses to correctional supervision, can promote better outcomes for offenders (Bloom, Owen, & Covington, 2005). Among female participants in this study, having previous substance abuse treatment experience was independently correlated with living in someone else's home and having been hospitalized for health problems. It is possible that these are indicators of severity of substance use among women, that they should be assessed early in treatment, and that they should be incorporated into treatment planning to enhance treatment engagement and outcomes for women. It is particularly important to incorporate these services into prison settings because women offenders have disproportionate health problems when compared to women in the general population (Bloom et al., 2005) and because women's patterns of drug use, abuse, and relapse are closely tied to their relationships with others (Henderson, 1998). Therefore, not only may these factors influence treatment engagement during prison, but they may also be closely tied to risk for relapse and poor outcomes following community reentry.

Findings from this study also have implications for male offenders enrolled in prison-based treatment programs. Significant and independent correlates of community substance abuse treatment for males included crack use and being more educated, more involved with the criminal justice system, and less violent. These factors—particularly, the crack use and criminal justice variables—suggest that males who seek community treatment may be more likely to be addicts who committed crimes rather than criminals who used drugs. This distinction is important to make when assessing male offenders for substance abuse treatment. Another possible implication is that factors associated with increased criminality, such as antisocial personality traits and criminal thinking patterns, should be included in correctional treatment assessment and treatment planning approaches for male offenders.

Assessment for previous treatment history can provide important insight into the demographic, substance use, mental health, and criminality factors that were associated with substance use treatment utilization in the community before incarceration—which may also serve as enabling or prohibiting factors to treatment utilization after release. The research literature tells us that the best predictor of sustained recovery and reduced recidivism following prison-based treatment is that of aftercare (Inciardi et al., 1997; Knight, Simpson, & Hiller, 1999; Wexler, Melnick, Lowe, & Peters, 1999). If certain characteristics of male and female offenders are correlated with and perhaps predictive of treatment utilization before incarceration, they should be considered at intake into prison substance abuse treatment programs as possible high-risk indicators, as well as at treatment exit and discharge as the offender prepares for release to the community.

It is also important to consider the temporal associations between community treatment utilization and prison-based treatment utilization in understanding issues of offender pathways into treatment, the types of interventions provided in the treatment agencies serving these populations, and the established systems to ensure continuity of care. In other words, it is important to ask whether offenders in prison-based treatment are more or less likely to have completed a type of community-based treatment program with a type of counselor and a type of intervention and how the overall treatment experience (contextual and in terms of success or failure) may be associated with their current offense. A continued examination of the factors associated with treatment utilization should be the focus of future research with substance-using offenders to examine the sustained trend and predictive nature of the relationship over time to better inform gender-specific assessment, classification, and treatment in prison-based substance abuse programs.

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References

- Acharyya S, Zhang H. Assessing sex differences on treatment effectiveness from the drug abuse treatment outcome study (DATOS). *American Journal of Drug and Alcohol Abuse*. 2003; 29(2): 415–444. [PubMed: 12765214]

- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th. Washington, DC: Author; 1994.
- Bartholomew NG, Rowan-Szal GA, Chatham LR, Nucatola DC, Simpson DD. Sexual abuse among women entering methadone treatment. *Journal of Psychoactive Drugs*. 2002; 24(4):347–354.
- Blitz CL, Wolff N, Pan K, Pogorzelski W. Gender-specific behavioral health and community release patterns among New Jersey prison inmates: Implications for treatment and community reentry. *American Journal of Public Health*. 2005; 95(10):1741–1746. [PubMed: 16131640]
- Bloom, B., Owen, B., Covington, S. A summary of research, practice, and guiding principles for women offenders. Washington, DC: U.S. Department of Justice; 2005. National Institute of Corrections No. 020418
- Brady KT, Grice DE, Dustan L, Randall C. Gender differences in substance use disorders. *American Journal of Psychiatry*. 1993; 150(11):1707–1711. [PubMed: 8214180]
- Bureau of Justice Statistics. Women offenders. Washington, DC: Author; 2000.
- Chatham LR, Hiller ML, Rowan-Szal GA, Joe GW, Simpson DD. Gender differences at admission and follow-up in a sample of methadone maintenance clients. *Substance Use & Misuse*. 1999; 34(8): 1137–1165. [PubMed: 10359226]
- Compton WM, Cottler LB, Abdallah AB, Phelps DL, Spitznagel EL, Horton JC. Substance dependence and other psychiatric disorders among drug dependent subjects: Race and gender correlates. *American Journal on Addictions*. 2000; 9:113–125. [PubMed: 10934573]
- Criminal Justice Drug Abuse Treatment Studies. Criminal justice drug abuse treatment studies. Adult core intake. 2005. Available for download at <http://www.cjdats.org>
- Del Boca FK, Noll JA. Truth or consequences: The validity of self-report data in health services research on addictions. *Addiction*. 2000; 95:347–360. [PubMed: 10795351]
- Gray AR, Saum CA. Mental health, gender and drug court completion. *American Journal of Criminal Justice*. 2005; 30(1):55–69.
- Henderson DJ. Drug abuse and incarcerated women. *Journal of Substance Abuse Treatment*. 1998; 15(6):579–587. [PubMed: 9845871]
- Hser Y, Huang Y, Teruya C, Anglin D. Gender differences in treatment outcomes over a three-year period: A path model analysis. *Journal of Drug Issues*. 2004; 22:419–440.
- Inciardi JA, Martin SS, Butzin CA, Hooper RM, Harrison LD. An effective model of prison-based treatment for drug-involved offenders. *Journal of Drug Issues*. 1997; 27(2):261–278.
- Jainchill N, Hawke J, Yagelka J. Gender, psychopathology, and patterns of homelessness among clients in shelter-based TCs. *American Journal of Drug and Alcohol Abuse*. 2000; 26(4):553–567. [PubMed: 11097192]
- Knight K, Simpson DD, Chatham LR, Camacho LM. An assessment of prison-based drug treatment: Texas' in-prison therapeutic community program. *Journal of Offender Rehabilitation*. 1997; 24(3/4):75–100.
- Knight K, Simpson DD, Hiller ML. Three-year reincarceration outcomes for in-prison therapeutic community treatment in Texas. *The Prison Journal*. 1999; 79(3):337–351.
- Langan NP, Pelissier BMM. Gender differences among prisoners in drug treatment. *Journal of Substance Abuse Treatment*. 2001; 13:291–301.
- McCance-Katz EF, Carroll KM, Rounsaville BJ. Gender differences in treatment-seeking cocaine abusers: Implications for treatment and prognosis. *American Journal on Addictions*. 1999; 8:300–311. [PubMed: 10598213]
- Messina N, Burdon W, Hagopian G, Prendergast M. Predictors of prison-based treatment outcomes: A comparison of men and women participants. *American Journal of Drug and Alcohol Abuse*. 2006; 32(1):7–28. [PubMed: 16450640]
- Mumola, C., Karberg, JC. Drug use and dependence, state and federal prisoners, 2004. Washington, DC: U.S. Department of Justice; 2006. (NCJ Publication No. 213530)
- Pelissier B. Gender differences in substance use treatment entry and retention among prisoners with substance use histories. *American Journal of Public Health*. 2004; 94(8):1418–1424. [PubMed: 15284053]

- Pelissier BMM, Camp SD, Gaes GG, Saylor WG, Rhodes W. Gender differences in outcomes from prison-based residential treatment. *Journal of Substance Abuse Treatment*. 2003; 24:149–160. [PubMed: 12745032]
- Pelissier B, Jones N. A review of gender differences among substance abusers. *Crime & Delinquency*. 2005; 51(3):343–372.
- Peters RH, Strozier AL, Murrin MR, Kearns WD. Treatment of substance-abusing jail inmates. *Journal of Substance Abuse Treatment*. 1997; 14(4):339–349. [PubMed: 9368210]
- Prendergast, MP., Cartier, J., Hall, E. CJDATS brief report: Transitional case management (TCM). 2005. Retrieved March 23, 2007, from http://cjdats.org/ka/ka-3.cfm?content_item_id=1321&folder_id=343
- Robinson EA, Brower KJ, Gomberg ES. Explaining unexpected gender differences in hostility among persons seeking treatment for substance use disorders. *Journal of Studies on Alcohol*. 2001; 62(5): 667–675. [PubMed: 11702806]
- Ross PH, Lawrence JE. Health care for women offenders. *Corrections Today*. 1998; 60(7):122–127.
- Rowan-Szal GA, Chatham LR, Joe GW, Simpson DD. Services provided during methadone treatment: A gender comparison. *Journal of Substance Abuse Treatment*. 2000; 19:7–14. [PubMed: 10867295]
- Rutherford MJ, Cacciola JS, Alterman AI, McKay JR, Cook TG. Contrasts between admitters and deniers of drug use. *Journal of Substance Abuse Treatment*. 2000; 18:343–348. [PubMed: 10812307]
- Sacks JY. Women with co-occurring substance use and mental disorders (COD) in the criminal justice system: A research review. *Behavioral Sciences & the Law*. 2004; 22(4):449–466. [PubMed: 15282834]
- Sheridan MJ. Comparison of the life experiences and personal functioning of men and women in prison. *Families in Society: The Journal of Contemporary Human Services*. 1996; 77:423–434.
- Staton M, Leukefeld C, Webster JM. Substance use, health, and mental health: Problems and service utilization among incarcerated women. *International Journal of Offender Therapy and Comparative Criminology*. 2003; 47(2):224–239. [PubMed: 12710367]
- Staton-Tindall M, Duvall JL, Leukefeld C, Oser CB. Health, mental health, substance use, and service utilization among rural and urban incarcerated women. *Women's Health Issues*. 2007; 17(4):183–192. [PubMed: 17560124]
- Staton-Tindall M, Garner B, Morey J, Leukefeld C, Krietemeyer J, Saum CA, et al. Gender differences in treatment engagement among a sample of incarcerated substance abusers. *Criminal Justice and Behavior*. 2007; 34(9):1143–1156.
- Tortu S, Goldstein M, Deren S, Beardsley M, Hamid R, Ziek K. Gender differences in HIV risk behavior and health status of drug users. *Women & Health*. 1998; 27(1–2):177–189. [PubMed: 9640641]
- Westermeyer J, Boedicker AE. Course, severity, and treatment of substance abuse among women versus men. *American Journal of Drug and Alcohol Abuse*. 2000; 26(4):523–539. [PubMed: 11097190]
- Wexler HK, Melnick G, Lowe L, Peters J. Three-year reincarceration outcomes for Amity in-prison therapeutic community and aftercare in California. *The Prison Journal*. 1999; 79(3):321–336.
- Young DS. Health status and service use among incarcerated women. *Family and Community Health*. 1998; 21(3):16–31.
- Zhang, Z. Drug and alcohol use and related matters among arrestees. Washington, DC: National Institute of Justice Publication; 2003. (National Institute of Justice Publication No. 2001C-003)

Table 1

Participant Sociodemographic Characteristics

Characteristic	<i>n</i>	%
Gender		
Male	545	76.4
Female	169	23.6
Site		
Colorado	154	21.5
Connecticut	165	23.0
Kentucky	196	27.3
Oregon	202	28.2
Race/ethnicity		
White	350	48.8
African American	225	31.4
Hispanic	39	5.4
Other race/ethnicity	103	14.4
Living situation		
Your home	248	34.6
Other home	353	49.2
Homeless/shelter	53	7.4
Other living situation	63	8.8
Marital status		
Married/cohabitating	128	17.9
Single, never married	396	55.2
Separated/divorce/widowed	192	26.8
Employment		
Full-time	252	35.1
Part-time	93	13.0
Looking	90	12.6
Not looking	206	28.7
Other	76	10.6
High school degree		
Yes	235	32.8
No	482	67.2

Note: *N* = 714. Median age (interquartile range) = 34 (27.1–41.4).

Table 2

	Male				Female					
	Treatment (n = 366)		No Treatment (n = 179)		Treatment (n = 113)		No Treatment (n = 56)			
	n	%	n	%	n	%	n	%	p	
Race/ethnicity										
White	171	46.7	76	42.5	.770	70	61.9	31	55.4	.212
African American	128	35.0	65	36.3		24	21.2	8	14.3	
Hispanic	19	5.2	10	5.6		5	4.4	5	8.9	
Other race/ethnicity	48	13.1	28	15.6		14	12.4	12	21.4	
Age, median (IQR)	35.3 (28.4–42.4)		3.6 (25.3–39.6)		<.001	36.2 (28.3–42.9)		33.4 (26.4–40.3)		.137
Living situation										
Your home	138	37.7	54	30.2	.077	29	25.7	26	46.4	.050
Other home	171	46.7	102	57.0		59	52.2	19	33.9	
Homeless/shelter	27	7.4	7	3.9		13	11.5	6	10.7	
Other living situation	30	8.2	16	8.9		12	10.6	5	8.9	
Marital status										
Married/cohabitating	66	18.0	29	16.2	.121	18	16.1	14	25.0	.248
Single, never married	203	55.5	115	64.2		50	44.6	26	46.4	
Separated/divorce/widowed	97	26.5	35	19.6		44	39.3	16	28.6	
High school degree										
Yes	128	35.0	42	23.5	.008	49	43.4	16	28.6	.067
No	238	65.0	137	76.5		64	56.6	40	71.4	
Employment										
Full-time	148	4.4	58	32.4	.071	29	25.7	16	28.6	.137
Part-time	46	12.6	28	15.6		14	12.4	5	8.9	
Looking for work	41	11.2	29	16.2		16	14.2	4	7.1	
Not looking for work	90	24.6	52	29.1		36	31.9	27	48.2	
Other	41	11.2	12	6.7		18	15.9	4	7.1	
Lifetime depression										
Yes	114	31.1	54	30.2	.844	64	56.6	29	51.8	.623

	Male						Female					
	Treatment (n = 366)			No Treatment (n = 179)			Treatment (n = 113)			No Treatment (n = 56)		
	n	%	p	n	%	p	n	%	p	n	%	p
No	252	68.9		125	69.8		49	43.4		27	48.2	
Lifetime anxiety												
Yes	150	41.0		65	36.3	.306	67	59.3		28	50.0	.323
No	216	59.0		114	63.7		46	40.7		28	50.0	
Lifetime suicide attempts												
Yes	33	9.0		19	10.6	.539	29	25.7		8	14.3	.115
No	333	91.0		160	89.4		84	74.3		48	85.7	
Hospitalized—psychiatric												
Yes	77	21.1		32	17.9	.426	38	33.6		10	17.9	.045
No	288	78.9		147	82.1		75	66.4		46	82.1	
Hospitalized—health												
Yes	244	66.7		107	59.8	.128	82	72.6		28	50.0	.006
No	122	33.3		72	40.2		31	27.4		28	50.0	
Lifetime substance use												
Alcohol	363	99.5		178	99.4	1.00	108	95.6		54	96.4	1.00
Inhalants	68	18.6		25	14.0	.225	21	18.6		7	12.5	.384
Marijuana	353	96.4		172	96.1	.812	109	96.5		51	91.1	.160
Hallucinogens	215	58.7		89	49.7	.054	59	52.2		33	58.9	.418
Crack	220	6.1		77	43.0	<.001	88	77.9		34	60.7	.028
Cocaine	280	76.5		116	64.8	.006	87	77.0		40	71.4	.453
Heroin	116	31.7		37	20.7	.008	35	31.0		9	16.1	.042
Methadone	48	13.1		15	8.4	.117	20	17.7		7	12.5	.505
Other opiates	134	36.6		55	30.9	.212	43	38.1		18	32.1	.499
Speedball	63	17.2		23	12.8	.212	258	22.1		5	8.9	.053
Methamphetamine	196	53.6		95	53.1	.927	71	62.8		41	73.2	.227
Amphetamine	67	18.3		23	12.8	.112	34	30.1		11	19.6	.196
Librium	98	26.8		47	26.3	.918	36	31.9		13	23.2	.283
Barbiturates	57	15.6		39	21.8	.093	20	17.7		9	16.1	1.00
Sedatives	52	14.2		21	11.7	.504	19	16.9		2	3.6	.013

	Male					Female				
	Treatment (<i>n</i> = 366)		No Treatment (<i>n</i> = 179)			Treatment (<i>n</i> = 113)		No Treatment (<i>n</i> = 56)		
	<i>n</i>	%	<i>n</i>	%	<i>p</i>	<i>n</i>	%	<i>n</i>	%	<i>p</i>
Lifetime injection drug use	122	73.1	46	55.4	.007	56	82.4	15	78.9	.743
No. lifetime arrests, median (IQR)	15 (8–30)		12 (5–20)		<.001	10 (5–25)		9.5 (4.25–15)		.124
Age at first arrest, median (IQR)	16 (13–18)		16 (13–18)		.213	18 (14.5–23)		20 (18–25.75)		.008
Total months in jail, median (IQR)	60 (36–110)		56 (28–108)		.159	30 (14.5–55.5)		24.4 (14–43.5)		.319
Crime										
Drug charge	361	98.6	173	96.6	.190	110	97.3	55	98.2	1.00
Driving while intoxicated	312	85.5	147	82.1	.317	90	79.6	49	87.5	.285
Sex work	37	1.1	10	5.6	.103	43	38.1	14	25.0	.120
Property crime	268	73.2	124	69.3	.361	79	69.9	40	71.4	1.00
Violent crime	106	29.0	83	46.4	<.001	14	12.4	7	12.5	1.00

Note: IQR = interquartile range.

Table 3

Independent Correlates of Substance Abuse Utilization: Males

Variable	Odds Ratio	95% Confidence Interval
Lifetime crack use	1.81	1.19–2.74 **
Number of arrests (per each arrest)	1.01	1.00–1.02 *
Violent arrest, lifetime	0.52	0.34–0.78 **
High school diploma / GED	1.55	1.00–2.40 *

Note: Model adjusted for total number of months in jail (lifetime), age, and site.

*
 $p < .05$.

**
 $p < .01$.

Table 4

Independent Correlates of Substance Abuse Utilization: Females

Variable	Odds Ratio	95% Confidence Interval
Hospitalized for health problem, lifetime	3.43	1.58–7.47 **
Living situation (own home is referent)		
Other home	3.65	1.56–8.53 **
Homeless/shelter	3.08	0.88–10.70
Other living situation	1.07	0.40–2.87

Note: Model adjusted for total number of months in jail (lifetime), age at first arrest, and site.

**
 $p < .01$.