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Initiating methadone in jail and in the community: Patient differences and implications of methadone treatment for reducing arrests

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Abstract

The extent to which patient characteristics differ between individuals entering methadone treatment through community programs and jail-based programs is not known. Such differences could impact the likelihood of relapse and recidivism in these two populations and inform efforts at targeting interventions. We compared treatment-entry characteristics of participants enrolling in methadone treatment in two studies conducted in Baltimore, one conducted in community programs ($N=295$) and the other in a jail-based program ($N=225$). Controlling for age, race, and gender, individuals starting methadone treatment in jail compared to the community, had more severe drug use and criminal justice profiles. These different characteristics suggest that patients initiating methadone in a jail-based program could have greater likelihood of future arrest compared to patients entering community-based treatment.

Keywords

Methadone treatment; Incarceration; Opioid addiction treatment; opioid agonist treatment; criminal justice

1. Introduction

1.1. Can methadone treatment reduce crime among recent arrestees?

In the late 1960s and early 1970s, a number of publications reported that methadone maintenance treatment reduced both criminal activity and the likelihood of arrest of individuals addicted to heroin. These early studies were conducted among methadone patients who had sought treatment in the community. For example, Dole and colleagues

Conflicts

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(1968) reported a decrease in *convictions* from 52 per 100 person-years prior to entering methadone treatment to 5.8 convictions per 100 person-years after treatment entry among their initial cohort of 750 patients in New York City. In the 1970s, several studies using officially-recorded *arrests* in quasi-experimental pre-post designs demonstrated a decrease in the number of arrests during methadone treatment as compared to the period prior to treatment enrollment (Bowden, Maddux, & Esquivel, 1978; Cushman, 1972; Haglund & Froland, 1978; Newman, 1973). In addition, a reported drop in crime in Washington DC in 1970 was attributed to both increased police activity and the expansion of methadone maintenance treatment (DuPont & Katon, 1971). Two large-scale, multi-program studies in the early 1970s and 1980s employing *self-reports* of criminal activity and a pre-post design concluded that methadone treatment reduced self-reported criminal activity and that the effect increased with time in treatment (Hubbard et al., 1989; Simpson, 1981). A multivariate analysis found a reduction in self-reported illegal activities in patients treated with methadone in another large multi-site US study, but it did not replicate the previous findings that this reduction increased as a function of time in treatment (Hubbard, Craddock, Flynn, Anderson, & Etheridge 1997).

A study using a pre-post design and official arrest records did not find a significant decrease in the number of individuals *arrested* in the two years before versus the two years after methadone treatment enrollment (Rothbard et al., 1999). These authors noted that the study was conducted during a period of increased cocaine use in the US and they postulated that cocaine use offset the impact of methadone treatment. (Schwartz and colleagues 2017), also using a prepost comparison of official arrest records, found no significant difference in the likelihood of arrest in the year before versus the year after methadone treatment enrollment among participants in two methadone programs in Baltimore. None of these studies of community-based treatment utilized randomly assigned non-treated concurrent controls.

In one of the few randomized trials with a control group that examined the impact of community methadone treatment on officially-recorded arrests, it was found that receiving interim methadone treatment (that is, methadone without counseling) was associated with significantly fewer arrests compared to being on a waiting list in the first 6 months after study enrollment, but not at the 12-month follow-up (Schwartz et al., 2009). These authors noted that most of the participants were not arrested despite reporting that they had committed crimes, underscoring that only a relatively small percentage of crimes result in an arrest (Inciardi & Chambers, 1972; Nurco, 1998).

In considering these reports on the impact of methadone treatment on crime, it is important to note the differences in methodology among the studies which ranged from pre-post quasi experimental designs to random assignment studies. In addition, various outcome measures have been used to gauge criminal behavior: self-reported criminal behavior; self-reported arrest; arrest records; and convictions. These differences may contribute to the contrasting study findings. But, stated briefly, the impact of methadone maintenance treatment on crime as measured by arrest records in treatment-seeking populations in the community seems uncertain.

The impact of methadone treatment on criminal behavior and arrest of heroin-addicted patients recruited from jails or prisons is even less clear (Hedrich et al., 2011). The first such study, conducted in the 1960s in New York City, compared outcomes of patients started on methadone maintenance treatment prior to release from jail with those not started on methadone treatment in a small sample of pre-release inmates. These authors found that 3 of 12 (25%) participants who started on methadone treatment, in contrast to 15 of 16 (93.8%) control participants, were *convicted* of new crimes 7 to 10 months following release (Dole et al., 1969). Magura et al., (2009) compared initiating buprenorphine versus methadone prior to release from a jail in New York City and found no significant differences in self-reported re-arrest or reincarcerations in the 3 months after release. However, there were low levels of post-jail treatment participation, which may have contributed to the high levels of arrest following release (40% vs. 50% for the buprenorphine and methadone conditions, respectively). Similarly, McKenzie and coworkers (2012) found no statistically significant difference in self-reported arrests in the six months following release for prisoners in Rhode Island who were randomly assigned to begin methadone treatment prior to release, as compared to prisoners assigned to start methadone treatment after release (8% vs. 11%). In a three-group randomized trial comparing assignment to prison pre-release counseling without medication to assignment to starting methadone treatment either before or after release, there were no significant differences in self-reported arrests during a 12-month post-release community follow-up (50.8%, 59.1%, and 52.9%, respectively) (Kinlock, Gordon, Schwartz, Fitzgerald, & O'Grady, 2009). In a data linkage study, Larney and coworkers (2012) examined 375 male opioid-addicted inmates in New South Wales, Australia and found that receiving methadone treatment at the time of release from prison was not significantly associated with the risk of re-incarceration. A Cochrane Collaboration review found low quality evidence from two trials for lack of efficacy of methadone treatment on reincarceration (Perry et al., 2015).

1.2. Can the uncertainty regarding the impact of methadone treatment on reducing crime be resolved?

Based on available data, there are a number of environmental and individual patient factors that contribute to the likelihood of arrest. Environmental factors include living in neighborhoods with high levels of recidivism, disadvantage and inequality, as well as secular trends in police practices (Hipp, Petersilia, & Turner, 2010; Kubrin & Stewart, 2006; Schwartz et al., 2017; Stahler et al., 2013). Individual characteristics include age, gender, patterns of alcohol and drug use, psychiatric disorders including anti-social personality, and history of prior arrest and incarceration (Campbell, Deck, & Krupski, 2007; Fridell, Hesse, Jaeger, & Kuhlhorn, 2008; McGovern, Demuth, & Jacoby, 2009; Rothbard et al., 1999; Stahler et al., 2013). In particular, heroin, amphetamine, polydrug use, and drug injection have been found to be associated with criminal justice system involvement (Hakansson & Berglund, 2012; Kopak, Hurt, Proctor, & Hoffmann, 2016; Staton-Tindall, Harp, Winston, Webster, & Pangburn, 2015). Some of these factors are beyond the control of treatment programs but others may be influenced by treatment. Some of these environmental factors can change substantially over a relatively brief period. For example, arrests in Baltimore decreased from 46,835 per year in 2012 to 27,291 in 2015 (Open Baltimore Beta, 2017). Because of such fluctuations in arrest practices, if the outcome measure used is arrests,

including concurrent control groups would seem to be a more robust approach than using a pre-post study design.

There is now in progress a National Institute on Drug Abuse-funded cooperative study consisting of three linked randomized trials of initiating medication treatment for opioid use disorder in jails. Two of these studies are examining extended-release naltrexone in jails in Albuquerque, NM (Farabee et al., 2016) and New York City, (McDonald et al., 2016) while the third is examining methadone in Baltimore, MD (Schwartz et al., 2016). All three studies include a non-medication control condition. The randomized trial in Baltimore is a 3-arm trial comparing starting methadone treatment with or without a dedicated helper (patient navigation) prior to release from pre-trial detention, with a control condition receiving only a treatment referral and overdose prevention information (Schwartz et al., 2016). A total of 225 adults were enrolled in the study. In the present report, we compare the baseline characteristics of the population of arrestees recruited from the Baltimore City Detention Center in this study, with the characteristics of a sample of 295 adults seeking methadone treatment in the community in Baltimore who were recruited for another community-based study by our group during roughly the same time period (Schwartz et al., 2016). This paper addresses the relative paucity of literature examining population differences between individuals with opioid use disorder entering studies of methadone treatment in jail and in the community. It will consider whether an adjustment in expectations about criminal justice outcomes between these two populations is warranted.

2. Methods

This paper compares the baseline characteristics of adult research participants with opioid use disorder (OUD) recruited for two separate randomized clinical trials of methadone treatment conducted in Baltimore. Recruitment for the jail study occurred in the Baltimore City Detention Center from December 16, 2014 to October 13, 2017. The study of the treatment-seeking population in the community recruited new patients from two Baltimore City Opioid Treatment Programs between September 13, 2011 and March 26, 2014.

2.1. Jail study: A randomized trial of interim methadone and patient navigation initiated in jail

This study was a 3-group randomized clinical trial in which adults with OUD being treated for opioid withdrawal in the Baltimore City Detention Center were randomly assigned to receive one of three treatments: (1) Interim Methadone with Patient Navigation (IM+PN); (2) IM without Patient Navigation (IM alone); (3) or brief methadone detoxification with drug education/overdose prevention and referral to treatment in the community, constituting an Enhanced-Treatment-as-Usual (ETAU) Condition.

Interim methadone refers to providing methadone treatment without counseling when waiting lists exist. It has been found to be more effective than remaining on a “waiting list” in facilitating entry into standard methadone treatment and reducing illicit opioid use (Schwartz et al., 2006; Yancovitz et al., 1991) and in reducing arrests (Schwartz et al., 2009). Patient navigation refers to practical assistance by a dedicated staff person to facilitate treatment entry and retention (Freeman, Muth, & Kerner, 1995; Sorensen et al.,

2005). The ETAU condition included more than usual care because it provided, in addition to treatment of opioid withdrawal symptoms, drug education, overdose prevention information, and referral to treatment.

Participants were assessed at baseline and 1, 3, 6, 12, and 24 months post-release to determine: entry and retention in treatment post-release; illicit opioid and cocaine use; DSM-5 criteria for opioid and cocaine use disorder; criminal behavior, arrests, and incarceration; and changes in self-reported HIV-risk behavior. More information on study design and methods may be found in Schwartz et al. (2016).

2.1.1. Participants—Study participants were 225 newly-arrested male and female adult detainees who were receiving treatment for opioid withdrawal in the Baltimore City Detention Center at time of enrollment. Eligibility criteria were: 1) meeting DSM-5 criteria for OUD; 2) being detained for at least 48 hours; 3) receiving opioid withdrawal treatment at the Detention Center; 4) being able and willing to provide informed consent in English; 5) being detained for a charge that, if found guilty, would likely result in a sentence of less than 1 year; 6) planning to reside in Baltimore (City or County) upon release; and, 7) being 18 years of age or older. Exclusion criteria included: 1) being enrolled in opioid agonist treatment (methadone or buprenorphine treatment) in the community at the time of arrest; 2) having a medical or psychiatric condition that would make participation unsafe in the judgment of the medical staff or the Principal Investigator (PI); 3) being pregnant; 4) having an allergy to methadone; or 5) needing treatment for moderate or severe alcohol or sedative hypnotic withdrawal. Participants were not paid for the baseline interview. The study protocol was approved by Friends Research Institute's Institutional Review Board (IRB).

Eligible individuals who agreed to be screened for study eligibility were identified by the health care staff in the detention center and referred to study research assistants (RAs). RAs met with individuals to screen for eligibility, offer informed consent, and administer a consent questionnaire. Upon obtaining informed consent, the RA administered the study baseline assessments which, along with the individual's medical exam notes, were presented to the study PI to confirm eligibility.

2.2. Treatment-seeking community-based study: A randomized clinical trial of patient-centered methadone treatment

This study was a parallel two-group randomized clinical trial of patient-centered methadone treatment conducted in two participating opioid treatment programs (OTPs) in Baltimore, MD (Schwartz et al., 2017). Study participants were 295 (174 male, 121 female) newly-admitted adult patients enrolled from September 2011 through March 2014 and randomly assigned to either: 1) Patient Centered Methadone (PCM; $n=146$); or 2) Treatment as Usual (TAU; $n=149$). In PCM, counselors were not responsible for enforcing the clinic rules and patients were encouraged but not mandated to attend counseling. TAU was the typical methadone maintenance treatment delivered in Baltimore in which counseling was mandatory and the counselors had the traditional counselor role of both therapist and clinic rule-enforcer. Although recruited from community treatment programs rather than jail, many

of these participants had criminal justice histories. More information on study design and procedures may be found in (Schwartz et al. 2017).

2.2.1 Procedures—Common baseline measures in both studies included:

Addiction Severity Index (ASI): (McLellan, Cacciola, & Zanis, 1997; McLellan et al., 1992): The ASI is a 30–45 minute self-report interview covering seven domains over the participant’s lifetime and past 30 days: medical, employment, substance use, legal, family, social, and psychological.

Modified World Mental Health Composite International Diagnostic Interview (WMH-CIDI) for Substance Use Disorders: (WHO, 2018): The modified WMH-CIDI was used to determine whether individuals met the DSM-5 criteria for opioid and cocaine use disorders in the 12 months prior to baseline.

World Health Organization Quality of Life (WHOQOL-BREF): (Skevington, Lotfy, O’Connell, & Group, 2004; WHOQOL GROUP, 1998): The WHOQOL-BREF is a brief 26-item instrument developed by the World Health Organization that assesses quality of life in four domains: physical, psychological, social, and environmental. It also includes a single item asking participants to rate their overall quality of life on a 5-point Likert-type scale from “very poor” to “very good”.

Economic Form 90 (EF-90): (Miller & Del Boca, 1994; Scheurich et al., 2005): The EF- 90 asks participants about outpatient and residential drug treatment, emergency room and inpatient hospital utilization, and criminal behavior, including number of arrests, types of offenses committed, and nights incarcerated in the past 90 days.

Participants were paid \$30 for completing the baseline interview. The study was approved by the Friends Research Institute Institutional Review Board (IRB) and the IRBs of the participating programs and all participants provided written informed consent.

2.3 Statistical analysis

The two study samples were compared on the following baseline characteristics obtained from the ASI (referencing past 30-day period prior to arrest or lifetime): number of days of alcohol intoxication, days of cocaine, heroin, illicit methadone, and other opioid use; number of days of emotional problems; number of days of illegal activity; whether participants worked (including under-the-table work); number of lifetime months incarcerated; whether participants were on parole/probation at baseline; and whether participants had a history of opioid injection (usual or most recent route). The following outcomes were drawn from the EF-90 (referencing the past 90 day time period): whether hospitalized overnight and how many nights; whether attended self-help meetings; and whether jailed/incarcerated overnight. Additionally, the following outcomes were analyzed: whether criteria were met for DSM-5 cocaine use disorder (CUD); whether participants reported prior methadone maintenance treatment (MMT) admissions; and the response to the WHOQOL-BREF single item asking “How would you rate your quality of life?” in the past 4 weeks.

All analyses were conducted in SPSS version 25 using a Generalized Linear Model approach in which all count variables (e.g., number of days) were assumed to follow a negative binomial distribution, with the exception of global quality of life, which was assumed to follow a normal distribution. Dichotomous variables were assumed to follow a binomial distribution. Each dependent variable was analyzed two ways: without control variables, and a second time controlling for gender, age, and race, because the two groups were found to differ on these three demographic characteristics.

3. Results

3.1. Participants

As shown in Table 1, compared to the community study of treatment seekers, participants in the jail study were significantly more likely to be male (80.4% vs. 59.0%) and less likely to be Caucasian (24.9% vs. 41.4%; both $p < 0.001$). Additionally, the jail study sample was significantly younger than the community treatment sample (mean [*SD*] years = 38.3 [10.4] for the jail study sample vs. 42.7 [10.1] for the community treatment sample; $p < 0.001$). The most common types of criminal behavior that participants reported committing during the 90 days prior to study enrollment, based on whether they were recruited from the jail vs. the community, respectively, were as follows: selling drugs (50.7% vs. 27.5% of participants); shoplifting/larceny (28.9% vs. 10.8%); selling stolen goods (24.0% vs. 9.2%); prostitution (21.8% vs. 9.8%); and assault (11.1% vs. 1.7%). Additionally, 6.3% of the total sample reported loitering, and <3% reported vandalism, burglary, robbery, fraud, forgery, car theft, and homicide. No one reported committing arson or sexual assault.

3.2. Comparison of baseline variables without control variables

The jail study sample, on average, had significantly more days of heroin, other opioids, and cocaine use, drinking to intoxication, and illegal activity in the 30 days prior to incarceration than the community treatment sample ($p < 0.05$; see Table 2). Additionally, participants in the jail study sample were significantly more likely to be on parole/probation at baseline (48% vs. 24%; $p < 0.001$), to meet criteria for DSM-5 CUD in the past 12 months ($p < 0.001$), and to have been incarcerated in the 90 days prior to their interview ($p = 0.001$) than the community treatment sample. In contrast, jail participants were significantly less likely than community treatment participants to have attended self-help meetings in the past 90 days ($p = 0.027$) and to have prior MMT admissions (37% vs. 54%; $p < 0.001$). Finally, the jail study sample reported significantly more lifetime months of incarceration than the community treatment sample (71.2 vs. 51.0; $p = 0.019$).

3.3. Comparison of baseline variables with control variables

When controlling for gender, age, and race, all significant findings reported in section 3.2 remained significant except whether participants had prior MMT admissions and the number of months of incarceration, which were no longer significant ($p > 0.05$). Additionally, in contrast to the analysis without control variables, when control variables were included in the analyses, participants in the jail study reported significantly more days of illicit methadone use in the past 30 days ($p = 0.001$) and had a lower mean global quality of life score ($p = 0.029$).

4. Discussion

Opioid Use Disorder (OUD) is associated with illegal activities related to illicit drug possession and sales and acquisitive crime such as shoplifting and burglary (Chaiken & Chaiken, 1990; Nurco, Hanlon, Kinlock, & Duszynski, 1988). These illegal activities may result in arrest and pre-trial detention, which present an opportunity to identify and treat OUD (Chandler, Fletcher & Volkow, 2009). There is strong evidence from randomized trials that methadone is effective in reducing illicit opioid use (Mattick, Breen, Kimber, & Davoli, 2009, 2014) and evidence from longitudinal studies that such treatment is associated with reduction in self-reported criminal behavior (Ball & Ross, 1991; Simpson & Lloyd, 1978).

In contrast to the evidence supporting an association between MMT and reduction in self-reported criminal behavior, there are inconsistent findings regarding MMT's association with reductions in both arrests and incarceration. This inconsistency is likely due to methodological differences between studies and secular trends. Thus, studies conducted in the 1970s employing pre-post designs found a decrease in official arrests following MMT entry (Bowden et al., 1979; Cushman, 1972; Hagland & Froland, 1978; Newman, 1973). In contrast, studies using similar designs that were conducted 20–30 years later, at the time of widespread cocaine use, did not confirm those arrest findings (Rothbard et al., 1999; Schwartz et al., 2017). In a more rigorous random assignment design, it was found that MMT without counseling was associated with lower rates of arrest at 6 months after treatment entry compared with a waiting list condition (Schwartz et al., 2009). Other factors that can contribute to differences in CJ study outcomes include differences in participant characteristics such as age, gender, history of arrest and incarceration, the prevalence of anti-social personality disorder, co-morbid stimulant use disorder, and parole and probation supervision. Environmental factors, including cross-study differences in local police arrest policies and neighborhood factors, could have also played a role in divergent findings with respect to frequency of arrest outcomes.

There are limited data regarding the effectiveness of starting methadone or other pharmacotherapies for opioid addiction prior to release from detention centers. Therefore, their impact on subsequent arrests following release from jail is uncertain. The present study sought to compare characteristics of participants enrolled in methadone treatment in the community with those of participants enrolled in a detention center study to compare these samples on variables that reasonably might be associated with the likelihood of future arrest during treatment. Such findings could be helpful in setting appropriate expectations for the effectiveness of efforts to integrate methadone treatment in detention centers, and for identifying what might be specialized support service needs for populations initiating treatment in jail as compared to community settings.

We found important differences in the characteristics of study participants entering methadone treatment through the jail compared to the community, which might indicate a greater propensity for future arrest based on previous research (Rothbard et al., 1999; Schwartz et al., 2017). Controlling for age, race, and gender, individuals starting methadone treatment in jail compared to the community, had more severe drug use and criminal justice profiles than individuals starting methadone treatment in the community. On average, the

jail-recruited sample used illicit opioids and cocaine more frequently, drank to intoxication more frequently, and was more likely to have a cocaine use disorder than the community treatment sample. More frequent substance use would expose individuals to increased likelihood of arrest for illicit psychoactive substance possession and sales and acquisitive crimes (Ball, Shaffer, & Nurco, 1983; Palamar, Davies, Ompad, Cleland, & Weitzman, 2015), while more frequent drinking to intoxication can lead to arrest for drunk and disorderly charges, violence, and driving while intoxicated charges (McClelland & Teplin, 2001; Schwartz & Beltz, 2018). Jail study participants were also more likely, on average, to be on parole or probation, and to have had spent longer periods of time incarcerated during their lifetime. Parole and probation supervision can lead to increased likelihood of arrest due to a variety of potential infractions, including positive drug tests, failure to attend supervision sessions, and new arrests for unrelated charges (Desmond & Maddux, 1996).

In the present study, we measured neither motivation for treatment nor motivation for change in drug use and illegal behavior. Thus, it is possible that participants enrolled in the community study who sought treatment on their own were more motivated than the participants recruited from the Detention Center. Motivation for change may play a role in treatment retention and outcomes (Joe et al., 1998; Simpson et al., 1995). Furthermore, despite the greater severity of drug use and criminal justice involvement associated with the jail participant sample compared to the community participant sample, detainees with OUD typically receive fewer services than their community counterparts. Thus, there is considerable opportunity to improve detainees' drug treatment and criminal justice outcomes following release.

We are currently collaborating with researchers at New York University and University of California, Los Angeles on a NIDA-funded cooperative study entitled SOMATICS, conducted in detention centers in Albuquerque, Baltimore, and New York City (Chandler, 2016). This ongoing study is examining the impact of pharmacotherapy for OUD among individuals recruited from jails. Each of these three studies uses concurrent control conditions and will provide important new data on the effects of initiating OUD medications and services in jail settings. Given the predicted differences in participant age and cocaine use on the likelihood of arrest, expectations should be adjusted to reflect the findings in the present analysis which indicate that study participants recruited from jails might have a worse prognosis than participants recruited in community settings. The concurrent controls will provide a more relevant contrast with the active interventions because they should have similar baseline characteristics across the study arms. As OUD treatment initiation expands into new settings, it will be important to ensure that the impact of such treatment is considered within the appropriate context of the population to which it is provided. Given their greater severity of drug use and criminal justice involvement, it is possible that detainees with OUD may need services of different type, frequency, and intensity than individuals with OUD seeking treatment in the community.

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Highlights

- Engaging arrestees in methadone treatment during incarceration may be a useful public health and safety strategy.
- This study found that controlling for age, race, and gender, individuals starting methadone treatment in jail compared to the community, had more severe drug use and criminal justice profiles.
- These different characteristics suggest that patients initiating methadone in a jail-based program could have greater likelihood of future arrest compared to patients entering community-based treatment.

Table 1.Participant characteristics at baseline ($N=520$)

	Jail sample ($n = 225$)	Community sample ($n = 295$)	Test statistic	p
% Male (n)	80.4 (181)	59.0 (174)	$\chi^2(1) = 27.1$	<0.001
Age, mean (SD)	38.3 (10.4)	42.7 (10.1)	$F(1, 518) = 24.6$	<0.001
Race			$\chi^2(1) = 15.4$	<0.001
% Black/African American (n)	61.8 (139)	58.0 (171)		
% White (n)	24.9 (56)	41.4 (122)		
% Other race/>1 race (n)	13.3 (30)	0.7 (2)		
% Married (n)	19.1 (43)	19.7 (58)	$\chi^2(1) = 0.03$	0.875
Years of education, mean (SD)	11.3 (1.9)	11.3 (2.0)	$F(1, 518) = 0.01$	0.909

Note: Test statistic for Race was obtained by collapsing data into two categories: White ($n = 56$ and $n = 122$ for jail and community treatment samples, respectively) and African American/other ($n = 169$ and $n = 173$ for the jail and community treatment samples, respectively).

Table 2.

Estimated marginal means (95% confidence intervals), parameter estimates (95% confidence intervals), and *p* values for jail study and community study baseline differences (*N*=520).

	Jail sample (<i>n</i> = 225)	Community sample (<i>n</i> = 295)	Odds ratio (95% CI)	<i>b</i> (95% CI)	<i>p</i>
<i>Recent</i>					
Number of days heroin use past 30 days	28.2 (26.1, 30.5)	25.0 (23.3, 26.7)		-0.12 (-0.22, -0.02)	0.019
Number of days methadone (illicit) use past 30 days	2.0 (1.5, 2.5)	1.4 (1.1, 1.8)		-0.34 (-0.68, -0.001)	0.050
Number of days other opioid use past 30 days	4.5 (3.5, 5.7)	1.9 (1.5, 2.4)		-0.88 (-1.2, -0.54)	<0.001
Number of days cocaine use past 30 days	15.4 (12.4, 19.0)	7.8 (6.4, 9.4)		-0.68 (-0.97, -0.39)	<0.001
Number of days alcohol to intoxication past 30 days	6.8 (5.4, 8.5)	1.4 (1.1, 1.8)		-1.6 (-1.9, -1.2)	<0.001
Number of days illegal activity past 30 days	18.5 (14.9, 22.8)	8.3 (6.8, 10.0)		-0.80 (-1.1, -0.51)	<0.001
Number of days emotional problems past 30 days	10.3 (8.4, 12.7)	11.0 (9.2, 13.1)		0.06 (-0.21, 0.33)	0.679
Worked (legal employment) past 30 days	0.44 (0.37, 0.50)	0.37 (0.32, 0.43)	0.77 (0.54, 1.1)		0.149
Meets criteria for DSM-5 Cocaine Use Disorder (past 30 days)	0.60 (0.53, 0.66)	0.42 (0.37, 0.48)	0.49 (0.34, 0.70)		<0.001
Overall quality of life (past 4 weeks)	2.9 (2.8, 3.0)	3.0 (2.9, 3.1)		0.10 (-0.08, 0.28)	0.275
Treated in the hospital past 90 days	0.17 (0.13, 0.23)	0.15 (0.11, 0.19)	0.84 (0.52, 1.3)		0.456
Number of nights treated in the hospital past 90 days	0.66 (0.51, 0.84)	0.54 (0.43, 0.67)		-0.21 (-0.54, 0.13)	0.231
Incarcerated overnight past 90 days	0.27 (0.22, 0.33)	0.15 (0.12, 0.20)	0.48 (0.31, 0.75)		0.001
Attended self-help meetings past 90 days	0.14 (0.10, 0.19)	0.21 (0.17, 0.26)	1.7 (1.1, 2.7)		0.027
On parole/probation at baseline	0.48 (0.42, 0.55)	0.24 (0.20, 0.29)	0.34 (0.23, 0.49)		<0.001
<i>Lifetime</i>					
Prior methadone maintenance treatment	0.37 (0.31, 0.43)	0.54 (0.48, 0.59)	2.0 (1.4, 2.8)		<0.001
Opioid injection	0.53 (0.46, 0.59)	0.61 (0.56, 0.67)	1.4 (1.0, 2.0)		0.053
Months of incarceration	71.2 (57.7, 87.8)	51.0 (42.5, 61.3)		-0.33 (-0.61, -0.05)	0.019

Notes: 95% CI = 95% Confidence Interval. *b* = unstandardized regression coefficient. Test statistic for Race was obtained by collapsing data into two categories: White (*n* = 56 and *n* = 122 for the jail and community treatment samples, respectively) and African American/other (*n* = 169 and *n* = 173 for the jail and community treatment samples, respectively). WHOQOL-BREF global question ("How would you rate your quality of life?") uses a 5-point Likert-type score from 1 ("very poor") to 5 ("very good").

Table 3.

Estimated marginal means (95% confidence intervals), parameter estimates (95% confidence intervals), and *p* values for jail study and community study baseline differences with control variables gender, race, and age (*N*=520).

	Jail sample (<i>N</i> = 225)	Community sample (<i>N</i> = 295)	Odds ratio (95% <i>CI</i>)	<i>b</i> (95% <i>CI</i>)	<i>p</i>
<i>Recent</i>					
Number of days heroin use past 30 days	27.8 (25.3, 30.5)	24.7 (23.1, 26.5)		-0.12 (-0.23, -0.007)	0.038
Number of days methadone (illicit) use past 30 days	2.8 (2.0, 3.8)	1.4 (1.1, 1.7)		-0.71 (-1.1, -0.30)	0.001
Number of days other opioid use past 30 days	3.8 (2.8, 5.2)	1.9 (1.5, 2.4)		-0.72 (-1.1, -0.33)	<0.001
Number of days cocaine use past 30 days	16.9 (13.1, 21.8)	8.0 (6.5, 9.7)		-0.75 (-1.1, -0.44)	<0.001
Number of days alcohol to intoxication past 30 days	6.0 (4.5, 7.9)	1.3 (1.0, 1.7)		-1.5 (-1.9, -1.1)	<0.001
Number of days illegal activity past 30 days	16.2 (12.5, 21.0)	8.2 (6.8, 10.0)		-0.68 (-0.99, -0.37)	<0.001
Number of days emotional problems past 30 days	10.2 (7.9, 13.1)	11.2 (9.4, 13.5)		0.10 (-0.20, 0.41)	0.511
Worked (legal employment) past 30 days	0.39 (0.30, 0.48)	0.35 (0.28, 0.41)	0.84 (0.53, 1.3)		0.438
Meets criteria for DSM-5 Cocaine Use Disorder (past 30 days)	0.63 (0.54, 0.72)	0.43 (0.37, 0.51)	0.44 (0.28, 0.71)		0.001
Overall quality of life (past 4 weeks)	2.7 (2.6, 2.9)	3.0 (2.8, 3.1)		0.22 (0.02, 0.41)	0.029
Treated in the hospital past 90 days	0.16 (0.12, 0.23)	0.15 (0.11, 0.19)	0.87 (0.53, 1.4)		0.560
Number of nights treated in the hospital past 90 days	0.70 (0.51, 0.96)	0.52 (0.41, 0.65)		-0.31 (-0.69, 0.08)	0.117
Incarcerated overnight past 90 days	0.26 (0.20, 0.34)	0.16 (0.12, 0.20)	0.52 (0.33, 0.84)		0.007
Attended self-help meetings past 90 days	0.14 (0.09, 0.20)	0.21 (0.17, 0.27)	1.7 (1.0, 2.9)		0.042
On parole/probation at baseline	0.41 (0.33, 0.50)	0.23 (0.18, 0.29)	0.42 (0.27, 0.66)		<0.001
<i>Lifetime</i>					
Prior methadone maintenance treatment	0.49 (0.40, 0.59)	0.54 (0.47, 0.61)	1.2 (0.78, 1.9)		0.375
Opioid injection	0.66 (0.56, 0.74)	0.67 (0.60, 0.73)	1.1 (0.68, 1.7)		0.786
Months of incarceration	35.6 (28.5, 44.5)	29.5 (25.0, 34.8)		-0.19 (-0.45, 0.08)	0.168

Notes: 95% *CI* = 95% Confidence Interval. *b* = unstandardized partial regression coefficient. Test statistic for Race was obtained by collapsing data into two categories: White (*n* = 56 and *n* = 122 for the jail and community treatment samples, respectively) and African American/other (*n* = 169 and *n* = 173 for the jail and community treatment samples, respectively). WHOQOL-BREF global question ("How would you rate your quality of life?") uses a 5-point Likert-type score from 1 ("very poor") to 5 ("very good").