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## Improvements in Outcomes in Methadone Patients on Probation/Parole Regardless of Counseling Early in Treatment

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### Abstract

**Objective**—This secondary data analysis examined the association between criminal justice (CJ) status and outcomes over 12 months of methadone maintenance treatment.

**Methods**—In the parent study, 230 newly-admitted patients were randomly assigned to methadone either with or without counseling for 4 months followed by standard methadone with counseling. Participants completed the ASI and urine drug testing at baseline and 4- and 12-month follow-up and the Treatment Readiness (TR) scale at baseline. The relationship between baseline CJ status (whether participants were on probation or parole), CJ status by study counseling condition, and CJ status by TR with heroin and cocaine use, illegal activity, days in treatment and treatment retention, arrests, and number of days incarcerated or hospitalized during follow-up was examined.

**Results**—Compared to participants not on probation/parole, probationers/parolees showed significant reductions in cocaine-positive tests from baseline to 12 months ( $p < .001$ ). Probationers/parolees additionally reported significantly fewer days of illegal activity than non-probationers/parolees at 12 months ( $p = .02$ ). There was no relationship between CJ status and counseling condition for any outcomes. The relationship between CJ status and TR was significant only for cocaine-positive tests assessed over time ( $p = .017$ ).

**Conclusions**—Findings suggest that methadone patients on probation/parole showed improvements in outcomes comparable to patients not on probation/parole, regardless of whether they received counseling during the first 4 months of treatment.

### Keywords

Opioid addiction; methadone treatment; criminal justice

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## INTRODUCTION

Criminal justice policies over the past three decades have led to dramatic increases in the number of drug-dependent adults under criminal justice (CJ) supervision in the US (Mauer and King, 2007). The majority of these individuals are not incarcerated but rather under some form of community supervision. Of the 1.5 million adults on parole or other supervised release during the previous year in 2010, more than a quarter (27.0%) were reported to be illicit drug users (SAMHSA, 2011). Additionally, nearly a third (29.9%) of the nation's 5.4 million adults on probation in 2010 were illicit drug users (SAMHSA, 2011).

Many probationers and parolees must comply with certain requirements set forth by sentencing judges or their agents, such as enrolling in substance abuse treatment. Others may not be mandated to treatment but may feel an informal pressure to enter treatment through a recommendation from a parole or probation agent or other CJ official (Farabee et al., 1998; Prendergast et al., 2009). Both formal and informal pressure to enter treatment from CJ officials may be considered a form of external motivation.

The use of opioid pharmacotherapy in treating opioid-dependent individuals under CJ supervision has been recommended by the World Health Organization (WHO, 2009) and the United Nations Office on Drugs and Crime (UNODC, 2006). Despite the proven effectiveness of methadone maintenance treatment (MMT) in reducing drug use, criminal activity, overdose death, recidivism, and HIV-risk behaviors (Ball and Ross, 1991; Marsch, 1998; Gibson et al., 2008; Gowing et al., 2008; Mattick et al., 2009; Kelly et al., 2012), CJ officials do not often refer parolees and probationers to MMT (NASADAD, 2006; Nunn et al., 2009; Gryczynski et al., 2012).

Several studies have found that MMT patients under CJ supervision do as well as or better than non-CJ-involved patients in terms of retention (Collins and Allison, 1983; Simpson and Friend, 1988; Brecht et al., 1993; Grella et al., 1994), drug use (Simpson and Friend, 1988; Anglin et al., 1989; Brecht et al., 1993), and criminal activity (Anglin et al., 1989; Brecht et al., 1993). Other studies have found that CJ patients in MMT had shorter retentions than non-CJ-involved patients (Desmond and Maddux, 1996; Joe et al., 1998; Magura et al., 1998; Hiller et al., 2000), although this may have been due to increased subsequent arrests or violation of conditions of supervision (Desmond and Maddux, 1996; Hiller et al., 2000). Both Desmond and Maddux (1996) and Hiller and colleagues (2000) found that MMT patients on probation or parole at admission were significantly more likely than patients not on probation or parole to become incarcerated during a 12-month follow-up period, but that there were no differences by CJ supervision status with regard to drug use or criminal behavior.

Internal motivation—either by itself or as it interacts with externally motivating factors such as legal pressure or coercion—may additionally influence outcomes for MMT patients (Simpson and Joe, 1993; Joe et al., 1998; Gregoire and Burke, 2004; Zeldman et al., 2004; Kelly et al., 2011). The relationship between the interaction of external legal pressure and internal motivation and treatment outcomes is not well understood (Gregoire and Burke, 2004; Prendergast et al., 2009), but studies have suggested that externally-motivated patients may only achieve positive treatment outcomes if they are internally motivated (Simpson and Joe, 1993; Zeldman et al., 2004).

The present study is a secondary analysis from a recently-concluded randomized clinical trial in which newly-admitted adult patients in one MMT program in Baltimore were assigned to receive either methadone alone (termed Interim Methadone) during the first 4 months of treatment followed by 8 months of methadone with counseling; or methadone

with counseling for 12 months (Standard Methadone). At a second Baltimore MMT program, participants were randomly assigned to one of the two conditions described above or a third condition in which the counselor had a reduced caseload during the study (termed Restored Methadone because it restored the lower caseloads common in the early days of methadone treatment in the US). The parent study found no differences among treatment conditions in retention, heroin or cocaine use, illegal activity (Schwartz et al., 2012), and HIV-risk behaviors (Kelly et al., 2012). This study will examine three questions: 1) Did participants in the parent study who were on probation or parole at treatment entry (regardless of assigned study counseling condition) differ from participants not on probation or parole in terms of their treatment outcomes over 12 months?; 2) How did study counseling condition impact outcomes for participants on probation or parole compared to participants not on probation or parole?; 3) Did baseline treatment readiness (TR) predict outcomes differently for participants on probation or parole compared to participants not on probation or parole?

## METHODS

Parent study methods, summarized briefly below, are described in detail in Schwartz et al., 2011a, 2012.

### Participants

The parent study consisted of 230 heroin-dependent adults seeking enrollment in one of two community-based methadone treatment programs (MTPs) in Baltimore City for whom a treatment slot was not available for at least two weeks outside of study participation. Eligibility criteria required participants to be at least 18 years of age and meet US federal criteria for MMT (at least one year of opioid dependence). Participants were excluded if they were pregnant or showed evidence of an unstable medical or psychiatric condition requiring acute care. Friends Research Institute's IRB and the IRBs of the participating MTPs approved the protocol. Study participants provided written informed consent.

**Study Counseling Condition**—After completing MTP admission procedures and baseline assessment, participants were randomized to study counseling condition. Participants at one MTP were assigned on a 1:1 basis to either Interim Methadone (IM) or Standard Methadone (SM). Participants at the second MTP were assigned on a 1:1:1 basis to IM, SM, or Restored Methadone (RM). Of the 230 participants, 99 were assigned to IM, 104 to SM, and 27 to RM.

IM consisted of daily methadone administered under direct observation seven days per week for up to 4 months, a minimum of three drug tests, and emergency counseling only. Participants in IM were eligible to be transferred to standard methadone treatment as slots became available. SM consisted of prescribed methadone and the standard level of counseling, in which the patient-to-counselor ratio was generally between 40:1 and 50:1. RM consisted of prescribed methadone and counseling provided by a counselor whose caseload did not exceed 25 patients. Due to constraints in funding, RM was available at only one site. As a result of the small number of RM participants, the SM and RM conditions were combined in this analysis. Preliminary analyses comparing the RM and SM conditions showed no significant differences on any outcomes included in this study (all  $p$ s>.05).

### Measures

All participants completed the ASI (McLellan et al., 1992) at baseline (treatment entry), and at 4- and 12-month follow-up. CJ supervision status at baseline was obtained from one item

in the ASI's Legal section: "Are you on probation or parole?" Participants were instructed to answer "yes" or "no" to the question.

Participants also completed a Supplemental Questionnaire (Nurco et al., 1988) at baseline and follow-ups, which asked more detailed information on lifetime and recent drug use, criminal behavior, and previous drug treatment episodes, as well as recent information on incarceration and hospitalizations.

The Treatment Readiness (TR) scale, an 8-item scale that assesses participants' degree of commitment to change through participation in drug treatment (Simpson and Joe, 1993), was administered at baseline only.

Urine samples were collected by MTP staff at baseline and follow-up for participants still enrolled in treatment and by research staff for participants who were not in treatment at follow-up. Treatment status and discharge information were additionally provided by MTP staff.

### Statistical Analysis

**Outcome Variables**—Two sets of outcomes were included in this study. The first included the number of days participants reported in the ASI that they had used heroin, used cocaine, and engaged in illegal activity in the past 30 days at each time point (baseline, 4-month follow-up, 12-month follow-up), and results of opioid and cocaine urine drug screening (positive/negative) at each point. Models that included these outcomes measured changes in each variable over time.

The second set included the number of days enrolled in treatment (1–365) and retention in treatment at 12 months (yes/no). Self-reported number of days hospitalized for medical problems, days incarcerated, and whether participants reported having been arrested during the 12-month follow-up period (yes/no) were also included as outcomes. These variables assessed the entire 12-month follow-up period, so analyses for these outcomes were limited to the subsample of 200 participants who had complete follow-up information.

**Statistical Methods**—Data were analyzed using Generalized Estimating Equations (GEE) models. Assessment of changes over time in the first set of outcomes was determined using GEE with a repeated time effect (baseline, 4-month follow-up, 12-month follow-up). For all models, Poisson regression was utilized for outcomes assumed to follow a Poisson distribution and logistic regression for outcomes assumed to follow a binomial distribution.

**Covariates**—Covariates included in all models were demographics (gender, race, age) and study counseling condition to which participants had been randomly assigned (IM or SM/RM).

**Explanatory Variables**—Criminal justice supervision status (whether participants were on probation/parole at baseline) was the primary explanatory variable, included in all models. Baseline treatment readiness was also included as an explanatory variable based on literature suggesting that internal motivation may be affected by external pressure and may moderate treatment effects on outcome (Simpson and Joe, 1993; Joe et al., 1998; Knight et al., 2000; Longshore et al., 2004). Finally, age of onset of heroin use, history of drug injection (yes/no), and history of MMT (yes/no) reported at baseline were included as explanatory variables to address concerns that previous studies assessing drug treatment outcomes for CJ patients did not take into account drug history (Marshall and Hser, 2002; Klag et al., 2005).

**Model Comparisons**—To answer the three questions posed in the Introduction, several models were assessed for each outcome. We first fit a main-effects model to examine the relationships between CJ status and outcomes. Second, we examined models that included first-order interactions between CJ status and each explanatory variable to examine the interaction between CJ status and counseling condition, and the interaction between CJ status and TR. Third, we examined models with the first-order interactions and added in second-order interactions consisting of the interaction of all first-order interactions by time. Our interest in these models focused on the relationships between the outcomes and the interactions of CJ status and counseling condition and CJ status and TR over time.

Results were examined to determine the parsimonious model. For each outcome that showed significant second-order interactions, a final analysis was conducted that included CJ status, all covariates, all significant explanatory variables, and significant interactions (and their simpler effects). For those models that included repeated measures, time was included as a main effect in all analyses. If none of the second-order interactions were significant, then the model with significant first-order interactions was chosen as the final model. If no first-order interactions were significant, then the model that included only the significant main effects was chosen as the final model.

## RESULTS

### Participant Characteristics

In the total sample of 230 participants, 93 (40.4%) were on probation/parole, and 53 (57.0%) of the probationers/parolees responded “yes” to the ASI item “Was this admission prompted or suggested by the criminal justice system?” At 4 months, 89/93 probationers/parolees (95.7%) and 127/137 non-probationers/parolees (92.7%) were interviewed, and 85/93 (91.4%) probationers/parolees and 125/137 (91.2%) non-probationers/parolees were interviewed at 12 months.

The IM condition received a mean (*SD*) of 0.7 (1.7) individual counseling sessions over the first 4 months of treatment, and the SM/RM condition received 7.3 (5.2) individual sessions (Schwartz et al., 2011a). IM received a mean of 7.9 (6.1) individual sessions from 4–12 months, while SM/RM received 7.5 (7.8) individual sessions (Schwartz et al., 2012).

Table 1 shows participant characteristics for the total sample and for the probation/parole and non-probation/parole samples. There were significantly more males in the probation/parole group compared to the non-probation/parole group (77.4% vs. 65.0%;  $p=.04$ ). Participants on probation/parole had significantly lower mean scores for baseline treatment readiness than participants not on probation/parole (37.8 vs. 39.0;  $p<.001$ ).

### Results by Question

1. Did participants who were on probation or parole at treatment entry (regardless of assigned study counseling condition) differ from participants not on probation or parole in terms of drug treatment outcomes over 12 months?

Table 2 shows estimated marginal means for self-reported number of days of heroin use, cocaine use, and illegal activity, and opioid- and cocaine-positive drug tests at baseline and 4 and 12 months. The interaction between CJ status and time was not significant for the number of days of heroin or cocaine use or the likelihood of opioid-positive drug tests (all  $p>.05$ ). However, the interaction between CJ status and time was significant for the likelihood of cocaine-positive drug tests [ $\chi^2(2)=8.8$ ;  $p=.012$ ] and days engaged in illegal activity [ $\chi^2(2)=8.1$ ;  $p=.018$ ]. Pairwise comparisons indicated that probation/parole participants were significantly more likely than non-probation/parole participants to test

positive for cocaine at baseline [.58 vs. .42;  $p=.026$ ], but probation/parole participants significantly decreased their likelihood of positives from baseline to 12 months [.35 at 12 months ( $p<.001$ ) for probation/parole participants vs. .38 at 12 months ( $p=.39$ ) for non-probation/parole participants]. In terms of illegal activity, both groups showed significant reductions over time, but probation/parole participants reported significantly fewer days than non-probation/parole participants at 12 months [.29 days for probationers/parolees vs. 1.3 days for non-probationers/parolees;  $p=.02$ ].

There were no significant differences between the CJ status groups in retention at 12 months, days in treatment over 12 months, whether participants were arrested during follow-up, days of incarceration, or days of hospitalization (all  $ps>.05$ ).

2. How did study counseling condition impact outcomes for participants on probation or parole compared to participants not on probation or parole?

There were no significant interactions among CJ status, counseling condition, and time in self-reported number of days of heroin or cocaine use, opioid- or cocaine-positive drug tests, or number of days engaged in illegal activity (all  $ps>.05$ ).

There were no significant interactions between CJ status and counseling condition in retention at 12 months, days in treatment over 12 months, whether participants had been arrested, days of incarceration, or days of hospitalization (all  $ps>.05$ ).

3. Did baseline treatment readiness (TR) predict outcomes differently for participants on probation or parole compared to participants not on probation or parole?

The interaction of CJ status, TR, and time was not significantly related to self-reported drug use or illegal activity, or to opioid-positive drug tests (all  $ps>.05$ ). CJ status by TR by time was significantly related to cocaine-positive drug tests [ $\chi^2(2)=8.2$ ;  $p=.017$ ]. However, none of the six simple main effects within CJ status by time by TR (the test of TR within each of the CJ status groups at each time point) were significant (all  $ps>.05$ ).

The interaction between CJ status and TR was not significant for retention at 12 months, days in treatment over 12 months, whether participants had been arrested, days of incarceration, or days of hospitalization (all  $ps>.05$ ).

## DISCUSSION

Study participants who were on probation or parole at baseline did as well as or better than participants not on probation or parole. These results are consistent with previous findings from studies involving methadone patients (Collins and Allison, 1983; Simpson and Friend, 1988; Anglin et al., 1989; Brecht et al., 1993; Grella et al., 1994; Desmond and Maddux, 1996; Hiller et al., 2000).

Participants who were on probation or parole were more likely to test positive for cocaine at baseline than participants not on probation or parole, but probationers/parolees showed statistically significant reductions in positive tests over the 12-month study. Approximately one-third of participants in both groups had positive cocaine tests at 12 months. In light of evidence that cocaine users are less likely to enter MMT (Booth et al., 2004; Schwartz et al., 2011b) and that cocaine use is reduced modestly in individuals under CJ supervision while in MMT, parole and probation agents may be advised to refer opioid-dependent individuals who use cocaine to methadone treatment.



Both groups of participants showed significant reductions in illegal activity over the 12 months, but participants who were on probation or parole had significantly fewer days of illegal activity compared to participants not on probation or parole at 12 months. These findings are similar to studies by Brecht et al. (1993) and Anglin et al. (1989), which found that participants at higher levels of legal coercion reported greater reductions in illegal activity (i.e., burglary and total property crime) during treatment. These authors suggested that such improvements may be due to greater levels of criminal involvement among coerced participants at baseline, allowing for more room for improvement for these participants. This was not the case in this study, however, as participants who were on probation/parole reported similar rates of illegal activity at baseline to participants not on probation/parole. As with Brecht and Anglin, it is possible that participants on probation/parole in the current study reduced their illegal activity due to their CJ supervision status and increased monitoring. An additional possibility is that probation/parole participants underreported their involvement in illegal activity because of increased monitoring and chance of being rearrested or having their probation/parole violated by their agents, despite assurances in the study that responses were confidential. The reduction in cocaine use for probation/parole participants may also have played a role in the reduction in illegal activity, in that prior research has shown an association between cocaine use and illegal activity (Inciardi, 2008).

That retention and days in treatment did not differ between the probation/parole and non-probation/parole groups also supports the utility of referring individuals under CJ supervision to methadone treatment. MMT has superior retention rates compared to other treatment approaches (Mattick et al., 2009) and longer retention in treatment has been found to be related to superior treatment outcomes (Gibson et al., 2008). Short-term detoxification of opioid-dependent adults, an alternative to MMT, generally has poor outcomes and exposes detoxified individuals to increased risk of overdose death (Amato et al., 2005).

Participants on probation/parole who were assigned to receive methadone without counseling during the first 4 months of the study (IM) had outcomes comparable to participants in this condition not on probation/parole. These findings support the utility of IM for CJ patients in areas where there are waiting lists for treatment. In localities in which publicly-funded MMT is not available, consideration should be given to permitting individuals under CJ supervision to attend private methadone programs for methadone without counseling for a substantially lower weekly fee than standard methadone treatment.

The relationship between CJ status and treatment readiness was only found to be significant for cocaine-positive drug tests. However, the nature of this relationship was unclear based on an examination of the results of the simple effects. More research on the interaction between criminal justice status and treatment readiness is needed to further understand this relationship.

There were several limitations in this study. First, although participants were reminded at each interview that their responses were confidential and would not be shared with treatment staff or CJ agents, drug use and illegal activity may have been underreported, particularly by participants on probation or parole. Second, the measure used in the study does not distinguish between participants on probation *vs.* parole, and does not precisely address the extent to which legal coercion was formal *vs.* informal (i.e., mandated *vs.* suggested). This is a limitation with the ASI questions in this regard. The level of supervision for probation and parole may differ and might have implications for outcomes. Future research could differentiate between parole and probation as it relates to outcomes. Finally, models included a relatively large number of effects for a relatively small number of participants,

thereby increasing the likelihood of a Type I error. Nonetheless, the number of significant effects involving parole/probation status was scant.

## CONCLUSIONS

In summary, study findings indicate that patients on probation or parole and patients not under such supervision respond similarly during the first 12 months of MMT in terms of reductions in heroin and cocaine use, illegal activities, and retention. Findings should provide encouragement to criminal justice agencies and methadone providers to join forces to make methadone more widely available to probationers and parolees with opioid dependence. The finding that study counseling condition did not influence outcomes should also encourage localities with waiting lists or without publicly funded treatment capacity to utilize interim methadone treatment for CJ populations.

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**TABLE 1**  
Participant sociodemographic characteristics at baseline by criminal justice supervision status ( $N = 230$ )

Variable	Total Sample ( $N = 230$ )	Probationers/ Parolees ( $n = 93$ )	Non- Probationers/ Parolees ( $n = 137$ )	Test Statistic	$p$
Male, $n$ (%)	161 (70.0)	72 (77.4)	89 (65.0)	$\chi^2(1) = 4.1$	.04
Race, $n$ (%)				$\chi^2(1) = .35$	.55
African American	178 (77.4)	73 (78.5)	105 (76.6)		
White	49 (21.3)	18 (19.4)	31 (22.6)		
Native American	2 (0.9)	2 (2.2)	0 (0.0)		
Asian/Pacific Islander	1 (0.4)	0 (0.0)	1 (0.7)		
Age (years), mean ( $SD$ )	43.2 (8.0)	43.4 (8.4)	43.1 (7.7)	$F(1, 228) = .10$	.76
Years of education, mean ( $SD$ )	11.3 (1.9)	11.3 (1.8)	11.3 (1.9)	$F(1, 228) = .01$	.92
Days worked in last 30 days, mean ( $SD$ )	4.9 (8.8)	3.8 (7.6)	5.6 (9.4)	$F(1, 228) = 2.5$	.12
Ever inject drugs (yes), $n$ (%)	123 (53.5)	51 (54.8)	72 (52.6)	$\chi^2(1) = .12$	.73
Previous methadone treatment (yes), $n$ (%)	107 (46.5)	39 (41.9)	68 (49.6)	$\chi^2(1) = 1.3$	.25
Age of onset of heroin use, mean ( $SD$ )	21.5 (7.0)	21.7 (7.2)	21.4 (6.8)	$F(1, 228) = .13$	.72
Treatment Readiness, mean ( $SD$ )	38.5 (2.1)	37.8 (2.1)	39.0 (1.9)	$F(1, 228) = 19.1$	<.001

Note: Test statistic for Race was obtained by collapsing data into two categories: White ( $n = 49$ ) and African American/other ( $n = 181$ ).

TABLE 2

Participant outcomes by criminal justice supervision status

Variable	Probationers/ Parolees ( <i>n</i> = 93)	Non-Probationers/ Parolees ( <i>n</i> = 137)
Days of heroin use/last 30 days, mean ( <i>SE</i> )		
Baseline	28.4 (.73)	28.9 (.56)
4-month	3.5 (.77)	2.4 (.46)
12-Month	4.4 (.95)	5.8 (1.0)
Days of cocaine use/last 30 days, mean ( <i>SE</i> )		
Baseline	5.6 (1.0)	4.9 (.89)
4-month	2.1 (.53)	1.6 (.43)
12-Month	2.0 (.80)	1.8 (.50)
Days of illegal activity/last 30 days, mean ( <i>SE</i> ) <sup>†</sup>		
Baseline	7.0 (1.3)	7.2 (1.1)
4-month	.48 (.20)	.48 (.22)
12-Month	.29 (.12)	1.3 (.42)
Opioid-positive tests, mean ( <i>SE</i> )		
Baseline	.96 (.19)	.99 (.10)
4-month	.41 (.07)	.41 (.05)
12-Month	.34 (.06)	.44 (.06)
Cocaine-positive tests, mean ( <i>SE</i> ) <sup>‡</sup>		
Baseline	.58 (.06)	.42 (.05)
4-month	.38 (.06)	.32 (.05)
12-Month	.35 (.06)	.38 (.05)

*Note:* Means for opioid-positive tests and cocaine-positive tests are predicted probabilities from the GEE model. *N* = 230 at baseline, 216 at 4 months (7 incarcerated; 2 refused; 5 unable to locate), and 210 at 12 months (7 incarcerated; 2 refused; 2 deceased; 9 unable to locate). Only 4 and 12 month data were included in analyses for opioid drug-testing results, as baseline data could not be included due to inadequate variation. Therefore, standard deviations are shown for the baseline means for this variable

<sup>†</sup>Interaction between CJ status and Time significant (*p* = .018).

<sup>‡</sup>Interaction between CJ status and Time significant (*p* = .012).