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## Drug-abusing offenders with co-morbid mental disorders: Problem severity, treatment participation, and recidivism

Adi Jaffe, Ph.D.<sup>\*1</sup>, Jiang Du, M.D.<sup>\*2</sup>, David Huang, Ph.D.<sup>1</sup>, and Yih-Ing Hser, Ph.D.<sup>1</sup>

<sup>1</sup>University of California, Los Angeles, Integrated Substance Abuse Program (ISAP) 10075 Santa Monica Blvd., Suite 200, Los Angeles, CA, 90025

<sup>2</sup>Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine 600 South Wanning Road, Shanghai, China, 200030

### Abstract

This study examined problem severity, treatment participation, and recidivism among 1,016 offenders with co-occurring mental disorders who participated in California's Proposition 36. Participants were assessed using the Addiction Severity Index (ASI) at baseline and their records on mental health diagnoses, drug treatment participation, and arrests were also obtained. Participants' co-occurring disorder (COD) severity was classified as mild or severe based on specific mental health diagnoses. Predictors of recidivism were examined among mild-COD and severe-COD participants separately using ordinal logistic regression. Results indicate that while previous arrests, education, and treatment retention length are predictors of recidivism generally, gender, age, primary drug, ASI drug severity score, and treatment modality are differentially important depending on COD status. These results underscore the need for COD focused intervention strategies among offenders, taking into consideration the severity of their COD status.

### Keywords

Drug abuse; Offender; COD; Severity; Recidivism; Mental Health

## 1. Introduction

The co-occurrence of mental health disorders in substance abusing populations, or of substance use disorders (SUD) in mentally ill individuals, has generated considerable research interest for over three decades (Grant, Gillis-Light, Magee, Kender, Eaves, 2004; Kessler et al., 1997; Regier et al., 1990). Epidemiological studies have shown that 55% - 69% of individuals with a SUD have a co-occurring mental health disorder (Watkins et al., 2004) and that as many as 60% of those who have been diagnosed with a mental health disorder have co-occurring SUD. It has been estimated that in the United States, 7 to 10 million individuals show evidence of such co-occurring disorders (COD) (U.S. Department of Health and Human Services, 2002). Importantly, the association between SUD and mental health problems does more than simply present more complex clinical cases, and

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Corresponding author: Adi Jaffe, Ph.D., adi@ucla.edu.

\*Co-Lead authors

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studies have identified substance abuse as a risk factor for increased violence among individuals with mental disorders (Newhill and Mulvey, 2002) and COD individuals as more likely to be arrested, incarcerated, and spend more time incarcerated than those substance abusers without mental disorders (Monahan, 1992; Drake and Wallach, 1989). Additionally, SUD treatment success has been found to be reduced and re-arrest rates higher among individuals with severe mental health dysfunction, defined as schizophrenia, bipolar, or antisocial personality disorder. This is especially true among SUD clients diagnosed with schizophrenia or bipolar disorder. As a result, substance-abusing offenders with co-morbid mental disorders represent a particular challenge to substance abuse treatment.

Representing a significant change in criminal justice policy, California's voter-initiated Proposition 36 set aside \$120 million annually between 2000-2005 to provide community-based treatment to drug offenders who would have otherwise likely not received it. Eligibility criteria include arrest for a non-violent drug offense with no other concurrent charges and no recent offenses involving injury to a victim. Eligible offenders are offered treatment in lieu of incarceration and are allowed three attempts at treatment following conviction. Participants who successfully complete the Proposition 36 program can have their criminal conviction expunged, which is meant to serve as an incentive for retention and active treatment participation .

While some general positive findings have been reported for Proposition 36 offenders (Evans, Longshore, Prendergast, Urada, 2006; Evans, Li, Hser, 2008; Hser, Huang, Teruya, Anglin, 2003), little is known about the impact of Proposition 36 on COD offenders, especially when it comes to the impact of different levels of COD severity. Specific questions of interest include:

1. What are the presenting problems and needs among this particular offender group?
2. What treatment do COD offenders receive and for how long?
3. What are their recidivism rates and what factors are related to recidivism?
4. Are predictors of recidivism different in mild-COD (i.e., single mental health diagnosis excluding psychosis and bipolar disorders) versus severe-COD offenders?

The answers to these questions will likely have important implications for improving Proposition 36 strategies when it comes to treating this unique population. The purpose of the research presented here is to fill the current knowledge gap by addressing these important questions based on a large sample of Proposition 36 COD offenders. We expect to find variation in treatment assignment, and outcome-success, based on COD severity with likely divergence in specific factors important to each. Specifically, we hypothesize that severe-COD offenders will be more likely to recidivate than mild-COD offenders and that therefore more rigorous treatment modality assignment (i.e., residential treatment) will be more important for severe-COD offenders when it comes to predicting recidivism outcome.

## 2. Methods

### 2.1 Sample and participants

Data were derived from a larger project, "Treatment System Impact and Outcomes of Proposition 36 (TSI)," which was a National Institute on Drug Abuse (NIDA)-funded multisite prospective treatment outcome study designed to assess the impact of Proposition 36 on California's drug treatment delivery system. Mental health service utilization data were acquired from the California Department of Mental Health (DMH) and only TSI participants with DMH records and complete data were used in the present analysis. Of

7,418 offenders who participated in TSI, 1,444 offenders met COD criteria given that only severe and disabled individuals can qualify to receive services from the public mental health system. Of those 1,444 COD offenders, 1,016 having complete data records made up the final sample. An analysis of group differences between the 1,016 participants in the final sample and the remaining 328 offenders revealed a significant difference in age, with the incomplete-data participants being older by 2.4 years, and in retention, with complete-data participants ( $\mu = 126$ ,  $SD = 88$ ) staying in treatment longer than those with incomplete data ( $\mu = 109$ ,  $SD = 83$ ). No differences were found for education, ethnicity, or gender. Arrest histories from the California Department of Justice (DOJ) were incorporated for these participants. For the purposes of the present analysis, we divided our sample into mild- and severe-COD groups. Participants were classified as mild-COD if they had no more than one lifetime diagnosis and if that diagnosis did not include psychosis or bipolar disorders. All participants with psychosis or bipolar diagnoses, as well as those with more than one MH diagnosis we classified as severe-COD. These criteria were selected based on literature supporting the increased mental health severity of schizophrenia and bipolar disorder over affective disorders and by the notion that multiple lifetime diagnoses are an indication of more severe mental health dysfunction than a single diagnosis.

All study procedures were approved by the UCLA Institutional Review Boards and at the California Health and Human Services Agency.

## 2.2 Instruments and Measures

**2.2.1 Problem severity** was measured at baseline assessment upon treatment admission using the Addiction Severity Index (ASI). The ASI is a semi-structured instrument that assesses a range of problems, including drug and alcohol use, medical and psychiatric health, employment, legal status, and family and social relationships (McLellan et al., 1992). Each of these domains yields a composite score ranging from 0 to 1, with higher scores indicating greater problem severity. In the logistic regression we included ASI scores multiplied by 10 to ease interpretation of odds ratios. The reliability and validity of the ASI have been established in diverse ethnic populations. Demographic information and primary drug of use information from the ASI was also incorporated.

**2.2.2 Mental health diagnoses** were obtained from the California Department of Mental Health (DMH). DMH maintains the Client and Service Information (CSI), a database with psychiatric diagnoses for clients treated in mental health facilities that received DMH funds (excluding state hospitals). Data included the number of times per diagnosis within each category before TSI administration date and was reduced to a dichotomous designation of “present” or “absent” for each diagnosis per client. Using the dichotomous variables we then assigned participants to the mild-COD condition if their data indicated the presence of a single mental health diagnosis except for bipolar disorder or psychosis; we assigned participants to the severe-COD group if their data indicated the presence of *more than one* MH diagnosis of any kind or a diagnosis of bipolar or a diagnosis of psychosis.

**2.2.3 Drug treatment** was extracted from the California Alcohol and Drug Data System (CADDSS), a database that contains comprehensive information on participants in publically-funded alcohol or drug treatment programs maintained by the California Department of Alcohol and Drug Programs. We specifically extracted information about modality *data* (outpatient drug-free, methadone maintenance, and residential treatment) and retention length.

**2.2.4 Arrest information** was acquired from the California Department of Justice on all individuals. Arrests that occurred during the 12 months before and after assessment for Proposition 36 treatment were analyzed. Participants’ recidivism outcome was determined

based on the number of post admission arrest and were categorized as no arrests, one arrest, or multiple arrests.

## 2.3 Data Analysis

Descriptive statistics (mean or percentage) are provided for the total sample as well as for mild- and severe-COD participants separately. Differences between the two groups based on COD severity were tested using independent t-tests for continuous variables and chi-square tests for categorical variables. Ordinal logistic regression analysis examined predictors of recidivism outcome (0 = no arrests during the 12 months post admission, 1 = one arrest during the 12 months after admission, and 2 = more than one arrest during the 12 months post admission). It is important to note that when interpreting the odds ratios (O.R.'s) in our ordinal logistic regression, each O.R. stands for the probability of having no arrest versus having one or more arrests (i.e., recidivism = 0 versus recidivism = 1 or 2) *and* the probability of having one arrest or less versus having more than one arrest (i.e., recidivism = 0 or 1 versus recidivism = 2). The underlying assumption of the analysis is that the slope of the regression equations for both comparisons is equal (i.e., the parallel trend assumption). We modeled mild-COD and severe-COD outcomes separately to investigate factors influencing recidivism as moderated by mental health diagnosis severity. Variable selection relied on theoretical grounds (e.g., treatment modality), data availability (e.g., ASI composites), statistical control (e.g., demographics), and exploratory examinations (e.g., Meth by Gender interaction). Statistical significance was set at  $p < 0.05$  for all tests. All statistical analyses were done with SAS version 9.2.

## 3 Results

### 3.1 Participant Characteristics

The study sample of 1,016 Proposition 36 clients consisted of 577 men and 439 women (Table 1). The overall mean age was 35.5 (SD = 9.9) years, with no difference between mild- and severe COD patients. The sample was mostly White (58.0%), followed by Hispanic (21.5%) and Black (15.1%) participants; there was no difference in ethnic composition between the two COD groups.

Severe-COD participants were significantly less likely to be employed, had less young children and were more likely to have their parental rights terminated while having suffered significantly more lifetime physical abuse (Table 1). Severe-COD participants also had a significantly higher number of previous lifetime SUD treatment attempts and significantly greater indications of employment, medical, and psychiatric dysfunction based on ASI subscale scores (Table 2).

### 3.2 Mental health status, family function, physical abuse, and sexual abuse history

Mild-COD patients were generally less likely to have been diagnosed with any of the mental health diagnoses examined in our database (See table 3). One of the major exceptions to this rule is the slightly higher, though not significantly so, prevalence of attention disorders among the mild-COD (9.1%) versus severe-COD (8.1%) group. Depression was the most common diagnosis in both COD severity groups and the predominant diagnosis in the mild-COD group (45.2%). In the severe-COD group, depression diagnosis prevalence (54.2%) was closely followed by bipolar disorder diagnosis (45.5%).

### 3.3 Substance abuse treatment

No differences were found between mild- and severe COD offenders on ultimate retention in treatment. This was true for both continuous days-of-retention and the categorical month-or-less, more-than-one-month, or more-than-three-months categories. As indicated in Table 4,

outpatient treatment was the most-attended treatment modality (77.6%) followed by residential treatment (17.5%) and Methadone Maintenance (MM; 4.9%). Significant differences were observed in treatment assignment whereby severe-COD participants (4.9%) were assigned to MM treatment more often than mild-COD participants (2%).

### 3.4 Treatment outcome (recidivism)

Overall, recidivism rates were greater than 50%, a finding that held when looking at the mild- and severe-COD groups as well. The mild-COD group (43.5%) was substantially more likely than the severe-COD groups (37.9%) to report no additional arrests in the 12 months following treatment admission although this difference was not sufficient to cause the two groups to significantly differ from each other on the overall recidivism variable. Ordinal logistic regression analysis was conducted resulting in satisfactory convergence and no violation of the proportional odds assumption ( $\chi^2(22) = 27.2, p > .05$ ). Results of the ordinal logistic regression analysis predicting recidivism, including odds ratios, are presented in table 5. For the overall model, the risk factors included previous arrests, cocaine as a primary drug (versus all other drugs including methamphetamine), greater ASI drug severity score, enrollment in Methadone Maintenance (relative to outpatient), and spending money on alcohol in the past 30 days. Protective factors included being older than average, having more years of education, participating in residential treatment (relative to outpatient), and a greater length of retention. Additionally, the significant methamphetamine by gender interaction indicated that methamphetamine abusing women were less likely to recidivate than the rest of the sample (i.e., all men and women whose primary drug of abuse is not methamphetamine). Ordinal logistic regression results modeled separately for mild-COD and severe-COD participants revealed some important differences. While the number of previous arrests, education, and length of retention remained significant predictors of recidivism for both groups, the specific primary drug of abuse (i.e., Cocaine, O.R. = 2.5) as well as the treatment modality (Residential O.R. = 0.6, Methadone Maintenance O.R. = 3.8) and money spent on alcohol in the past 30 days (O.R. = 1.1 per \$10 spent) were found play a significant role in describing recidivism only among severe-COD participants. Conversely, for mild-COD participants, only ASI drug-composite scores (O.R. = 1.4 per 0.1 sub-scale change) and the protective interaction between female gender and methamphetamine use (O.R. = 0.4) were found to be significant factors in recidivism.

## 4. Discussion

The purpose of this study was to examine the specific needs with which COD offenders enter Proposition 36 treatment, their treatment participation, and to explore the relationship of those factors with post-treatment recidivism for mild- and severe-COD participants. Our results indicate that Proposition 36 participants who present with COD problems are of a similar age, gender, and racial makeup as the general Proposition 36 populations. Unemployment rates were high in our sample, and especially so among the severe-COD group, a finding that is not surprising but which suggests a great difficulty for this group to be self-sufficient after an arrest. When examining the predictors of recidivism in this population, our overall model was somewhat consistent with previous work. Significant risk factors associated with a greater likelihood and a greater extent of recidivism in the 12 months post baseline included a greater number of previous arrests, primary use of cocaine, a higher ASI drug sub-score, greater recent use of alcohol as measured by the amount of money spent on alcohol in the past 30 days (self-report), and enrollment in MM treatment (relative to outpatient drug free treatment), which was utilized exclusively by individuals reporting primary heroin/opiate use. Protective factors included greater education, older age, and greater treatment retention, and residential treatment (relative to outpatient drug free treatment). Education, age, and previous arrests are very commonly found to be associated

with different criminal justice outcomes, especially with SUD populations (Pelissier et al., 2003; Messina et al.; 2006; Hser et al., 2003), and residential treatment has consistently been shown to produce superior outcomes to outpatient treatment, especially when COD individuals present with severe mental illness (Brunette, Mueser, Drake, 2004; Drake, Mueser, Brunette, McHugo, 2004; Hubbard, Craddock, Anderson, 2003). However, while it can be assumed that residential treatment was more successful in preventing recidivism due to the increased amount of time participants spent in a controlled setting, the finding that MM treatment resulted in more recidivism among severe-COD offenders can most likely be attributed to the greater criminal activity, at least in terms of property crime, common to heroin addicts (Seigny, Coontz, 2008).

Our ordinal logistic analysis of recidivism confirmed our initial hypothesis that the mild- and severe-COD groups were indeed different in terms of the factors important in their recidivism likelihood. Specifically, we found that age, gender, and the primary drug of abuse were not significantly associated with different recidivism outcomes for mild-COD participants. However, greater drug abuse severity was found to be a very robust predictor of increased recidivism, while relatively low recidivism was found among females who reported primary use of methamphetamine in this group. Conversely, within the severe-COD group, cocaine use, treatment modality assignment, and recent alcohol use were all found to be significantly associated with recidivism outcome although the latter provided a relatively minor effect (O.R. = 1.1 indicating a 10% increase in recidivism likelihood for every \$10 spent on alcohol in the last 30 days) that overlapped greatly with the non-significant effect for the mild-COD group.

Previous studies have reported that SUD individuals who present with co-occurring mental health issues often achieve lower success rates in addiction treatment and greater criminal justice involvement (Messina et al., 2006; Hser et al., 2003). Our goal was to examine whether these findings are replicated within the Proposition 36 population as well as to ascertain whether the degree of COD problem in this population had any effect on the specific presenting problems and factors associated with recidivism outcome.

Our findings suggest that COD severity is not only useful a distinguishing factor among Proposition 36 offenders but that it may also offer utility in terms of treatment assignment and assessment. Specifically, when assessing COD offenders, knowledge regarding their classification as mild- or severe-COD may be useful in deciding whether to assign them to residential or outpatient treatment. While this distinction seems to matter less for mild-COD offenders, our results indicate that it may be very important among the severe-COD group.

Additionally, our findings indicate that primary drug assessment as well as even a cursory assessment of recent drug and alcohol use may help to identify individuals who require specific attention in order to reduce their likelihood of recidivism. This can be especially crucial for identifying severe COD offenders who are primarily using cocaine as use of cocaine was found to confer greater recidivism risk even when treatment modality was controlled for.

The present study has a number of limitations that need to be considered including the fact that participant intake data are largely based on self-report, and as such is subject to concerns over reliability and validity. However, the instruments used in this study have been used in similar studies with this population and have been shown to produce high validity and reliability. Additionally, the use of complete-data only limits the generalizability of our findings somewhat given some of the noted differences between the full sample and the utilized sample although we tried to strike a careful balance here by using a parsimonious model to control case removal due to incomplete data. The study sample is also restricted to

those who have mental health records thus may include some of the more severe cases. We attempted to address this issue by examining the level of COD severity as a stratifying factor, identifying measurable differences between the two groups. The outcome for the present study is limited to recidivism, a more comprehensive set of outcome measures including drug use and mental health will be desirable. We attempted to increase the utility of the recidivism measure somewhat by using not a dichotomized outcome but rather one with three possible outcomes – no arrests, one arrest, and more than one arrest – providing a more nuanced analysis. Indeed, such efforts do not address functioning in other domains but did hopefully improve our examination for recidivism. Our comparison of sub-sample effects via their presented results without the specific addition of cross-group interaction effects for all predictors can also be viewed as a limitation, especially in terms of discussing inter-group differences (Gelman & Stern, 2006). Finally, the follow-up period used in this study is limited to 12 months post treatment admission, thus limiting potential differences that may be revealed over longer periods of observations.

Our analysis reveals the significant barriers to success common to COD offenders who present for SUD diversion treatment through Proposition 36 in California. Indeed, it is likely that these barriers are not unique to California offenders under Proposition 36 but apply more broadly to COD offenders. As such, our analysis suggests that while difficult, specific assessments regarding the severity of their COD condition as well as of related issues such as their primary drug of abuse, gender, and recent behavior may help decision makers in assigning such offenders to appropriate treatment that will increase their probability of success while reducing the likelihood that they will re-offend, at least within a year of the initial conviction.

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**Table 1**

## Baseline characteristics of the sample

	Severe-COD (n=607) % or Mean(SD)	Mild-COD (n=409) % or Mean(SD)	Overall (n=1016) % or Mean(SD)
<b>Age</b>	35.9 (9.8)	34.9 (10.0)	35.5 (9.9)
<b>Female</b>	43.5	42.8	43.2
<b>Ethnicity</b>			
White	57.9	58.2	58.0
Black	15.7	14.1	15.1
Hispanic	21.1	22.0	21.5
Others	5.3	5.7	5.4
<b>Marital Status</b>			
Married/re married	13.7	14.7	14.1
Widowed/Separated /divorced	38.4	35.0	37.0
Never Married	47.9	50.3	48.9
<b>Employment</b> ***			
Employed full time/Part time	18.7	27.5	22.2
Not in the Labor Force/ Unemployed	81.3	72.5	77.8
<b>Education</b>	11.6 (2.1)	11.5 (1.7)	11.6 (1.9)
Less than high school	43.6	45.4	44.4
High school or more	56.4	54.6	55.6
Money spent on alcohol in past 30 days	15.2 (88.1)	12.6 (52.2)	14.2 (75.9)
Number of children under 17 *	1.2 (1.6)	1.5 (1.8)	1.3 (1.6)
Parental rights terminated **	8.6	5.4	7.3
Physically abused (lifetime) *	52.2	46.1	49.8
Sexually abused (lifetime) †	34.9	28.8	32.4

\*  $p < .05$ \*\*  $p < .01$ \*\*\*  $p < .001$ †  $.05 < p < .10$

**Table 2**

Drug abuse history, drug abuse treatment history, and criminal history of the sample

	Severe-COD % or Mean(SD)	Mild-COD % or Mean(SD)	Overall % or Mean(SD)
<b>Primary drug used</b>			
Alcohol	8.1	7.2	7.7
Meth	50.7	53.9	52.0
Heroin/Opiates	11.0	9.0	10.2
Cocaine	12.5	10.7	11.8
Marijuana	12.8	12.0	12.5
<b>Lifetime drug/alcohol Treatment</b> ***	3.3 (5.6)	2.2 (3.0)	2.8 (4.8)
<b>ASI score</b>			
Alcohol Severity	0.09 (0.17)	0.09 (0.16)	0.09 (0.17)
Drug	0.14 (0.12)	0.13 (0.11)	0.14 (0.11)
Employment *	0.80 (0.25)	0.77 (0.27)	0.79 (0.26)
Family	0.18 (0.21)	0.18 (0.21)	0.18 (0.21)
Legal	0.23 (0.19)	0.24 (0.18)	0.24 (0.18)
Medical **	0.32 (0.37)	0.26 (0.33)	0.30 (0.35)
Psychiatric ***	0.31 (0.25)	0.21 (0.23)	0.27 (0.25)
<b>Criminal behavior</b>			
Number of previous arrests (12 months)	2.4 (1.9)	2.4 (2.0)	2.4 (1.9)
Incarcerated in the 30days prior	33.8	29.1	31.9

\*  
 $p < .05$ \*\*  
 $p < .01$ \*\*\*  
 $p < .001$

**Table 3**

Mental health status for the overall sample and for the mild- and severe-COD groups

	Severe-COD % or Mean(SD)	Mild-COD % or Mean(SD)	Overall % or Mean(SD)
<b>Mental disorders</b>			
Depressive disorder **	54.2	45.2	50.6
Anxiety disorder **	13.7	7.3	11.1
Attention disorder	8.1	9.1	8.5
Psychotic Disorder *	1.3	0	0.8
Bipolar disorder ***	45.5	0	27.2

\*  
 $p < .05$ \*\*  
 $p < .01$ \*\*\*  
 $p < .001$

**Table 4**

Post arrest treatment assignment, retention, and recidivism outcome

	Severe-COD % or Mean(SD)	Mild-COD % or Mean(SD)	Overall % or Mean(SD)
<b>Treatment Modality Utilized *</b>			
MMT	4.9	2	3.7
Outpatient	77.6	79.2	78.3
Residential	17.5	18.8	18.0
<b>Retention</b>			
<30 days	9.7	9.1	9.5
31-89 days	26.5	26.6	26.5
>90 days	63.8	64.3	64.0
<b>Retention days</b>	125.7 (87.1)	124.4 (88.0)	125.2 (87.4)
<b>Recidivism</b>			
No arrests	37.9	43.5	40.2
One Arrest	24.7	20.3	22.9
More than one arrests	37.4	36.2	36.9

\*  
 $p < .05$ \*\*  
 $p < .01$ \*\*\*  
 $p < .001$ †  
 $.05 < p < .10$

**Table 5**

Logistic regression predicting recidivism at 12-month follow-up for the overall sample and stratified by COD severity

	Odds ratio (95%CI)		
	Total	Mild COD	Severe COD
Severe COD (Versus mild-COD)	1.2 (0.9-1.5)	NA	NA
Number of prior arrests	<b>1.2 (1.1-1.3) ***</b>	<b>1.2(1.1-1.4) ***</b>	<b>1.2 (1.1-1.4) ***</b>
Age (per 10 years; centered)	<b>0.9 (0.8-1.0) †</b>	1.0 (0.8-1.3)	<b>0.8 (0.6-0.9) **</b>
Female (vs. male)	0.8 (0.6-1.2)	0.9 (0.5-1.7)	0.7 (0.5-1.2)
Education (per year; centered)	<b>0.9 (0.8-0.9) ***</b>	<b>0.8(0.7-0.9) ***</b>	<b>0.9 (0.8-0.9) **</b>
<b>Primary drug</b>			
Cocaine	<b>2.0 (1.3-3.2) **</b>	1.5 (0.7-3.4)	<b>2.5 (1.4-4.5) **</b>
Meth	1.0 (0.7-1.4)	1.2 (0.7-2.1)	0.9 (0.6-1.4)
ASI Drug Composite (per 0.1)	<b>1.2 (1.1-1.4) **</b>	<b>1.4 (1.1-1.8) **</b>	2.5 (0.5-13.3)
<b>Modality(vs. Outpatient)</b>			
Residential	<b>0.6 (0.4-0.8) ***</b>	<b>0.5 (0.3-0.9) *</b>	<b>0.6 (0.4-0.9) ***</b>
Methadone Maintenance	<b>4.4 (1.9-10.2) ***</b>	NA <sup>†</sup>	<b>3.8 (1.6-9.3) ***</b>
Retention (per week)	<b>0.97 (0.96-0.98) ***</b>	<b>0.95 (0.92-0.97) ***</b>	<b>0.98 (0.96-0.99) ***</b>
Money spent on alcohol in past 30 days (per \$10)	<b>1.1 (1.0-1.2) **</b>	1.1 (0.9-1.2)	<b>1.1 (1.0-1.2) *</b>
Meth <sup>*</sup> Female	<b>0.57 (0.3-1.0) *</b>	<b>0.4 (0.2-0.9) *</b>	0.7 (0.4-1.4)

All models controlled for: Race and all ASI composites (other than Drug which is included as a predictor)

\*  $p < 0.05$

\*\*  $p < 0.01$ .

\*\*\*  $p < 0.001$

<sup>†</sup>NA – Variable was not used in specific analysis due to small sample size of mild-COD treated in MMT (n=8)